

[6450-01-P]

DEPARTMENT OF ENERGY

**Record of Decision:
Environmental Impact Statement
for the Nevada Test Site and Off-Site
Locations in the State of Nevada**

AGENCY: Department of Energy

ACTION: Record of Decision

SUMMARY: The Department of Energy (DOE) is issuing this Record of Decision on the management and operation of the Nevada Test Site and other DOE sites in the State of Nevada. This Record of Decision is based on the information and analysis contained in the Final *Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada*, DOE/EIS-0243, and other factors, including the mission responsibilities of the Department, and comments received on the draft and Final Environmental Impact Statement. DOE has decided to implement a combination of three alternatives analyzed: Expanded Use; No Action (i.e., status quo); and Alternate Use of Withdrawn Lands. Most activities will be pursued at levels described by the Expanded Use Alternative. However, low-level and mixed low-level waste management activities will be conducted at levels described by the No Action Alternative, pending decisions by DOE under the *Waste Management Programmatic Environmental Impact Statement*, DOE/EIS-0200, now in preparation. Also, DOE will initiate certain public education activities analyzed under the Alternate Use of Withdrawn Lands Alternative. This decision will result in the continuation of the multipurpose, multi-program use of the Nevada Test Site, under which DOE will pursue a further diversification of interagency, private industry, and public-education uses while meeting its Defense Program, Waste Management, and Environmental Restoration mission requirements at the Nevada Test Site and other Nevada sites, including the Tonopah Test Range, the Project Shoal Site, the Central Nevada Test Area, and on the Nellis Air Force Range Complex.

FOR FURTHER INFORMATION CONTACT: For further information on the Final Environmental Impact Statement or to receive a copy of the Environmental Impact Statement or other information related to this Record of Decision, contact: Bob G. Golden, National Environmental Policy Act Compliance Officer, U.S. Department of Energy, Nevada Operations Office, P.O. Box 98518, Las Vegas, NV 89193, (702) 295-2353.

December 9, 1996

Page 1

Legacy/main - 20

For information on the DOE National Environmental Policy Act process, contact: Carol M. Borgstrom, Director, Office of NEPA Policy and Assistance, U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585, (202) 586-4600, or leave a message at (800) 472-2756.

SUPPLEMENTARY INFORMATION:

Background

DOE prepared this Record of Decision pursuant to the regulations of the Council on Environmental Quality for implementing the National Environmental Policy Act (40 CFR Parts 1500-1508) and DOE's National Environmental Policy Act Implementing Procedures (10 CFR Part 1021). This Record of Decision is based on DOE's Final *Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada* (DOE/EIS-0243). The Nevada Test Site occupies approximately 3,496 square kilometers (1,350 square miles) in southern Nevada and is located approximately 105 kilometers (65 miles) northwest of Las Vegas. The DOE also manages several other sites in Nevada, including the Tonopah Test Range, Central Nevada Test Area, and Project Shoal Area located southeast of Fallon, Nevada.

Historically, the primary mission of the Nevada Test Site was to conduct nuclear weapons tests. Since the moratorium on testing began in October 1992, this mission has changed to maintaining a readiness to conduct tests if so directed by the President (under the "supreme national interest" withdrawal provision in the Comprehensive Test Ban Treaty) and participating in the Department's science-based stockpile stewardship program by serving as a site for various activities including subcritical experiments (i.e., explosively driven experiments with special nuclear material in which there is no self-sustaining nuclear reaction). In addition to stockpile stewardship, the Nevada Test Site continues to host a number of national defense-related programs. Other changing mission priorities include an increase in environmental restoration efforts at the Nevada Test Site, Tonopah Test Range, Project Shoal Site, Central Nevada Test Area, and Nellis Air Force Range Complex and a concurrent need for waste management activities.

The DOE is currently engaged in several other National Environmental Policy Act processes that include the Nevada Test Site as an alternate location for the action under consideration. These other National Environmental Policy Act reviews include programmatic environmental impact statements for Waste Management, Stockpile Stewardship and Management, Storage and Disposition of Weapons-Usable Fissile Materials, and the Continued Operation of the Pantex Plant. Inasmuch as these other Environmental Impact Statements identify potential new activities for the Nevada Test Site, the impacts of these activities are analyzed under the Expanded Use Alternative in the Final Environmental Impact Statement for the Nevada Test Site. However, the nature of the decisions in this Record of Decision with regard to these programmatic proposals is simply to reserve land and infrastructure at the Nevada Test Site pending completion of these programmatic reviews and their corresponding decision documents.

Alternatives Considered

DOE analyzed four use alternatives for the Nevada Test Site. A land use map containing site and zone categories was developed for each alternative. As part of each alternative, DOE activities at off-site locations were also addressed. The four use alternatives are as follows:

- **Alternative 1--Continue Current Operations (No Action).** Under this alternative, DOE activities and operations in five mission programs--Defense, Waste Management, Environmental Restoration, Nondefense Research and Development, and Work for Others--would continue in the same manner and degree as they have during the past 3 to 5 years. Under the Defense Program, two scenarios were examined. The first was limited to maintaining a readiness to resume underground nuclear testing, in accordance with Presidential direction, and emphasized the execution of science-based stockpile stewardship experiments and operations such as subcritical experiments. The second scenario also included one or more underground nuclear tests on Pahute Mesa or Yucca Flat as a result of an end to the moratorium on weapons testing, or an invocation of the "supreme national interest" provision of the Comprehensive Test Ban Treaty. Although no new initiatives or projects would be pursued or added under Alternative 1, present Waste Management programs and activities would continue at the Nevada Test Site. Environmental Restoration Program activities at the Nevada Test Site and off-site locations would continue in the form of characterization and remediation of contaminated areas or facilities. The DOE would continue to support ongoing Nondefense Research and Development Program operations but no new program initiatives would be pursued. Under the Work for Others Program, DOE would continue to host the projects and activities of other federal agencies at activity levels not exceeding those of the past 3 to 5 years.
- **Alternative 2--Discontinue Operations.** This alternative is defined as the discontinuation of the DOE Nevada Operations Office and interagency programs and operations at the Nevada Test Site and at off-site locations. Site support activities would be limited to environmental monitoring and security functions necessary for human health and security. All facilities would be placed in cold standby after operations have ceased. DOE would not maintain a state of readiness for nuclear weapons testing and there would be an overall discontinuation of other defense-related activities at the Nevada Test Site. Only minimum low-level and mixed waste disposal capability would be maintained under the Waste Management Program until Nevada Test Site waste-generating activities were completely shut down, at which time the waste disposal facilities would be closed. Currently inventoried Environmental Restoration Program sites would be discontinued and abandoned as is. All Nondefense Research and Development Program initiatives would be discontinued at the Nevada Test Site, including siting of the Solar Enterprise Zone. The Work for Others Program would cease and DOE would no longer host the projects and activities of other federal agencies.

- Alternative 3--Expanded Use.** The Expanded Use Alternative incorporates all the activities and operations under the Continue Current Operations Alternative, and increases some of those ongoing programs. This level of operation includes potential activities related to the programmatic decisions that may be made as a result of other DOE Environmental Impact Statements currently in progress. This alternative was developed in coordination with these other Programmatic Environmental Impact Statements. The analysis for this alternative bounds the maximum potential impact that could occur at the Nevada Test Site as a result of decisions made on the other DOE Environmental Impact Statements. The Defense Program activities at both the Nevada Test Site and the Tonopah Test Range would expand, primarily in the areas of stockpile stewardship and management, materials disposition, and nuclear emergency response. Waste Management activities would increase for low-level waste and mixed waste for wastes generated by DOE research and environmental cleanup and restoration programs within the State of Nevada and waste from other DOE and Department of Defense sites. The Environmental Restoration Program would continue, albeit potentially at an accelerated rate, at the Nevada Test Site and all off-site locations. The Nondefense Research and Development Program would continue to support ongoing program operations and pursue new initiatives, such as constructing and operating a solar power production facility and an Alternative Fuels Demonstration Project at the Nevada Test Site. Under the Work for Others Program, military use of airspace over the Nevada Test Site and the Tonopah Test Range would increase; use of certain lands on the test site by the military for training, research, and development would also increase.
- Alternative 4--Alternate Use of Withdrawn Lands.** All defense-related activities and most activities under the Work for Others Program would cease at the Nevada Test Site, with the exception that military use of air space over the Nevada Test Site could increase. Under the Waste Management Program, only radioactive wastes from DOE sites in Nevada would be accepted at the Nevada Test Site. The Environmental Restoration Program would continue at current levels or accelerate at the Nevada Test Site and all off-site locations. Parts of the Nevada Test Site could be returned to public domain, and other parts of the test site would be available for public education and recreation. Similar to the Expanded Use Alternative, an expanded Solar Enterprise Zone would be pursued that would include at least one of three sites in southern Nevada in addition to the two sites at the Nevada Test Site. Defense Program activities at the Tonopah Test Range associated with stewardship of the Nation's stockpile of nuclear weapons would continue.
- Preferred Alternative.** The DOE Preferred Alternative identified in the Final Environmental Impact Statement was Alternative 3, Expanded Use, plus the public education activities from Alternative 4. The Expanded Use Alternative represents a continuation of the multipurpose, multi-program use of the site and further represents a continuation and diversification of the DOE Nevada Operations Office and interagency programs and operations at the Nevada Test Site. The Expanded Use Alternative includes support for ongoing DOE Nevada Operations Office program categories defined in the Continue Current Operations Alternative, and also provides for increased use of the Nevada Test Site and its

related resources and capabilities. This alternative would also make the Nevada Test Site more available to both public and private institutions for purposes of demonstrating new technologies. Public education activities from Alternative 4 include establishing educational tour routes on the Nevada Test Site and promoting the concept of creating a nuclear era museum that would highlight the Nevada Test Site testing activities. Tours would allow the public to see firsthand some of the history and impacts of past nuclear testing. These activities would be an important contribution to public understanding of the Nation's nuclear testing and Cold War Era history.

Environmentally Preferable Alternative

The Council on Environmental Quality, in its response to comments on 40 CFR 1505.2, defined the "environmentally preferable alternative" as the alternative that best promotes the national environmental policy. The Final Environmental Impact Statement analysis shows that potential environmental impacts on the Nevada Test Site and off-site locations in Nevada from each of the use alternatives considered would be small.

After considering impacts to each resource area by program, the DOE has identified Alternative 1, under the "maintaining readiness" scenario, as the environmentally preferable alternative. Alternative 2 was identified as having the fewest direct impacts to the physical environment and to worker and public health and safety because all operations would cease. However, the indirect impacts of not restoring contaminated areas could be significant over the long term. In addition, Alternative 2 results in the most significant impacts to the regional economy from the loss of jobs and income and also removes the Nevada Test Site from national programs requiring a remote testing facility. Alternative 1 was identified as having fewer adverse impacts than Alternatives 3 and 4, both of which include development of new projects such as a solar power generation facility. Alternatives 2 and 4 would also result in longer-term impacts from the environmental burden and risks associated with untreated, stored, and buried wastes. Although DOE is adopting a portion of Alternative 1 as an interim measure (see **Decisions** section below), DOE is not selecting Alternative 1 in total as a long range approach for management of the Nevada Test Site because that Alternative does not allow for expansion of the multipurpose, multi-program uses of the site.

Environmental Impacts of Alternatives

DOE weighed environmental impacts as one factor in its decision making. DOE analyzed the potential impacts that might occur to land resources, air quality, noise, water resources, soils, biological resources, cultural resources, socioeconomics, and human health for the four alternatives. DOE considered the impacts that might occur from use of special nuclear materials, facility accidents, and the transportation of radioactive materials. DOE considered the impacts of projects and activities associated with the five program categories for each alternative, the irreversible or ir retrievable commitments of resources, and the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity.

Alternatives 1 and 3 both include a scenario under which one or more underground nuclear tests would be conducted if directed by the President. Impacts from conducting underground tests remain the largest unavoidable adverse effects of management of the Nevada Test Site. Existing drill holes would be used for potential underground nuclear tests. The construction of new facilities would have a minor, localized impact to the physical environment of the site and would not lead to significant off-site impacts. Geologic media contaminated by past underground nuclear testing would remain contaminated and unavailable for use at any site where underground nuclear testing has been conducted. Contaminated groundwater that could not be remediated would be unavailable for use.

The impacts of conducting subcritical experiments would be much less than those for underground nuclear testing since no self-sustaining nuclear reactions occur and much less radioactivity is deposited to the geologic environment. Subcritical experiments in support of stockpile stewardship programs would have the unavoidable adverse impacts of introducing additional radioactivity in the subsurface environment.

The incremental environmental impacts over baseline conditions from waste management activities under Alternatives 1 and 3 would be negligible. Under Alternative 3, some new facilities would create a slight increase beyond the impacts under Alternative 1. Under Alternatives 2 and 4, little change in impact would be seen over present conditions because most of the required land clearing, waste transportation, and geologic disturbance has already occurred.

Low-level waste at the Area 3 Radioactive Waste Management Site is disposed of in subsidence craters formed from past underground nuclear tests. The craters that are and would continue to be used at the Area 3 Radioactive Waste Management Site represent the unavoidable adverse impact that resulted from past underground nuclear tests. Use of the craters for waste disposal is a beneficial use of lands that have been significantly and unavoidably impacted by past actions. Expansion of waste management activities under Alternative 3 would occur in an area that has been previously disturbed and designated for radioactive waste management. Recent hydrological data support the current conceptual hydrogeologic model that no groundwater pathway exists beneath the Area 3 disposal craters.

Waste Management Program operations in Area 5 are more diverse and include facilities for hazardous and mixed waste management in addition to low-level waste management facilities. After 30 years of waste disposal operations, the DOE has not detected any contamination in groundwater monitoring wells near the Area 5 Radioactive Waste Management Site. No impact to groundwater from waste management operations in Area 5 would be expected to occur. Expansion of waste management activities under Alternative 3 would occur in an area that has been previously disturbed and designated for radioactive waste management.

The long-term effects of waste disposal operations have been evaluated as a part of the performance assessment process. Preliminary results of the Area 5 Radioactive Waste Management Site Performance Assessment indicate that the risk of potential exposure to the public from waste disposal activities through surface water is not significant. Based on results of field studies, the groundwater pathway and air pathways are not considered credible transport mechanisms.

Impacts from vehicle transportation of materials to and from the Nevada Test Site have been analyzed, including Defense Program nuclear material and waste management activities related to radioactive wastes and hazardous materials. The majority of the postulated injuries and fatalities in this analysis would be a result of traffic accidents and not a result of exposure to the transported material or waste. The results of the transportation risk analysis show that the human health risks from the transportation of material or waste are low under any alternative, and are not significant contributors to the total risk from all operations under these alternatives.

Approximately 7,500 acres of land would be disturbed during the environmental restoration activities under Alternatives 1, 3, and 4. Under Alternative 2, environmental restoration activities would cease. This would result in a condition of noncompliance with environmental requirements and limit the future use of the land. At the Nevada Test Site, surface disturbance associated with any remediation, construction, and new testing programs would cause unavoidable impacts on habitat. At the Nellis Air Force Range Complex, surface disturbance associated with any remediation programs would cause unavoidable impacts on habitat.

The most significant impact from the Nondefense Research and Development Program would occur under Alternatives 3 and 4 and would result from the siting and construction of the Solar Enterprise Zone facilities. The Solar Power Production Facility could result in up to 2,400 acres of new land disturbance.

In general, human health risks under each of the alternatives are expected to be dominated by occupational injuries to workers engaged in activities such as construction, maintenance, and excavation. Historically, actual injury and fatality rates at the Nevada Test Site have been lower than the average U.S. industrial rates used in the analysis. Occupational injury and fatality risks are reduced by strict adherence to DOE and Occupational Safety and Health Administration safety standards, practices, and procedures.

Under Alternatives 1 and 3, the maximum reasonably foreseeable radiological accident involves a non-nuclear explosion in an Area 27 nuclear weapons storage magazine. The accident has a probability of 1×10^{-7} per year and could result in injuries or deaths to nearby workers due to the physical impacts of the explosion or delayed radiation health effects. Radiation exposure from the accident could result in 13 latent cancer fatalities in the worker population at the next nearest facility, and from 3 to 55 latent cancer fatalities in the off-site population within 50 miles.

The maximum reasonably foreseeable chemical accident involves an airplane crash into the Spill Test Facility. The accident has a probability of 1×10^{-7} per year and could result in injuries or deaths to nearby workers due to the physical impacts of the crash or toxic effects of chemicals. Workers at the next nearest facility could experience non-life threatening health effects from exposure to airborne chemicals. The off-site population within 50 miles could experience up to 3 latent cancers if this accident were to occur.

The Consolidated Group of Tribes and Organizations has identified impacts to American Indian groups with traditional ties to the Nevada Test Site and surrounding areas. Impacts include continued reduced access to culturally significant areas, the potential for unauthorized artifact collection, and the potential for culturally inappropriate environmental restoration techniques. Because of the expansion of activities under Alternative 3, potential impacts would be greater than those listed under Alternative 1.

Comments on the Final Environmental Impact Statement

The DOE distributed approximately 1500 copies of the Final Environmental Impact Statement to Congressional members and committees, the State of Nevada, various American Indian tribes and organizations, local governments, other federal agencies, and the general public. Comments from the Environmental Protection Agency and the State of Nevada were received during the 30-day period following the filing of the Final Environmental Impact Statement with the Environmental Protection Agency.

The Environmental Protection Agency found that the Final Environmental Impact Statement was generally responsive to its prior comments. However, the Environmental Protection Agency recommended five areas be addressed in the Record of Decision:

Subsequent National Environmental Policy Act Documentation: The Environmental Protection Agency recommended that future tiered National Environmental Policy Act documents (including Environmental Assessments) be circulated for review and comment to all affected or interested parties and agencies, including federal, state, and local governments, tribal governments, and citizens to afford these agencies and individuals a full opportunity to participate in subsequent National Environmental Policy Act reviews.

The DOE will ensure that future tiered National Environmental Policy Act documents (including Environmental Assessments) are circulated for review and comment to all affected and interested parties in order to afford a full opportunity for them to participate in subsequent National Environmental Policy Act processes. Moreover, DOE will continue to implement DOE orders, guidance, and regulations regarding the National Environmental Policy Act in conjunction with internal public participation plans.

Use of Undisturbed Habitat for Future Tiered Projects: The Environmental Protection Agency also recommended future developments be sited in already-disturbed areas unless other overriding factors require placing such facilities in undisturbed areas.

DOE will develop and implement a Resource Management Plan for the Nevada Test Site that incorporates the goal that when possible; new facilities will be sited in, or as close as possible to, previously disturbed lands in order to preserve and protect undisturbed land.

Pollution Prevention: The Environmental Protection Agency comments also recommended that future proposals and projects at the Nevada Test Site and off-site locations in Nevada be designed, constructed, and operated with pollution prevention opportunities being a prime consideration.

Implementation of DOE orders, guidance, and regulations regarding pollution prevention have been and will continue to be a prime consideration in the evaluation of future proposals and projects at the Nevada Test Site and off-site locations in Nevada.

Polychlorinated Biphenyls: The Environmental Protection Agency requested that clarification of the status of polychlorinated biphenyls in capacitors located in Area 27 be included in the Record of Decision, along with a commitment to notify the Environmental Protection Agency of the status.

These capacitors are in service and included in the active inventory and are managed in accordance with 40 CFR Part 761. In the event that a decision is made that changes the status of the capacitors, the Environmental Protection Agency will be notified as required under applicable regulations.

Native American Concerns: The Environmental Protection Agency commended the DOE for specifically reflecting Native American concerns and considerations, and recommended the DOE continue to seek active Native American participation in future projects and proposals at the Nevada Test Site and off-site locations in Nevada.

DOE will continue to incorporate the Department's American Indian policy into its ongoing and long-term planning and management processes. Development and operation of programs that expand the use of the Nevada Test Site will be conducted within DOE's government-to-government relationship with tribal governments. DOE will consult with tribal governments concerning activities under these programs that may affect natural, cultural, traditional, and/or religious resources important to American Indians.

The State of Nevada comments identified five issues and made the following specific recommendations:

Assessment of the Nevada Test Site Land Withdrawal and its relationship to the Environmental Impact Statement No Action Alternative: The State of Nevada expressed the view that disposal of radioactive waste at the Nevada Test Site from off-site generators cannot be considered a continuation of current or past activities, and thus cannot be characterized as part of the No Action Alternative. Further, the State of Nevada asserted that DOE does not have the authority under existing land withdrawals that comprise the Nevada Test Site to support continuation of the radioactive waste disposal program at the Nevada Test Site.

DOE believes that the characterization of No Action as the continuation of past and current activities is proper and is consistent with guidance provided by the Council on Environmental Quality. In the case of ongoing activities, "... the 'no action' alternative may be thought of in terms of continuing with the present course of action until that action is changed." ("Forty Most Asked Questions," 46 CFR 18026, 18027, March 23, 1981.) For comparison purposes, Alternative 2 of the Environmental Impact Statement evaluated cessation of waste management activities.

As recognized by the State of Nevada in its comments, the radioactive waste disposal program began at the Nevada Test Site in the early 1960s as an activity related to testing of nuclear weapons, which is directly related to the land use designated in Public Land Order 805, dated February 12, 1952, reserving lands for the use of the U.S. Atomic Energy Commission. Since that time, DOE has disposed of radioactive waste in pits, trenches, landfills, and boreholes. The Nevada Test Site presently serves as a disposal site for low-level waste generated by DOE approved generators. In 1983, the Bureau of Land Management reviewed the land withdrawals for the Nevada Test Site pursuant to the requirements of the Federal Land Policy and Management Act of 1976 (Public Law 94-579). The Bureau of Land Management concluded that the lands were still being used for the purposes for which they were withdrawn. The withdrawal review also acknowledged the pursuit of other activities as described in the 1977 Nevada Test Site Environmental Impact Statement and did not find that they were inconsistent with the withdrawals. Although this formal determination by the Bureau of Land Management remains in effect, the Department is reviewing this issue in light of comments made during the preparation of the Environmental Impact Statement. To date, DOE's review confirms that its use of the Nevada Test Site continues to be consistent with the existing land withdrawals. However, in view of the comments submitted by the State and Department of Interior, and in view of the combination of activities selected, DOE commits to continue to consult with the Department of Interior's Bureau of Land Management as to whether the four major land withdrawals that comprise the Nevada Test Site need to be updated. As DOE has selected the No Action Alternative for management of low-level and mixed low-level wastes pending programmatic decisions regarding where the Department should manage these wastes, there will be no immediate changes in DOE's ongoing use of the lands for disposal of radioactive wastes.

DOE compliance with Programmatic decisions concerning the disposal of off-site generated low-level and mixed low-level radioactive waste at the Nevada Test Site as provided for under the National Environmental Policy Act regulations: The State of Nevada expressed the view that

DOE must complete its ongoing programmatic review for siting low-level and mixed low-level waste treatment and disposal facilities before making specific decisions that affect the Nevada Test Site, and that DOE must also recognize certain conditions for consideration of a Resource Conservation and Recovery Act Part B permit for new mixed waste disposal units for off-site generated waste at the Nevada Test Site.

As discussed in the **Decisions** section below, DOE will continue low-level and mixed low-level waste operations as described by the No Action Alternative until the programmatic review is completed. Once that review is completed, DOE will reexamine the low-level and mixed low-level waste activities at the Nevada Test Site to determine whether the status quo needs to be modified as a result of programmatic decisions. A new Record of Decision will be issued if appropriate. Any decisions to increase low-level and mixed low-level waste activities beyond the status quo would be implemented in full compliance with applicable laws and regulations.

Compliance with DOE disposal site(s) Performance Assessment Process as per DOE Order 5820.2A: Citing DOE Order 5820.2A, the State of Nevada expressed the view that receipt of radioactive waste and mixed radioactive wastes for disposal at the Nevada Test Site should be suspended until the performance assessment process is completed for all past, present, and future waste types.

DOE Order 5820.2A does not require that existing waste disposal operations cease until a performance assessment is prepared. DOE has prepared and continues to maintain a performance assessment for the Area 5 low-level Radioactive Waste Management Site at the Nevada Test Site. A performance assessment for the Area 3 Radioactive Waste Management Site is in process in conjunction with composite analyses for both the Area 5 Radioactive Waste Management Site and the Area 3 Radioactive Waste Management Site. A composite analysis is a planning tool used to reach interim decisions, pending implementation of a comprehensive approach through 10 CFR Part 834, regarding whether current low-level waste disposal activities will result in the need for future corrective or remedial actions to ensure protection of the public and the environment. However, as documented in the Environmental Impact Statement, DOE believes that sufficient information exists to demonstrate that waste can be disposed of at both sites in a safe manner.

Implementation of the Nevada Test Site Resource Management Plan and Clean-up Standards at Off-site Locations: The State of Nevada recommended that the Record of Decision contain a stipulation that the Resource Management Plan process will be completed in a specified time period, and commit to establishing a stakeholder advisory group to address Nevada Test Site development conflicts anticipated to arise in the future.

In the **Decisions** section below, the DOE commits to Resource Management and Comprehensive Land-Use Planning and development of a Resource Management Plan for the Nevada Test Site over the next two years. The Resource Management Plan will establish a process for managing resources to ensure long-term diversity and productivity of affected

ecosystems and sustainable use of land and facilities on the Nevada Test Site. Interested parties will have opportunities to provide input into the selection of goals developed to guide management of resource issues on the Nevada Test Site and to assist in the development of management actions needed to achieve those goals. Methods of ensuring interested party input such as establishment of a stakeholder advisory group will be evaluated and selected as the plan evolves.

Special Case Waste, Waste Classified as Greater-Than-Class-C, and/or Waste requiring Greater Confinement Disposal: The State of Nevada comments on the Final Nevada Test Site Environmental Impact Statement recommended that the Record of Decision stipulate that DOE will comply with the National Environmental Policy Act for disposal of radioactive waste that is not suitable for shallow land burial.

DOE will prepare appropriate further documentation to comply with the National Environmental Policy Act before making decisions regarding Special Case Waste, Greater-than-Class-C, or wastes requiring Greater Confinement Disposal. In any case, DOE will ensure that all wastes disposed of at the Nevada Test Site meet waste acceptance criteria that will protect human health and the environment.

Other Decision Factors

As a result of changing mission priorities, the DOE has a need to focus on new national security, energy, and environmental issues challenging the Nation and to define the role of the Nevada Test Site to help meet these new challenges. The policy considerations outlined below are factors in the decision process for continued and future management of the Nevada Test Site.

It is DOE policy to manage all of its lands and facilities as valuable national resources. DOE stewardship will be based on the principles of ecosystem management and sustainable development. This policy requires each site to integrate mission, economic, ecologic, social, and cultural factors into a comprehensive plan that guides land- and facility-use decisions with stakeholder involvement. This will result in land and facility uses that support the Department's critical missions, stimulate the economy, and protect the environment.

On September 24, 1996, President Clinton signed a Comprehensive Test Ban Treaty. It is the intention of the President to seek ratification of this Treaty as soon as possible. President Clinton has also established specific safeguards that define the conditions under which the United States has entered into the Comprehensive Test Ban Treaty. These safeguards are as follows:

- The conduct of a science-based stockpile stewardship program to ensure a high level of confidence in the safety and reliability of nuclear weapons in the active stockpile, including the conduct of a broad range of effective and continuing experimental programs.

- The maintenance of modern nuclear laboratory facilities and programs in theoretical and exploratory nuclear technology that would attract, retain, and ensure the continued application of our human scientific resources to those programs upon which continued progress in nuclear technology depends.
- The maintenance of the basic capability to resume nuclear test activities prohibited by the Comprehensive Test Ban Treaty should the United States cease to be bound to adhere to such a treaty.
- The continuation of a comprehensive research and development program to improve treaty-monitoring capabilities and operations.
- The continuing development of a broad range of intelligence gathering and analytical capabilities and operations to ensure accurate and comprehensive information on worldwide nuclear arsenals, nuclear weapons development programs, and related nuclear programs.
- The understanding that if the President of the United States is informed by the Secretary of Defense and the Secretary of Energy, advised by the Nuclear Weapons Council, the Directors of DOE's nuclear weapons laboratories, and the Commander of the U.S. Strategic Command, that a high level of confidence in the safety and reliability of a nuclear weapon type that the two Secretaries consider to be critical to our nuclear deterrent could no longer be certified, the President, in consultation with Congress, would be prepared to withdraw from the Comprehensive Test Ban Treaty under the "supreme national interest" clause in order to conduct whatever testing might be required.

The Nevada Test Site has both a demonstrated and a potential role in implementing several of these safeguard elements. For example, the Nevada Test Site's role in the implementation of the first of these safeguards is to participate in full partnership, for a common purpose, with the scientific and academic communities, business and industry, and stakeholders to advance the Nevada Test Site as a valued national resource. The Nevada Test Site provides the modern nuclear laboratory platform for theoretical and exploratory nuclear technology that can attract and retain the human scientific resources required for continued progress in nuclear technology development. With the end of nuclear testing, the DOE is enhancing its capability to perform science-based stockpile stewardship activities consistent with the Comprehensive Test Ban Treaty. Uncertainty in the behavior of aging stockpiled weapons will continue to increase with time and in the absence of testing. To ensure continued confidence in the safety and reliability of the United States' nuclear weapons stockpile, the DOE must enhance its capability to perform activities consistent with the Comprehensive Test Ban Treaty such as dynamic experiments (including subcritical experiments) and other hydrodynamic experiments to assess the condition and behavior of nuclear weapons in the enduring stockpile. As an additional contingency, the DOE must maintain the basic capability to conduct underground nuclear testing activities should the need arise, in accordance with Presidential direction. The experimental program at the Nevada Test Site includes aspects that support both the

Department's stockpile stewardship mission and its nuclear test readiness mission. Defense Program activities have been declining steadily in recent years resulting in the need to diversify user support at the Nevada Test Site. Diversification of users will offset infrastructure maintenance costs for Defense Programs necessary to allow the best use of limited stockpile stewardship resources and support the successful execution of the stewardship mission at the Nevada Test Site.

The Nevada Test Site, through its Work for Others Program, has supported improved treaty-monitoring capabilities. Chemical explosions at the Nevada Test Site have been used to develop and calibrate seismic and hydrodynamic detection and analysis techniques. Sensitive isotope analysis techniques, derived from nuclear chemistry applications to tests, are being developed for treaty monitoring and intelligence analysis. Development is being advanced by analysis of underground test residue and environmental studies at the Nevada Test Site.

Environmental restoration and waste management have been part of Nevada Test Site operations since the beginning of the Nation's nuclear testing program. Low-level waste has been generated through the weapons development, testing, and production activities at DOE facilities as well as the environmental cleanup and restoration programs. As DOE missions have changed, there is an increasing volume of waste generated through the environmental restoration activities. This waste must be disposed of in accordance with applicable regulations and DOE orders. Thus, the DOE has a need to continue providing practical, cost-effective, and environmentally sound means of low-level waste disposal. The potential expansion of the waste disposal mission at the Nevada Test Site is dependent on the pending decisions from the Waste Management Programmatic Environmental Impact Statement (e.g., centralized or regionalized waste management alternatives).

Through September 23, 1992, there were 928 nuclear tests conducted on the Nevada Test Site; no nuclear weapons tests explosions have been conducted since that date. Defense research and weapons-test verification activities were also conducted at the Project Shoal Area and the Central Nevada Test Area. From 1957 to 1963, several safety tests were conducted at sites at the Nevada Test Site, the Nellis Air Force Range Complex, and the Tonopah Test Range to test the safety of nuclear weapons in accident situations. Because these tests were not contained and used special nuclear materials and chemical explosives, they resulted in the release of radioactive materials and surface contamination. It is DOE policy to develop site remediation goals and cleanup levels for the Nevada Test Site and off-site test areas based on future land use and management goals for the protection of environmental resources. The DOE is working in cooperation with other agencies to define remediation and cleanup levels to ensure that the disposition of withdrawn lands is consistent with the controlling agencies' existing land-use or resource management plans.

In the National Defense Authorization Act for Fiscal Year 1993, Congress included a section that encouraged DOE to minimize the social economic impacts on workers and communities affected by the downsizing of defense-related facilities. This requirement, Section 3161 of the

Act, provided for various activities to mitigate the downsizing impact both for individual workers and communities near DOE sites. One of the methods DOE has used to implement this Congressional direction is to establish local Community Reuse Organizations to assist economic development efforts. The purpose for this is to provide employment opportunities for former workers and therefore minimize the economic impact on local communities. Section 3161 of the Act authorized DOE to pursue a workforce restructuring plan and initiate private sector economic development at DOE facilities in this effort.

Decisions

The Final Environmental Impact Statement identified Alternative 3, Expanded Use, plus the public education activities of Alternative 4, Alternative Use of Withdrawn Lands, as DOE's Preferred Alternative. Today DOE is deciding to implement a variation of this Preferred Alternative. As discussed below, DOE is deciding as an interim measure, to continue to conduct low-level and mixed low-level waste management activities in the same manner as it has in the past as represented by the No Action Alternative pending programmatic decisions. DOE is deciding to conduct all other activities consistent with the Preferred Alternative. The following discussion describes the major actions to be taken. This discussion is not intended to be exhaustive. Additional actions necessary to implement the major actions described may also be taken in support of the missions of the Nevada Test Site.

Resource Management and Comprehensive Land-Use Planning

As part of this comprehensive planning responsibility, DOE will develop a Resource Management Plan for the Nevada Test Site over the next two years. The Resource Management Plan will identify the site resources that will be considered when making land-use decisions. It will define the goals for each of those resources, and establish the criteria for evaluating activities against those goals. The goals will be used to identify actions needed for wise resource use and sound ecosystem management. DOE will follow the framework published as Volume 2 of the Final Environmental Impact Statement for development of the Resource Management Plan.

The DOE Nevada Operations Office will use the Resource Management Plan as a part of the comprehensive land-use planning process, along with the National Environmental Policy Act process to evaluate and select the best alternative sites for future proposed activities at the Nevada Test Site. The Resource Management Plan will also document a process for monitoring the impacts of activities. Results of such monitoring will be used to review and update the Resource Management Plan.

As has been its practice in the past, DOE remains committed to ensuring that its implementation of all the decisions made in this ROD complies with federal law and land withdrawal policies. In this regard, DOE commits to continuing its informal consultation with BLM as to whether the four major land withdrawals that comprise the NTS need to be updated.

Defense Program

Defense Program activities at the Nevada Test Site will emphasize stockpile stewardship experiments and operations to maintain confidence in the safety and reliability of the stockpile without underground nuclear testing. These stockpile stewardship activities will include exercises, operations, experiments (including subcritical experiments involving special nuclear material), and other hydrodynamic tests. Appropriate transparency measures will be used to ensure that activities conducted at the Nevada Test Site are clearly consistent with the Comprehensive Test Ban Treaty. The DOE will continue to maintain nuclear test readiness at the Nevada Test Site but would conduct an underground nuclear test only if so directed by the President under the "supreme national interest" provision of the Comprehensive Test Ban Treaty. Any such underground tests would only be conducted within the designated Nuclear Test Zone on the Nevada Test Site.

Over the next ten years, the DOE plans to conduct a wide variety of experiments within the appropriately zoned areas of the Nevada Test Site. This includes dynamic experiments with very small to very large quantities of high explosives, subcritical experiments, dynamic experiments to generate electrical pulses, and other experiment types. An upper limit estimate of the number of these activities has been made in order to assess their maximum reasonable potential environmental impact. While near-term planning indicates that only about four high explosive driven subcritical experiments will likely be conducted per year in the U1a complex, an upper-limit estimate total for all the defense related experiments that may be conducted at the Nevada Test Site is over 100 per year. The U1a complex (formerly known as the Lyner complex) and the Big Explosives Experiment Facility will be the principal sites for many of these experiments and tests. Dynamic experiments involving special nuclear material will be conducted only where containment is assured. The experiments planned at the Big Explosives Experiment Facility will include large high-explosive charges and potentially hazardous materials, such as beryllium, depleted uranium, deuterium, and tritium. Explosive charges of up to 32,000 kg (70,000 lb) in conjunction with some of the materials previously mentioned are contemplated as part of this activity. Existing facilities including the Device Assembly Facility and Area 27 will be used to prepare the explosives, special nuclear material, and other material required for these experiments.

The DOE will also reserve land and infrastructure on the Nevada Test Site to support the current test readiness and national security missions and to support future defense program activities. In addition to the Nuclear Test and Nuclear and High Explosive Test Zones which are available for compatible defense and nondefense activities, the DOE will also establish a Defense Industrial Zone around critical assembly areas. This zone will be dedicated solely to defense related activities and is an area in which various future stockpile stewardship and management facilities could be sited.

In addition to the stockpile stewardship mission at the Nevada Test Site, the DOE Nevada Operations Office will also continue to maintain the capability to locate, retrieve, and destroy damaged nuclear weapons.

The primary mission of DOE Defense Program activities at the Tonopah Test Range is to ensure that the Nation's nuclear weapons systems meet the highest standards of safety and reliability. The DOE will continue to conduct stockpile stewardship activities and assess the surety conditions of existing systems at the Tonopah Test Range.

In support of the ongoing programmatic analyses for Stockpile Stewardship and Management, Storage and Disposition, and Continued Operations of the Pantex Plant, the DOE will reserve land and infrastructure on the Nevada Test Site for the National Ignition Facility, nuclear weapons assembly/disassembly operations, and for long-term storage and disposition of weapons-usable fissile materials pending these programmatic decisions.

DOE will continue to conduct training and drills on the Nevada Test Site to exercise the technical disciplines of the Nation's Nuclear Emergency Search Team. This includes the construction of simulated nuclear assemblies (similar in construction to those used for nuclear explosive devices), and the conduct of high explosive experiments to investigate and baseline potential deployment scenarios. Additional training and drills will also be conducted on the Nevada Test Site for the Federal Radiological Monitoring and Assessment Center.

The DOE will continue to use the Nevada Test Site for the development of remote sensing, analytical, and display technology for detection of nuclear radiation in support of the Aerial Measuring System mission. The DOE Nevada Operations Office will continue to provide field response resources in support of nuclear weapons accidents, exercises, and training in support of Accident Response and the Radiological Assistance Programs.

Work for Others Program

The DOE Nevada Operations Office Work for Others Program will continue to be an important aspect of Nevada Test Site related activities. These ongoing activities primarily involve the Department of Defense, the Defense Special Weapons Agency, and other federal agencies. The primary focus of these activities are centered around treaty verification, nonproliferation, counterproliferation, demilitarization, and defense related research and development.

The Nevada Test Site and the Tonopah Test Range have been and will continue to be impacted by the implementation of current and future arms control treaties. DOE will continue to conduct those activities at the Nevada Test Site necessary for treaty verification and to develop verification technologies.

The DOE will continue to conduct research and development activities at the Nevada Test Site and the Tonopah Test Range to support the United States' nonproliferation goals and

objectives. The HAZMAT Spill Center provides unique capability in the development of chemical effluent remote sensors and will continue to be used periodically for this type of research and development.

Counterproliferation refers to the Department of Defense efforts to combat the international proliferation of weapons of mass destruction. Facilities for developing, producing, and storing weapons of mass destruction are likely to be located underground. Counterproliferation research and development is directed toward the detection, monitoring, and neutralization of buried targets.

The various tunnels and bunkers at the Nevada Test Site provide an ideal testing environment for counterproliferation research and development experiments. Experiments that use a variety of remote imagery and sensory applications in conjunction with Nevada Test Site bunkers and tunnels will be conducted to develop techniques and methods to detect, characterize, and monitor buried objects. Such experiments involve both land-based and airborne operations. Experiments designed to develop techniques for destroying or neutralizing weapons of mass destruction and buried objects, such as bunkers and tunnels, will also be performed. These experiments involve the surface and below ground detonation of conventional explosives in the immediate vicinity of the Nevada Test Site and Tonopah Test Range bunkers and tunnels.

The demilitarization activity proposed for the Nevada Test Site is a demonstration of potential technologies used to destroy obsolete conventional munitions, pyrotechnics, and solid rocket motors. The DOE will demonstrate technologies which can be used to assist with the demilitarization efforts of other federal agencies at the Nevada Test Site. These technologies will be tested in designated Research, Test, and Experiment Zones around the existing underground tunnels and facilities of Area 25 and would include destruction, recovery, reuse, and recycling technologies. This offers a unique opportunity to demonstrate environmentally sound methods involving conventional weapons destruction. These systems provide for the containment and treatment of residual debris.

Large-scale demilitarization activities at the Nevada Test Site designed to reduce significant portions of an obsolete munition would be subject to additional National Environmental Policy Act review and applicable federal, state, and local regulations.

Other defense related research and development activities include tests and training exercises employing weaponry, such as small arms, artillery, guns, aircraft, armored vehicles, demolitions, rockets, bazookas, and air-dropped armaments, as well as a variety of electronic imagery and sensory technologies, including, but not limited to, infrared lasers and radar. It is expected that these types of experiments and tests would take place in appropriately zoned areas of the Nevada Test Site and would be compatible with surrounding land use. Defense related activities are generally conducted in the Reserved Zones as well as in the Research, Test, and Experiment Zones.

Waste Management Program

The draft Waste Management Programmatic Environmental Impact Statement, DOE/EIS-0200, was issued for public comment in August 1995, and the Department anticipates that the final statement will be issued in the near future. That programmatic environmental impact statement analyzes alternative strategies to maximize efficiency for the Department's national Waste Management Program, and it will support the Department's complex-wide waste management decisions. Those decisions may require changes to the Waste Management Program at the Nevada Test Site in the future. Therefore, DOE is deciding today, that in the interim, pending those programmatic decisions, DOE will maintain the current level of low-level and mixed low-level waste management activity as described in the No Action Alternative in the Nevada Test Site Environmental Impact Statement. The activities include the planning, coordination, waste transportation, storage, characterization, and disposal and waste minimization and pollution prevention programs. Waste management activities other than for low level and mixed low-level waste do not involve issues that would be affected by decisions based on the Waste Management Programmatic Environmental Impact Statement. Therefore, DOE is deciding to implement Expanded Use for those other activities.

Low-Level Waste--Disposal of low-level waste will continue for waste streams from current on-site and off-site waste generators. This represents the No Action Alternative of disposal capability for currently approved waste generators. Approval of other waste generators for disposal is pending future programmatic decisions. The DOE will continue to expand and create new disposal cells as necessary within the designated Radioactive Waste Management Zones.

The Area 3 Radioactive Waste Management Site will continue to be developed for the disposal of low-level waste. The Area 3 Radioactive Waste Management Site support facilities will be maintained to serve operations and radiation safety personnel needs, as necessary.

The Nevada Test Site will continue to manage a variety of low-level wastes from approved generators that include classified waste, waste inappropriate for shallow land disposal, and waste which is considered by some sites as special case waste. All such wastes disposed of at the Nevada Test Site will comply with the site's waste acceptance criteria.

Mixed Waste--The DOE will continue to manage mixed waste which is currently on site or which may be generated by DOE at the Nevada Test Site. Storage of mixed waste will continue under a Mutual Consent Agreement with the State of Nevada.

Currently, the DOE is storing all Nevada Test Site low-level mixed waste in the Area 5 Radioactive Waste Management Site. Included in this waste type is Cotter Concentrate, a sludge-like residue resulting from uranium ore processing constituting approximately 88 percent of all low-level mixed waste stored at the Nevada Test Site. The treatment and disposal options for the current low-level mixed waste inventory are identified in the Nevada Test Site

Site Treatment Plan and Federal Facility Compliance Act Consent Order effective March 27, 1996. However, the preferred treatment option for the Cotter Concentrate waste stream, treatment or reclamation at an off-site facility, differs from the solidification option currently presented in the Nevada Test Site Site Treatment Plan and Federal Facility Compliance Act Consent Order, which will be updated to reflect the preferred treatment option. DOE will construct a treatment facility for the solidification of Cotter Concentrate in accordance with the Nevada Test Site Site Treatment Plan and Federal Facility Compliance Act Consent Order if the preferred treatment option cannot be implemented.

Transuranic Waste--The DOE will continue storing onsite transuranic and transuranic mixed waste pending the development of DOE disposal facilities. In addition, the DOE will construct and operate at the Nevada Test Site a waste examination facility for characterization and certification of transuranic and transuranic mixed waste for off-site disposal, presumably at the Waste Isolation Pilot Plant near Carlsbad, New Mexico. The construction of characterization and certification facilities at the Nevada Test Site is required for compliance with the Site Treatment Plan developed under the Federal Facility Compliance Act and Consent Order negotiated with the State of Nevada and is included in this decision. The DOE will continue to store classified and other transuranic waste that does not meet the Waste Isolation Pilot Plant's waste acceptance criteria, until a disposal option is determined.

Hazardous and Toxic Substances Control Act Waste--The DOE will continue to store polychlorinated biphenyl waste pending off-site disposal and will expand the storage capacity for hazardous waste pending off-site disposal. Treatment of explosive waste at the Explosive Ordnance Disposal Unit will continue to occur at the Nevada Test Site per the conditions of the Resource Conservation and Recovery Act Part B permit. The DOE will seek to increase the capacity of the hazardous waste storage unit to address the additional needs of DOE Nevada Operations Office Programs, if necessary. The Resource Conservation and Recovery Act Part B permit application would be modified to address the additional storage capacity.

Solid Waste--The DOE will continue to provide disposal capability for solid waste generated on-site. Providing disposal capabilities for adjacent rural counties will be evaluated.

Closure--The DOE will continue to pursue the development and implementation of approved closure plans and designs for the waste units that are inactive, already full, and those that become full in the future. Waste management closure activities will be conducted at both the Area 3 and the Area 5 Radioactive Waste Management Sites, as necessary.

Site Improvements--The DOE will construct certain site improvements as part of its continuing Waste Management Program. DOE will construct an equipment maintenance building and flood protection dike and channel at the Area 5 Radioactive Waste Management Site to support current operations. In order to provide improved access to the Area 5 Radioactive Waste Management Site, DOE proposed in the Nevada Test Site Environmental Impact Statement to either upgrade the 5-01 Road or the 5-07 Road. At this time, DOE has identified a third option

that would consist of extending the Cane Springs Road eastward from the Mercury highway to intersect with the 5-01 Road just south of the Area 5 Radioactive Waste Management Site. Inasmuch as this alternative was not included in the analysis performed for the Nevada Test Site Environmental Impact Statement, DOE will conduct an appropriate National Environmental Policy Act analysis before making any decision concerning implementation of the Cane Springs Road Extension or any of the other road improvement options.

Transportation of Materials and Waste

DOE will comply with U.S. Department of Transportation regulations regarding the transportation of radioactive materials. Radioactive materials shipped on the Nation's highways and roads are subject to the regulations administered and enforced by the U.S. Department of Transportation. These regulations set standards for packaging and transporting materials and requirements for labeling, documenting, loading and unloading, and handling. Compliance with the standards ensures that package handlers, transporters, and the public do not receive dose rates in excess of recognized safe limits. The regulations also specify that drivers receive training to ensure they are qualified to transport radioactive materials and that motor carriers follow routes which are selected to minimize radiological risk.

The DOE will use Environmental Protection Agency protective action guides and actions that are designed to limit doses and impacts in the event of a transportation accident involving radioactive material. The DOE use of these guides and actions will minimize the impacts of transportation accidents involving radioactive material.

Environmental Restoration Program

DOE will continue its Environmental Restoration Program activities of characterization and selected remediation of contaminated areas or facilities identified in the Federal Facility Agreement and Consent Order. Environmental Restoration is not considered a land use, but an activity necessary for environmental protection, reuse, or disposition of land and facilities. Clean-up priorities and clean-up levels are subject to negotiation with regulators and involved stakeholders. The assessment and remediation of the Nevada Test Site and off-site locations in Nevada have been divided into several subproject categories:

- Off-Site Corrective Action Units (including Project Shoal Area and Central Nevada Test Area)
- Soils Media Corrective Action Units (including sites on the Tonopah Test Range and Nellis Air Force Range Complex)
- Underground Test Areas Corrective Action Units
- Industrial Sites Corrective Action Units (includes Defense Nuclear Agency sites and Decontamination and Decommissioning projects)

DOE's priority for approaching environmental restoration work will be to characterize and remediate the surface and shallow subsurface at the Project Shoal and Central Nevada Test Area sites. The deep subsurface at these sites will be characterized and modeled. Next in priority will be to characterize and remediate the contaminated sites on the Tonopah Test Range and the Nellis Air Force Range Complex.

The DOE will characterize sites on the Nevada Test Site beginning at the south end and progressing northward. Areas with minimum contamination will be the first priority for characterization and remediation. These areas can be readily remediated and released for other uses. The next priority will be to characterize and remediate selected sites within Areas 23 and 25 which will facilitate reuse in the future. Lowest in priority are those contaminated sites which are in areas designated for potential future weapons testing.

Site-Specific Remedial Actions

Off-Site Corrective Action Units

For the Shoal Project Site and Central Nevada Test Area, DOE will remediate the surface facilities locations. The remedial strategy for the subsurface will be to characterize groundwater flow and zones of contamination, to model the potential for contaminant migration from the source cavities, and to assess health risks. Tritium migration will be the major focus, since tritium is the most mobile of the radioactive contaminants. Other radionuclides will be evaluated, provided tritium migration indicates the need for their inclusion in the source evaluation. Subsurface contaminants in and around the nuclear test cavities will not be remediated since cost-effective groundwater strategies have not yet been demonstrated for effectively removing or stabilizing radioactive contaminants. Institutional control of the deep subsurface will be maintained and long-term subsurface monitoring and surveillance of the sites is planned for at least 50 years.

Soils Media Corrective Action Unit

The first soil sites that DOE will characterize and remediate are those that are located off the Nevada Test Site proper and those which straddle the boundary of the Nevada Test Site. Soils activities will aim toward remedial actions, including interim actions, designed to clean up the Clean Slates 1, 2, and 3 sites on Tonopah Test Range; the Small Boy Site east of Frenchman Flat; Schooner and Area 13 sites on Nellis Air Force Range Complex; and to obtain closure of the Double Tracks site on Nellis Air Force Range Complex which was the object of a voluntary interim Corrective Action in early 1996. These remedial actions will be conducted in accordance with the Federal Facility Agreement and Consent Order.

Clean-up standards will be negotiated. Characterization and remediation will utilize the Kiwi system, which is a sensor system mounted on a four-wheeler and able to provide fine resolution. "Hot spot" materials located in limited selected areas will be removed. More

extensive areas of surface contamination will require the use of mechanical excavation. Size separators or other physical processes may be used to obtain volume reduction of mechanically removed materials. Subsurface remedies will range from excavation to containment in place. For the long-term, it is assumed that some areas of the Nevada Test Site will remain under institutional control.

Remedial actions will be based on several factors including applicable regulatory standards and negotiated cleanup levels. Negotiated cleanup levels will be based on applicable regulatory standards, assessment of the risk posed by the contamination, current and anticipated land uses, resource management considerations, costs, feasibility, and other factors.

Underground Test Areas Corrective Action Unit

DOE's activities in the Underground Test Areas will continue to focus on investigation of the effects of underground nuclear testing on groundwater and the surrounding media. Because cost-effective subsurface remediation technologies have not yet been demonstrated, subsurface contaminants in and around nuclear shot cavities will not be remediated. DOE would reevaluate possible corrective actions in the event that such technologies are developed in the future.

Fate and transport modeling will continue to determine the extent of contamination and potential for health risk to the public. DOE will monitor existing wells and new wells will be drilled, if necessary, to support computer modeling to assess contaminant migration potential, particularly beyond Nevada Test Site boundaries. Monitoring and surveillance will be conducted for at least 50 years.

Industrial Sites Corrective Action Units

DOE will prioritize remediation of the industrial sites according to the highest potential for future use. Areas of the Nevada Test Site slated for potential future testing activities will be characterized, but not remediated, except in areas identified where potential for health risk exists as a result of direct exposure, inhalation, and/or resuspension of contaminants. For decontamination and decommissioning activities, facilities will be prioritized based on potential re-use. The Area 25 Engine Maintenance and Disassembly Facility will be decontaminated for potential re-use.

The sites scheduled for assessment include:

- Nevada Test Site, Area 2; U-2bu Subsidence Crater
- Nevada Test Site, Area 23; Building 650 Leach field
- Nevada Test Site, Area 23; Pesticide Storage
- Tonopah Test Range, Septic Waste Systems 2 and 6

The sites scheduled for remediation include:

- Nevada Test Site, Area 2; Bitcutter Shop
- Nevada Test Site, Area 2; Photograph Development System
- Nevada Test Site, Areas 4, 7, & 12; Housekeeping Sites
- Nevada Test Site, Area 6; Steam Cleaning Effluent Ponds
- Nevada Test Site, Area 6; Decon Pond Facility
- Nevada Test Site, Area 12; Steam Cleaning Effluent
- Tonopah Test Range, Closed Ordnance Disposal Pits; Bomblet Pit and Five Points Landfill
- Tonopah Test Range, Buried DU Artillery Round #1
- Tonopah Test Range, Roller Coaster Lagoons and Trench
- Tonopah Test Range, Underground Storage Tank Sites, Second Gas Station
- Tonopah Test Range, Cactus Spring Waste Trenches

Nondefense Research and Development Program

The DOE will continue to support ongoing program operations and pursue diversification of use to include nondefense and private use. In defining land use zones on the Nevada Test Site, the DOE will allow for compatible nondefense research and development activities to be conducted in all land use zones on the Nevada Test Site with the exception of the Defense Industrial Zone. These new initiatives will include the construction and operation of a solar power production facility and siting an Alternative Fuels Demonstration Project at the Nevada Test Site. Private uses, for example, could include activities such as the Kistler Aerospace Corporation proposal identified during the public comment period on the Draft Environmental Impact Statement. Kistler's comments expressed interest in developing a commercial satellite delivery system as a future activity in this program area. To the extent that future National Environmental Policy Act review is required in connection with the satellite delivery aspects of this project, such review would occur in conjunction with the Federal Aviation Administration licensing process.

In this program area the DOE will continue to support the Solar Enterprise Zone concept for Southern Nevada which includes locating up to 1000 megawatts of solar power generation among the evaluated sites. In addition to two locations at the Nevada Test Site, three other sites in southern Nevada are being considered by the Corporation for Solar Technology and Renewable Resources: Eldorado Valley, Dry Lake Valley, and Coyote Spring Valley. As part of this support, initially the DOE will cooperate in the construction and operation of a 100 megawatt or less solar power production facility in Area 22. This facility, when operational, will enhance the Nevada Test Site power infrastructure in support of the primary science-based stockpile stewardship mission. Additionally, the DOE will reserve land and infrastructure in Area 25 for potential future solar power development.

The DOE is planning an Alternative Fuels Demonstration Project which will test and evaluate various blends of fuels for both fixed base and transportation vehicles applications. The DOE currently has 16 vehicles at the Nevada Test Site converted to operate on either natural gas or gasoline. The DOE will pursue additional funding for the Alternative Fuels Demonstration Project to construct a refueling facility and to further convert a portion of the remaining vehicle fleet.

The DOE will expand the capability of the existing Spill Test Facility into a multi-use facility that will be known as the HAZMAT Spill Center. The following five crucial research and development needs of government and industry have been identified in this proposed expansion of capability at the HAZMAT Spill Center:

Remote Sensing--The HAZMAT Spill Center will be used as a chemical release test bed for remote sensor development and testing for effluent analysis and for stand-off hazardous materials identification.

Source Term Definition/Dispersion Modeling--Data sets will be generated during tests at the HAZMAT Spill Center that will allow for validation of computer model source term assumptions and dispersion estimates. These data sets will also be utilized to enhance, improve, and develop new computer models utilized in emergency response to HAZMAT incidents.

Mitigation Techniques--Material releases will be used at the HAZMAT Spill Center to allow research and demonstration of mitigation technologies. The data collected during these tests will also be used to develop computer-based mitigation models.

HAZMAT Training--Training of emergency response team members using hazardous materials will be conducted. This allows the participants to gain confidence in emergency response equipment and procedures for incident response.

HAZMAT Testing--Personal protective equipment will be field tested, under a variety of conditions, using mannequins and test chemicals. This testing capability will also be utilized in the development and field testing of industrial hygiene sensors.

The DOE will continue to conduct research and technology development and demonstration activities at the Nevada Test Site focused on overcoming major obstacles to progress in cleaning up contaminated DOE sites. The major remediation and waste management areas include plume control and remediation, soil separation, tank remediation, landfill stabilization and mixed waste characterization, treatment, and disposal. Demonstrations include nonintrusive particle imaging and laser-induced fluorescence systems for decontamination and decommissioning applications.

As part of the Environmental Research Park program, the DOE will continue under a cooperative agreement with the University of Nevada and the University of Nevada, Las Vegas, to provide financial assistance for scientific research projects. Areas of research include, but are not limited to, habitat reclamation, hydrogeologic systems, radionuclide transport, ecological change, waste management, monitoring processes, remediation, and characterization, as necessary.

Alternate Uses

The DOE will promote public use of the historic resources of the site. Public education activities include establishing educational tour routes on the Nevada Test Site and promoting the creation of a museum that highlights previous Nevada Test Site testing activities and current and future Nevada Test Site uses. Tours will allow the public to see firsthand some of the history and impacts of past nuclear testing, and will stimulate public involvement in potential reuse of DOE weapons-complex sites. These activities will be an important contribution to public understanding of the Nation's nuclear testing history and how those historic activities have changed.

Site Support Activities

Defense Program activities at the Nevada Test Site have been declining steadily in recent years, resulting in the need to diversify user support. Diversification of users will offset required infrastructure maintenance for Defense Programs, allow the best use of limited stockpile stewardship resources, and support the successful execution of the stewardship mission. The activities identified in the Preferred Alternative require infrastructure construction and maintenance and support facilities. These include the utilities, communications, and transportation systems, as well as the existing support facilities, both on- and off-site. Under the Preferred Alternative, the Department will undertake landlord-related construction and maintenance projects as circumstances dictate.

Mitigation

Volume 1, Chapter 7, of the Final Environmental Impact Statement presents the measures under the four alternatives analyzed that would be implemented to reduce potentially adverse impacts to the environment. Operations integral with the agency Preferred Alternative, Alternative 3 (Expanded Use), plus the public education activities from Alternative 4 (Alternate Use of Withdrawn Land), are strictly controlled through Nevada Test Site management activities that incorporate routine mitigation measures. The DOE has orders, guidance, regulations, and Nevada Test Site Standing Operating Procedures for the conduct of operations. As these orders, regulations, and standing operating procedures have been developed, they incorporated environmental impact mitigation actions required for most program operations. Further, DOE's compliance programs require self-assessments, external oversight, and audits to ensure adherence to regulations. Individually and collectively, these

measures avoid, reduce, or eliminate potentially adverse environmental impacts from activities at the Nevada Test Site.

Throughout the environmental impact analysis process, in conjunction with consultations with affected American Indian tribes and federal and state agencies and using input received from the public, DOE identified actions within the five mission programs that require measures that, under existing operational requirements, would be routinely implemented to protect soils, water, wildlife, vegetation, cultural resources, and public and occupational health and safety. In addition, selected actions within a program area were identified that require additional mitigation measures to address either impacts from the action itself or stakeholder concerns. Routine measures identified through the Environmental Impact Statement analyses identified in Volume 1, Chapter 7, represent all practicable means to avoid or minimize adverse impacts of DOE programs in Nevada on sensitive environmental resources and other areas of concern which may result from the Preferred Alternative. Those additional mitigation measures beyond day-to-day routine physical and administrative controls needed for implementation of the Preferred Alternative are described in the following sections. Implementation of specific mitigation measures will be addressed in detail in a Mitigation Action Plan. DOE will prepare a Mitigation Action Plan to describe how mitigation impacts from the transportation of materials from the Waste Management Program will be implemented. The Mitigation Action Plan will provide a general approach for addressing groundwater impacts, and specific details for mitigation of groundwater will be provided before the initiation of individual major projects.

Transportation

Transportation of materials in support of the Waste Management Program results in potential impacts and concerns that will be addressed or mitigated through the following DOE actions:

- Conduct a comprehensive study of the potential social and cultural effects on affected Native American tribes from the transport of low-level radioactive waste and low-level mixed waste to the Nevada Test Site.
- Allow shipments of low-level radioactive waste and low-level mixed waste that arrive at the Nevada Test Site during off-hours to park in a secure area inside the gate.
- Provide information to stakeholders concerning waste shipments.
- Meet with the Transportation Protocol Working Group regularly to discuss low-level waste and low-level mixed waste transportation issues. Respond to transportation concerns between meetings by phone calls, faxes, or personal meetings.

- In coordination with local emergency-response agencies, determine needs concerning emergency-response actions involving transportation of low-level waste and low-level mixed waste and assist in the fulfillment of those needs as far as practicable.
- Distribute surplus federal equipment to local agencies to the extent possible under current regulations concerning federal surplus disposition.
- Prepare an annual report that includes, at a minimum, identification of carriers, sources and destination of each shipment, the number and volume of shipments, highway and rail routes used, incidents/accidents data, and an evaluation of each shipping campaign.

Groundwater Hydrology

In order to avoid adverse impacts to groundwater availability from development and operations associated with the five mission programs, DOE would, as necessary, implement appropriate well-field design and placement, move points of diversion farther away from potentially affected areas, import water from adjacent areas, adjust the production of water from well fields, drill new water supply wells, and carefully manage recharge and discharge areas.

Conclusion

DOE has attempted to balance environmental impacts, stakeholder concerns, and national policy in its decisions regarding the management and use of the Nevada Test Site and off-site locations in the State of Nevada. The analysis contained in the Environmental Impact Statement is both programmatic and site specific in detail. It is programmatic from the broad multi-use facility management perspective, and site specific in the detailed project and program activity analysis. The impacts identified in the Environmental Impact Statement were based on conservative estimates and assumptions. In this regard, the DOE has attempted to bound the impacts of the alternatives defined in the Environmental Impact Statement. The Expanded Use Alternative was defined to include potential activities related to the programmatic decisions that may be made as a result of other DOE Environmental Impact Statements currently in progress. Consequently, the analysis for this alternative bounds the maximum potential impacts that could occur at the Nevada Test Site as a result of decisions made from the other DOE Environmental Impact Statements. This Environmental Impact Statement and the analyses it contains can be used to support these future programmatic decisions.

The decisions made in this Record of Decision are defined consistent with the conservative descriptions contained in the Environmental Impact Statement. In the application of these decisions it should be noted that some of the proposals will continue to evolve over time. In this regard, proposed new activities such as constructing and operating a 1000-megawatt Solar Power Production Facility at the Nevada Test Site were analyzed in the Environmental Impact

Statement; however, the current proposal for a solar power production facility at the Nevada Test Site is less than this original power estimate and would initially serve only the Nevada Test Site. The true impact of this proposal with respect to ground clearing and water use impacts would likewise be less than those identified. DOE also estimated conservatively the number of science-based stockpile stewardship tests and experiments to be conducted over a ten year period at the Nevada Test Site. Actual schedules and data needs will dictate the number of stockpile stewardship experiments and tests conducted in a given year. This number could be less than that identified, and consequently the actual impacts would also be less. DOE also analyzed the potential impacts of a generic large heavy industrial facility under the Expanded Use Alternative in order to identify maximum potential impact at the site under the concept of expanded use. DOE may at some future time consider siting a defense, nondefense, or private industrial facility at Nevada Test Site. Once such a proposal becomes more defined, additional National Environmental Policy Act analysis, as appropriate, would tier from this programmatic heavy industrial facility analysis.

In accordance with the provisions of the National Environmental Policy Act, its implementing procedures and regulations, and DOE's National Environmental Policy Act regulations, I have considered the information contained within the Final Environmental Impact Statement, including the classified Appendix and public comments received in response to the Draft and Final Environmental Impact Statement. Being fully apprised of the environmental consequences of the alternatives and other decision factors described above, I have decided to continue and expand the use of the Nevada Test Site and its resources as described. This will enhance the DOE's ability to meet its primary national security mission responsibility in Nevada and create an environment that fosters technological innovation in both the public and private sectors.

Issued at Washington, DC, December 9, 1996.

Original Signed By:
Hazel R. O'Leary
Secretary