

ENVIRONMENTAL ASSESSMENT

**Construction of Mixed Waste Storage RCRA Facilities,
Buildings 7668 and 7669**

U.S. Department of Energy
Oak Ridge National Laboratory
Oak Ridge, Tennessee

April 1994

MASTER

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United States Government

Department of Energy

memorandum

DATE: August 16, 1994

REPLY TO

ATTN OF: Office of NEPA Oversight: Osborne: 6-4596

SUBJECT: Environmental Assessment for the Proposed Construction and Operation of Mixed Waste Storage Facilities at the Oak Ridge National Laboratory, Oak Ridge, Tennessee (DOE/EA-0947)

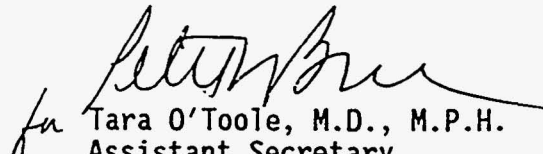
TO:

Thomas P. Grumbly
Assistant Secretary for Environmental Management

On April 15, 1994, the Office of NEPA Oversight authorized a 30-day preapproval review of the subject environmental assessment by the State of Tennessee, and on May 9, 1994, you transmitted the environmental assessment to Tennessee. Michael Kleinrock of your NEPA Compliance Officer's staff informed us on July 1, 1994, that no comments were received from the state and requested that we proceed with approval of the environmental assessment and issuance of a finding of no significant impact.

The Office of Environment, Safety and Health has reviewed the environmental assessment (dated April 1994) in accordance with our responsibilities under DOE 5440.1E. Based upon my staff's review and recommendations, and after consultation with the Office of General Counsel, I have determined that the environmental assessment is adequate for publication and is hereby approved. I have also determined that the proposed action is not a major Federal action significantly affecting the quality of the human environment, within the meaning of the National Environmental Policy Act. Therefore, the preparation of an environmental impact statement is not required. The basis for this determination is explained in the attached finding of no significant impact.

Please note that the Office of Environmental Management is responsible for providing public notice of the availability of the environmental assessment and finding of no significant impact in accordance with 40 CFR 1506.6(b), 10 CFR 1021.322, and DOE 5440.1E, paragraph 6A (24). Please provide an electronic file and five copies of the environmental assessment, and a record of distribution of the environmental assessment and finding of no significant impact to the Office of NEPA Oversight for our files.


Tara O'Toole, M.D., M.P.H.
Assistant Secretary
Environment, Safety and Health

Attachment

cc: Randal Scott, EM-20, NEPA Compliance Officer
Patty Phillips, OR, NEPA Compliance Officer

**FINDING OF NO SIGNIFICANT IMPACT
FOR CONSTRUCTION OF MIXED WASTE STORAGE FACILITIES,
BUILDINGS 7668 AND 7669
OAK RIDGE NATIONAL LABORATORY
OAK RIDGE, TENNESSEE**

AGENCY: Department of Energy

ACTION: Finding of No Significant Impact

SUMMARY: The Department of Energy has prepared an environmental assessment, DOE/EA-0820, to assess the potential environmental impacts of constructing and operating two mixed waste Resource Conservation and Recovery Act (RCRA) storage facilities. The new facilities would be located inside and immediately west of the security-fenced area of the Oak Ridge National Laboratory Hazardous Waste Management Area in Melton Valley, Tennessee. Based on the analyses in the environmental assessment, the Department has determined that the proposed action does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969. Therefore, the preparation of an environmental impact statement is not required, and the Department is issuing this finding of no significant impact.

COPIES OF THE ENVIRONMENTAL ASSESSMENT ARE AVAILABLE FROM:

Information Resource Center
U.S. Department of Energy
105 Broadway
Oak Ridge, TN 37830
Phone: (615) 481-0695

**FOR FURTHER INFORMATION ON THE DEPARTMENT'S NATIONAL ENVIRONMENTAL POLICY ACT
PROCESS, CONTACT:**

Ms. Carol M. Borgstrom, Director
Office of NEPA Oversight, EH-25
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20585
Phone: (202) 586-4600 or leave a message at (800) 472-2756

PROPOSED ACTION: The proposed action is to construct and operate two mixed (both radioactive and hazardous) waste storage facilities (Buildings 7668 and 7669) in accordance with RCRA requirements. The new facilities would be sized to hold a total of 750 55-gal drums, or 41,250 gal of mixed waste. Building 7668 would store about 500 drums, and Building 7669 would store about 250 drums. Drums would be stored four drums to a 4-foot by 4-foot pallet stacked two pallets high. One air exchange per hour would be provided in each building, and the ventilation exhaust would pass through a high-efficiency particulate air filtration system. Operation of the facilities would involve off-loading of mixed waste drums from a transport vehicle and movement of the drums to a storage location by forklift. Operation would also include routine inspections, monitoring procedures, and building maintenance.

ENVIRONMENTAL IMPACTS: Site preparation and construction activities would be conducted within a previously developed and disturbed area and would not affect environmentally sensitive resources, such as archeological or historic sites, habitats of any threatened or endangered species, floodplains, or wetlands. Existing surface water drainage patterns would be minimally altered as a result of the construction activities, since no surface streams are in the immediate area.

Pollutant emissions during construction would be temporary and would consist primarily of particulates released during earth-moving activities. Appropriate dust suppression techniques would be utilized. Spill prevention, control, containment, and cleanup measures would be used to control the effects of any accidental spills of hydraulic fluid, lubricating oil, etc., during construction.

Occupational exposure from handling mixed waste in the new facilities is expected to be similar to that of existing operations. Waste would be stored in containers approved for mixed and hazardous waste and would be limited to a maximum dose rate of less than 10 mrem/h on the outside surface of the waste container. The occupational exposures for the Hazardous Waste Management Area facilities are monitored using personal thermoluminescence dosimeters, and

Laboratory policy limits exposure to no more than 2 rem/year for each employee. In 1990, the average occupational dose for waste workers was 22 mrem; the maximum occupational dose received by an individual worker was 149 mrem; and the minimum was 0 mrem. Buildings 7668 and 7669 would be operated under RCRA permits. The permits require facilities to comply with 40 CFR Part 265 (or applicable state regulations), which specifies minimum standards for safe operations, including security, personnel training, and alarm systems.

The hazards identified with operating the proposed 7668 and 7669 facilities are the same as those encountered with the Long-Term Hazardous Waste Storage Facility, Building 7654 (Reference 8 in the environmental assessment), since the same drummed co-contaminated wastes are being stored in Building 7654 as would be stored in Buildings 7668 and 7669. Building 7654 has undergone a hazard screening, resulting in a determination that radiation dose consequences of an accident at 100 meters would be much less than 10 rem. This would result in a cancer risk of less than 5×10^{-3} lifetime cancer risk to on-site personnel beyond 100 meters downwind and much less than 5×10^{-5} to off-site members of the public for one-time exposure to accidental releases from Building 7654.


Based on a typical inventory, chemical hazards were also investigated. The chemicals expected to be stored in Buildings 7668 and 7669 are considered toxic chemicals; no carcinogens would be stored in these facilities. Exposure of personnel to toxic contaminants from the proposed storage facilities is not anticipated. Therefore, no adverse effect on workers, or the public, is expected from the hazardous components of the mixed waste to be stored under the proposed action.

ALTERNATIVES CONSIDERED: Alternatives considered in the review of the proposed action were (1) no action and (2) alternative sites at the Laboratory. Taking no action would result in the storage of mixed waste in facilities without RCRA permits resulting in noncompliance with RCRA requirements. Existing RCRA-permitted storage facilities are near capacity and mixed waste generation cannot be curtailed due to the mandatory

environmental restoration activity at the Laboratory. Alternative sites are less disturbed than the proposed site and are not within or adjacent to the Hazardous Waste Management Area (designated as a mixed waste area in the Laboratory's Long-Range Plan and Site Development Plan).

DETERMINATION: Based on the analyses in the environmental assessment, the Department has determined that the construction and operation of two RCRA-permitted mixed waste storage facilities does not constitute a major Federal action that would significantly affect the quality of the human environment within the meaning of the National Environmental Policy Act. Therefore, the preparation of an environmental impact statement for the proposed action is not required, and the Department is issuing this finding of no significant impact.

Issued at Washington, D.C., this 16th day of August, 1994.


Tara O'Toole, M.D., M.P.H.
Assistant Secretary
Environment, Safety and Health

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CONTENTS

1. PURPOSE AND NEED FOR AGENCY ACTION	1
2. DESCRIPTION OF PROPOSED ACTION	1
3. ALTERNATIVES TO PROPOSED ACTION	4
4. LOCATION OF PROPOSED ACTION	4
5. POTENTIAL ENVIRONMENTAL IMPACTS OF PROPOSED ACTION	7
6. OPERATIONAL REQUIREMENTS	9
7. PERSONS AND AGENCIES CONSULTED	10
8. REFERENCES	10

FIGURES

Fig. 1. Diagram of Hazardous Waste Management Area showing site for proposed Buildings 7668 and 7669	3
Fig. 2. Department of Energy Oak Ridge Reservation boundaries	5
Fig. 3. Location of DOE Oak Ridge Reservation with respect to geographic region	6
Fig. 4. Melton Valley site for proposed mixed waste storage RCRA facilities	8

1. PURPOSE AND NEED FOR AGENCY ACTION

Existing mixed waste storage facilities at the Oak Ridge National Laboratory (ORNL) are nearing capacity due to the imposition of a moratorium on off-site shipments. The moratorium has been in effect since May 1991 and precludes unrestricted off-site shipment of DOE radioactive waste. The moratorium will remain in effect on all waste shipments until operational readiness reviews are performed certifying that no radionuclides have been added to the waste by DOE activities. Results of a study (Ref. 1) assessing the mixed waste generation rate, storage capacity, and disposal capability at ORNL show that (1) the current generation rate is twice that of previous estimates; (2) the existing storage facility, Building 7654 (Long-Term Hazardous Waste Storage Facility), is nearing its storage capacity; and (3) off-site disposal facilities are not available for mixed wastes. Since the completion of the study, Envirocare of Utah, a commercial facility in Clive, Utah, has been licensed to accept mixed waste. Additional facilities need to be provided for the interim storage of ORNL-generated mixed waste (radioactive and hazardous) until disposal decisions can be made.

2. DESCRIPTION OF PROPOSED ACTION

The proposed action is to construct and operate two additional single-story buildings (which would augment the existing storage area) with a combined storage capacity of 750 55-gal drums, in accordance with Resource Conservation and Recovery Act (RCRA) requirements, for use as additional storage for low-level radioactive (< 10 mrem/h) mixed waste. Decommissioning and decontamination and/or closure of these facilities would be addressed in the future in conjunction with action for the entire Hazardous Waste Management Area (HWMA).

The proposed facilities would be approximately 40 feet wide by 95 feet long by 16 feet high at the eaves (Building 7668) and approximately 40 feet wide by 50 feet long by 15 feet high at the eaves (Building 7669). Both buildings would be constructed to meet RCRA permitting criteria for storage of hazardous waste. The buildings would be insulated, preengineered, metal buildings of rigid frame construction with steel siding panels and metal liner panels with interior insulation (i.e., between the siding and the liner). The interior of the buildings would be open with no partitions or center support columns, and the floor area would be constructed of concrete pads (three in each building) with 4-inch-high curbs and a sump for each pad. The foundation of the buildings would be concrete column footings connected with a continuous perimeter grade beam. Access doors would be hollow metal double doors, 6 feet wide by 8 feet high, to provide forklift truck and personnel access on each side of the building. The proposed facilities would include a heating, ventilating, and air conditioning system for temperature control.

The standard types of construction equipment, such as a fuel-powered forklift truck, bulldozers, and backhoes, would be used for the proposed action. All construction activity would comply with applicable safety and health standards. Precautions would be taken to protect workers engaged in construction activities (DOE 5480.1B, *Environment, Safety, and Health Program for DOE Operations*), such as adequate provision for emergency aid, programs for training, and certification of safe operation and proper maintenance of equipment. The facilities would be designed to comply with DOE Order 6430.1A, *General Design Criteria*. The Safety Assessment for the Mixed Waste Storage Facility, Building 7669 (Ref. 2), addresses design, construction, operations, and accident assessment in detail. Construction of the buildings would involve standard construction hazards which would be mitigated by adherence to industrial safety regulations related to construction work.

The building site for Building 7668 is relatively level and is covered with asphalt cement paving. The building site for Building 7669 is slightly elevated with a rolling topography. Site grading and excavation include nominal earthwork to achieve proper grade and drainage and for building vehicular access from the existing paved access on each side of the buildings. Although unlikely, it is possible that radioactively contaminated soils could be encountered during subsurface excavation. If encountered, radioactively contaminated soil would be detected by routine soil surveys and would likely consist of one or more of the radionuclides ^{90}Sr , ^{60}Co , ^{241}Am , ^{239}Pu , ^{240}Pu , or ^{137}Cs in low concentration. Any contaminated soil encountered would be handled and properly stored at existing facilities located in the HWMA according to standard ORNL procedures in a manner commensurate with the volume to be disposed of and the level of contamination. This determination would be made by personnel of Office of Radiation Protection, Field Interface and Oversight Section (FIOS), and Waste Management Operations. Hazardous contaminants are not expected to be found in the excavated soil; if encountered, however, they would be removed from the sites and properly stored at existing facilities. All nonradioactive, nonhazardous debris generated during the construction phase of the proposed project would be collected at the sites and transferred to the Y-12 Centralized Sanitary Landfill on Mt. Vernon Road for disposal.

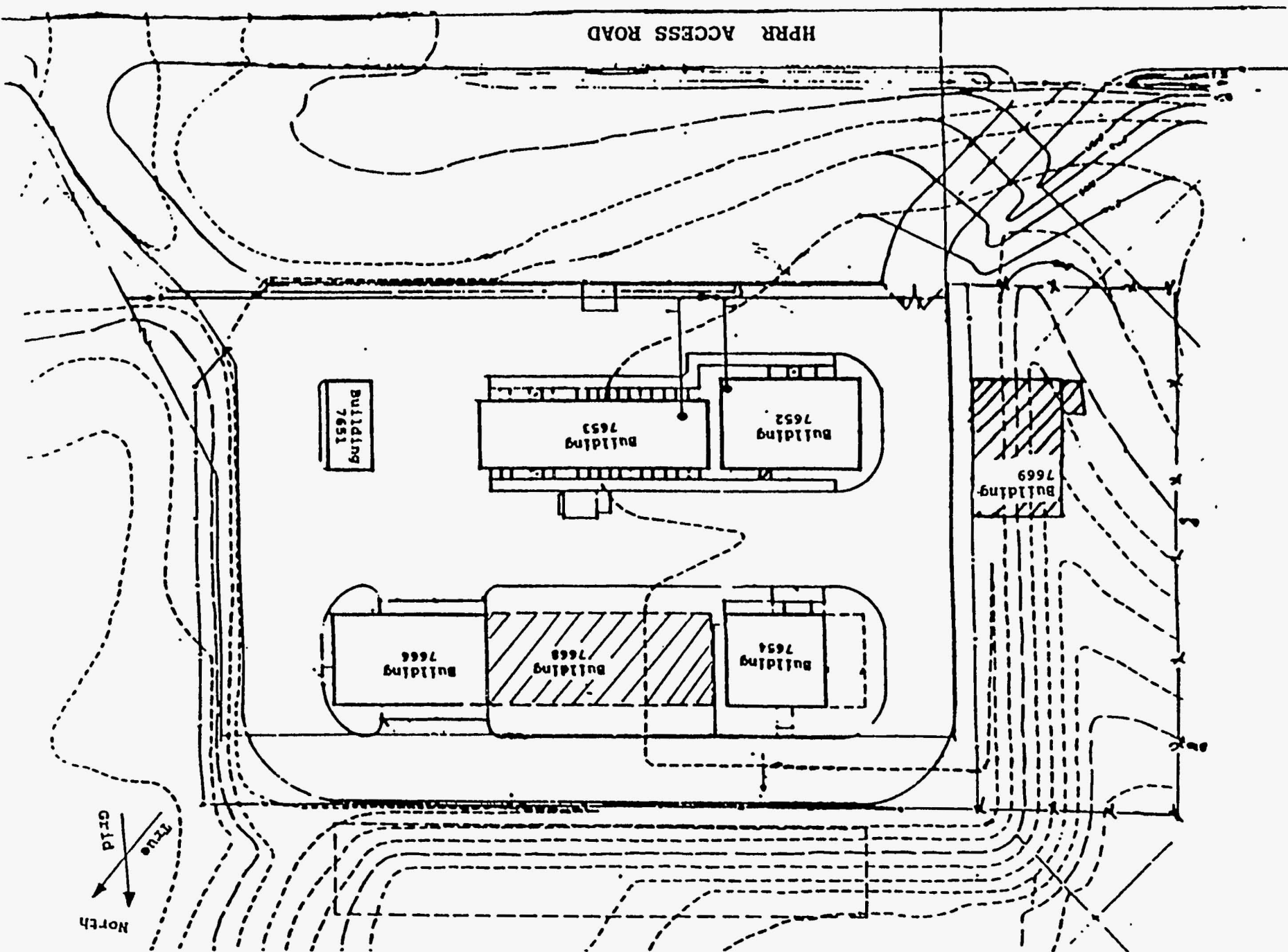
Should construction equipment require cleaning or washing prior to removal from the sites, this activity would be done only with the approval of a FIOS representative and in areas designated by the FIOS representative. This applies to all equipment, uncontaminated as well as contaminated.

The mixed waste would be stored on the diked concrete pads according to its compatibility and stacked on 4-foot by 4-foot pallets no more than two drums high. The new facilities would be sized to hold a total of 750 55-gal drums or 41,250 gal of mixed waste. The maximum weight of each drum would be approximately 500 pounds. Building 7668 would store about 500 drums; Building 7669 would store about 250 drums, with 4 drums to a 4-foot by 4-foot pallet, stacked 2 drums high. The pallets would be moved by forklift to their storage location. One air exchange per hour would be provided in each building, and the ventilation exhaust would pass through a high-efficiency particulate air filtration system. Operation of the facilities would involve off-loading of mixed waste drums from a transport vehicle, and movement of this waste to its storage location would be accomplished by the use of a forklift. Operation would also include carrying out routine inspections and monitoring procedures and implementing necessary building maintenance measures.

Mixed waste transported to the facilities would be packaged in Department of Transportation-approved containers at the generation site. Prior to storage at the HWMA, drums containing mixed waste would be inspected for proper labeling, hazardous waste content, and radioactive contamination level. The new facilities would be used to store drums of mixed waste until authorized by the state of Tennessee and the U.S. Environmental Protection Agency to dispose of these hazardous wastes.

Four storage buildings now exist in the HWMA (see Fig. 1). Building 7654, used for long-term storage of flammable low-level mixed waste, is at its capacity of 16,500 gal. Building 7652, used for storage of hazardous waste which has been packaged, labeled, and marked in accordance with Department of Energy (DOE) regulations, is at 85% of its capacity of 15,125 gal. Building 7653, used for storage of chemical waste, is at 95% of its capacity of 6,875 gal. Building 7651, used to store clean oil, is at 40% of its capacity of 7,040 gal.

Fig. 1. Diagram of Hazardous Waste Management Area showing sites for proposed Buildings 7668 and 7669.



Mixed waste at the HWMA is now stored according to RCRA-approved procedures and guidelines. Prior to construction, the usual excavation and penetration permits would be required. The proposed mixed waste storage area would operate in the same manner under RCRA interim status after construction is completed. The ORNL RCRA Part A Permit application would be updated to include information about the proposed facilities, and a RCRA Part B application would be prepared for the new facilities. Activities would be in compliance with applicable state and local statutory and regulatory requirements, including permitting requirements.

3. ALTERNATIVES TO PROPOSED ACTION

3.1 NO ACTION

Because existing RCRA-permitted storage facilities are nearing capacity and mixed waste generation cannot be curtailed due to the mandatory environmental restoration activity at ORNL, the no-action alternative would result in the storage of mixed waste in facilities without RCRA permits, thus placing ORNL in violation of federal and state law. Additionally, any delay in the proposed action would seriously aggravate the existing shortage of RCRA-permitted space for mixed waste at ORNL and would compromise the permitted status of the existing Long-Term Hazardous Waste Storage Facility by adding waste to a facility that has exceeded its permitted capacity.

The no-action alternative was dismissed from further consideration because it would result in noncompliance with RCRA requirements.

3.2 ALTERNATIVE SITES

Alternatives to the proposed building sites were dismissed from further consideration for the following reasons: (1) The *Long-Range Plan and Site Development Plan* identified the HWMA as a mixed waste area; (2) the proposed Building 7668 site is located within the HWMA, is completely paved to allow for easy movement of trucks and equipment, has a security fence and gate, and has an emergency response facility on-site; (3) the proposed Building 7669 site is a previously disturbed area located immediately west of the security-fenced region of the HWMA (see Fig. 1) (this site, which was disturbed during construction of existing hazardous waste management facilities, would require minimum development; and the security fence and gate, as well as the emergency response facility, would be provided to Building 7669); (4) no other potentially available sites at ORNL have these improvements (in addition, construction of the proposed buildings at an alternative site would require extensive paving and removal of vegetative cover); and (5) the HWMA presently satisfies RCRA standards based on current issued permits.

4. LOCATION OF PROPOSED ACTION

The ORNL X-10 facilities, which are centrally located on the Oak Ridge Reservation (ORR) (Fig. 2), lie primarily in two valleys: Bethel Valley and, to the south of Bethel Valley, Melton Valley. The major ORNL facilities are clustered in Bethel Valley, and the satellite facilities are more widely separated from each other in Melton Valley. Fig. 3 shows the location of the DOE ORR with respect to the geographic region.