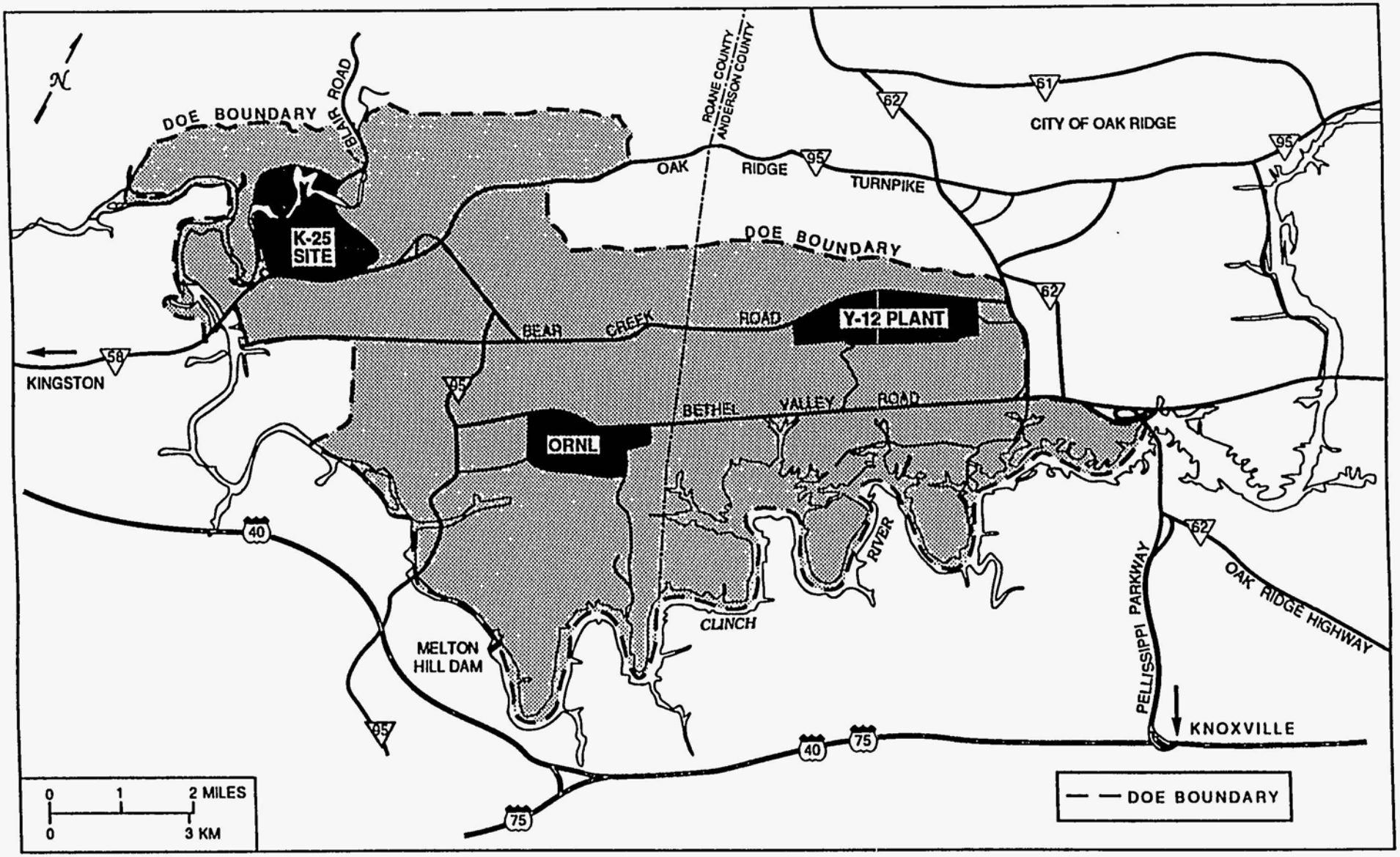

Fig. 2. Department of Energy Oak Ridge Reservation boundaries.

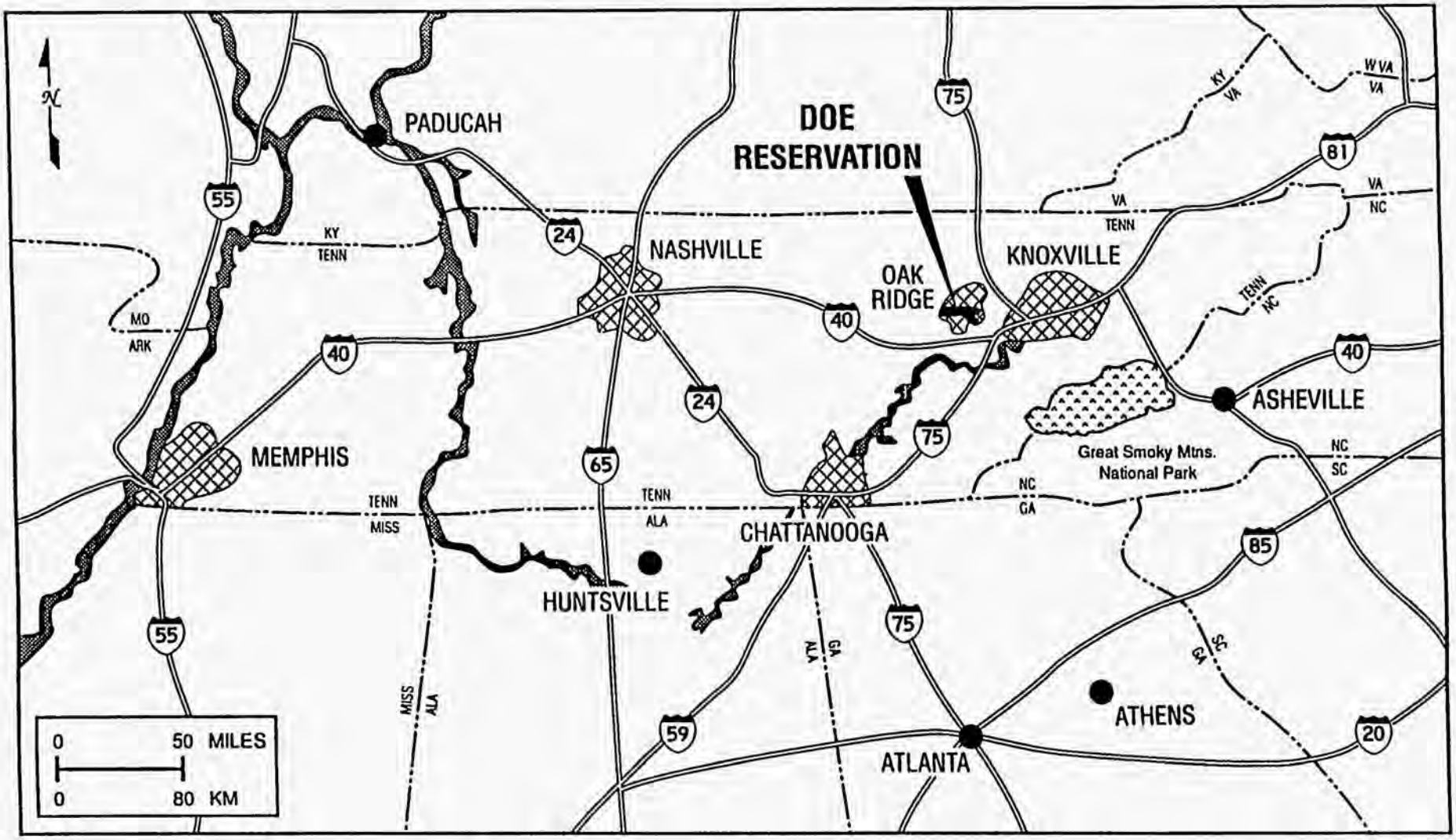

Fig. 3. Location of DOE Oak Ridge Reservation with respect to geographic region.

The proposed action would take place inside and immediately west of the security-fenced area of the ORNL HWMA, a 1.66-acre plot of land. The location of the HWMA (and, as a consequence, the location of the proposed storage building sites) is in accordance with ORNL's Waste Management Plan. The HWMA complex is in a level area which rises gently to the north. It is drained on the northeast by Bearden Creek and on the southeast by Bluff Creek, both of which flow into Melton Hill Lake. Building 7668 would be located between Building 7654 and Building 7666 at the HWMA; Building 7669 would be located in a previously disturbed area immediately west of the existing security fence, which would be extended to enclose the new facility (Figs. 1 and 4).

5. POTENTIAL ENVIRONMENTAL IMPACTS OF PROPOSED ACTION

The site for Building 7668 is located between two existing buildings (Fig. 1) and is paved with asphalt cement. The site for Building 7669 is located in a previously disturbed area next to the HWMA complex. The proposed sites do not provide a natural habitat for any known threatened or endangered animal or plant species (Refs. 3 and 4) and are outside the existing boundaries of known floodplains and wetlands (Ref. 5). No objects of archeological or historical significance are known to exist at the sites of the proposed buildings (Ref. 6).

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. Because terrain alterations would be performed above the water table, no impacts would occur to the groundwater.

Only minor air quality impacts would be expected as a consequence of construction. Pollutant emissions during construction would be temporary and would consist primarily of particulates released during earth-moving activities. Appropriate dust suppression techniques, such as light wetting of the soil during dry, windy weather, would be utilized.

During construction of the new facilities, the potential exists for spills of liquids, including hydraulic fluid and lubricating oil. Project personnel would be familiar with spill prevention, control, containment, and cleanup measures; and spill control and cleanup materials would be maintained at the site. All mechanical equipment would be checked daily to ensure that all liquid-containing systems are leak free and are operating properly. For systems that could not be maintained leak free, leakage rates would be maintained as low as reasonably achievable (ALARA). Containment and cleanup methods would be employed to avoid or minimize releases to the environment. Spills would be managed in accordance with *The Spill Prevention, Control, Countermeasures and Contingency (SPCCC) Plans for the ORNL* (ORNL-5946), the RCRA Part B Permit Applications for the operating units, and/or the ORNL Emergency Manuals.

No new transportation or operations would be introduced by the proposed action; nor would the actions present any new hazards to the environment, operations, operators, or the public. The occupational exposure from handling mixed waste in the new facilities is expected to be similar to that of existing operations. The radiation source hazard associated with the mixed hazardous wastes is considered to be "generally acceptable" and are expected to be low for normal operation. A safety analysis report would be prepared prior to facility start-up. This report will document specific operational conditions necessary to ensure the facility is in compliance with applicable DOE orders and other applicable safety criteria, such as inventory limits and required safety equipment. The proposed facility would be operated in accordance with DOE

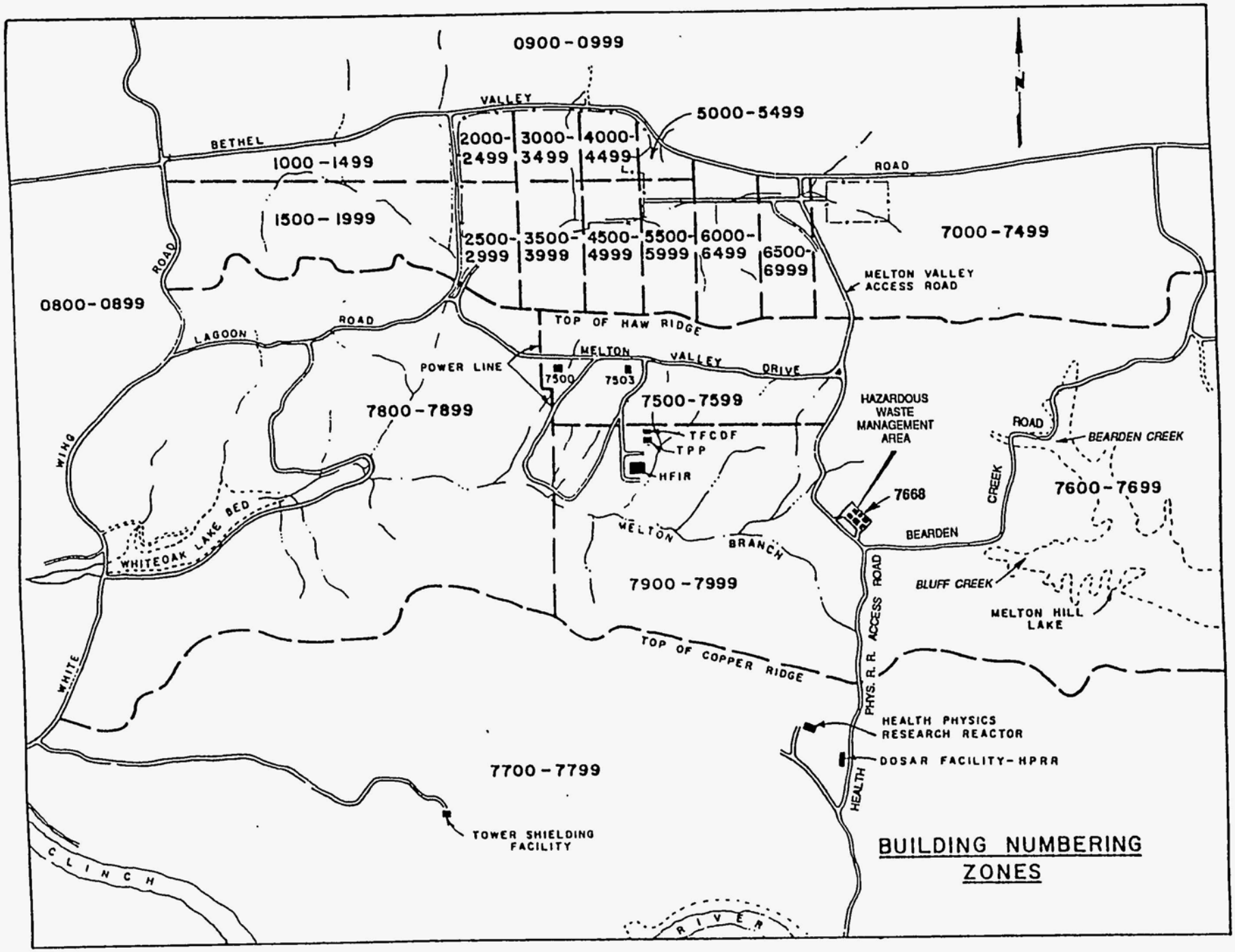

Fig. 4. Melton Valley site for proposed mixed waste storage RCRA facilities.

environmental, safety, and health (ES&H) requirements. Any specific additional requirements from the Safety Analysis Report (SAR) would be incorporated into operational procedures. Operations would comply with DOE orders regarding safety and management of storing mixed waste.

Waste would be stored in containers approved for mixed and hazardous waste and would be limited to a maximum dose rate of < 10 mrem/h on the outside surface of the waste container. The operational exposures for the HWMA facilities are monitored using personal thermoluminescence dosimeters, and ORNL policy limits exposure to no more than 2 rem/year for each employee. In 1990, the average occupational dose rate for waste workers was 22 mrem; the maximum occupational dose received by an individual worker was 149 mrem; and the minimum was 0 mrem (Ref. 7). This is well below DOE's occupational radiation dose limit of 5 rem/year established in DOE Order 5480.11. Routine occupational exposure from day-to-day operations are to be addressed in the updated SAR. However, those exposures would not be different from the current facilities daily occupational exposure.

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 (Ref. 8), 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 m 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 m 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. To ensure the low risk, radionuclide activity limits must be below 17,390 Ci of ^{90}Sr equivalent.

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.

Buildings 7668 and 7669 would be operated under RCRA permits. The permits require facilities to comply with 40 CFR 265 (or applicable state regulations) which specifies minimum standards for safe operations, including areas such as security, personnel training, and alarm systems. Prior to operation of either facility, the permits would be reviewed to determine if any additional safety documentation, training, or equipment would be required to comply with the permit requirements. Any required changes would be made prior to operation to ensure that the facilities are in compliance with permit requirements.

6. OPERATIONAL REQUIREMENTS

Buildings 7668 and 7669 would be limited to less than 17,390 Ci of ^{90}Sr equivalent to ensure a low risk, as stated in the scenario above. Prior to operation of Building 7668 or Building 7669, the Part B permit documentation and the permit review and approval process for a final safety analysis report (FSAR) would be examined to determine the need for any additional safety documentation. Should any be required, it would be presented prior to operation of the facility.

7. PERSONS AND AGENCIES CONSULTED

No regulatory agencies were required to be consulted as part of the proposed action because the proposed site is in a previously developed and permitted area. Furthermore, surveys conducted in 1991 at the site of the proposed action found no threatened or endangered plant or animal species present (Ref. 3) and no archaeological, cultural, and/or historical sites within the boundaries or adjacent to the proposed project (Ref. 6).

8. REFERENCES

1. *ORNL Mixed Waste Generation Rate/Storage Capacity Assessment* (draft), Environmental Restoration and Facilities Upgrade Program, April 1987.

2. *Safety Assessment, Mixed Waste Storage Facility, Building 7669*, ORNL/ENG/SA-2258/R0, Martin Marietta Energy Systems, Inc., Oak Ridge, Tenn., August 1992.

3. R. L. Kroodsma, Environmental Sciences Division, Oak Ridge Natl. Lab., Oak Ridge, Tenn., "Threatened and Endangered Animal Species at the Site of the Expanded Mixed Waste Storage RCRA Facility," internal correspondence, Aug. 21, 1991.

4. P. D. Parr, *Resource Management Plan for the Oak Ridge Reservation, Vol. 4: Endangered and Threatened Plant Species*, ORNL-6026/V4, Oak Ridge Natl. Lab., Oak Ridge, Tenn., July 1984.

5. M. Cunningham and L. Pounds, *Wetlands on the Oak Ridge Reservation* (draft), March 1991.

6. G. D. DuVall, Archaeologist, *An Archaeological Reconnaissance of the Advanced Neutron Source Project on the Oak Ridge Reservation, Anderson and Roane Counties, Tennessee*, prepared for Martin Marietta Energy Systems, Inc., Oak Ridge, Tenn., July 1991.

7. J. A. Setaro, Office of Environmental Health Protection, Oak Ridge Natl. Lab., Oak Ridge, Tenn., personal communication to D. L. McCorkle, Sept. 19, 1991.

8. *Phase 1 - Safety Analysis Report (SAR) Update Program Hazard Screening, Long-Term Hazardous Waste Storage Facility, Building 7654*, HS/7654/F1/R0, Martin Marietta Energy Systems, Inc., Oak Ridge, Tenn., November 1992.