

PERMIT FOR DIAMOND ORDNANCE RADIATION FACILITY (FOREST GLEN, MD)

Permit Number DORF-1-97

A. Pursuant to AR 50-7, the Director, U.S. Army Nuclear and Chemical Agency herein issues a possession permit for residual radioactive materials at the shutdown Diamond Ordnance Radiation Facility (DORF) at Forest Glen, MD. This permit is issued to the Director, U.S. Army Research Laboratory (ARL). Permit DORF-1-97 is effective 3 June 1997 and expires 2 June 2007.

B. The radioactive materials covered by this permit are those that:

1. are by product materials produced as a result of the DORF operations,
and
2. are present at the DORF site, at locations where facility equipment, or materials were utilized.

C. This permit does not apply to radioactive materials that are or were licensed by the U. S. Atomic Energy Commission or Nuclear Regulatory Commission, radioactive materials not produced at the DORF, or radioactive materials that were removed from the DORF site as part of an authorized disposal or transfer.

D. Conditions for residual reactor radioactivity possession:

1. The Director, ARL, shall designate in writing a responsible individual for oversight of the DORF to ensure that all conditions of this permit are carried out. The Army Reactor Office (ARO) shall be informed of this designation.
2. ARL shall develop, document, and implement a plan with sufficient procedures to ensure that the residual radioactivity remains fixed in place and does not become loose or airborne. The plan should be commensurate with the scope and extent of radiation hazards from the DORF residual reactor radioactivity. The plan may be part of the activities performed by the Walter Reed Army Medical Center (WRAMC) staff. The plan shall be submitted to the ARO for review and approval. Compliance shall be ensured with applicable portions of Army Regulations, Titles 10 and 40 of the Code of Federal Regulations, and shall be designed to limit radiation exposure from DORF materials to levels that are as low as reasonably achievable, but no more than 100 mrem (1.0 mSv) per year to any member of the public. Data shall be available to support the effectiveness of the plan.

3. All areas that are controlled access for the purpose of protecting individuals from exposure to radiation or radioactive materials shall be appropriately posted in accordance with 10 CFR 20 and access limited, with any personnel entering those areas appropriately instructed and monitored.

4. The facility exposure room shall be conspicuously posted to indicate that any individual having safety concerns regarding the deactivated reactor facility may contact the ARL designee or the ARO. The posting shall contain the appropriate telephone numbers.

5. No radioactive wastes shall be produced except incidental amounts as part of decontamination and radioactivity monitoring operations. All radioactive wastes shall be properly labeled, handled, and disposed, in accordance with Army regulations.

6. No activities shall be conducted that would result in an annual release of airborne radioactivity in excess of the more restrictive of (1) 40 DAC-hours at concentrations specified in Title 10, Code of Federal Regulations, Part 20, Appendix B, Table 1, Column 3, or (2) the amount that would give a committed effective dose equivalent of 10 mrem (0.1 mSv) to the nearest person in the unrestricted area.

7. All radioactive material removed from the site shall be labeled, controlled, transported, handled, stored and disposed as required by existing regulations.

8. ARL staff shall provide immediate notification, followed by a detailed written report within 14 calendar days, to the ARO of any incident or condition relating to the DORF residual reactor radioactivity that:

a. caused or could have caused a release of radioactive material greater than the levels of item D.6, or exposure of a person to radiation hazards greater than 100 mrem (1 mSv) total effective dose equivalent in any one year,

b. created a significant change in the radiation or contamination levels at the site,

c. threatened or caused structural damage of the reactor structure, or

d. resulted in the controlled access area entrance of an unauthorized person.

9. ARL staff shall report any occurrence of substantial deviation from the articles of this permit. The initial report shall be made to the ARO within 7 calendar days of its discovery, followed by a detailed written report within 30 calendar days.

10. All reports of incidents, conditions or deviations shall include the following information related to the occurrence: chronological details, cause or reason, immediate actions taken, actions taken to prevent recurrence, and date when final corrective and preventive actions will be accomplished.

11. The reports and notifications required by this permit do not take the place of other notifications that other Federal or Army regulations may require. (For example, see 29 CFR 1910.96, AR 40-14, AR 385-11, and AR 385-40.)

12. DORF records regarding the residual reactor radioactivity shall be maintained by ARL staff, in addition to those that may be required by other documents. All records must be maintained for a period of at least 5 years. Records concerning radioactive material releases, records that are material to final contamination removal, and records detailing final contamination removal shall be maintained until at least 2 years after the final disposition of the residual reactor radioactivity, then transferred to the ARO. Any required radiation exposure records shall be a part of the official Army radiation exposure files.

— 13. An annual (calendar year) report shall be submitted to the ARO no later than May 1 of each year with at least the following information:

- a. Structural condition of the DORF building,
- b. Radiological condition of the DORF exposure room,
- c. Abnormal occurrences,
- d. Summary of any maintenance and repair activities related to the exposure room,
- e. Summary of any other significant activities involving the DORF residual reactor radioactivity, and
- f. Table of management oversight organization with names, titles, telephone numbers, and office designations.

★ E. HISTORY AND BACKGROUND

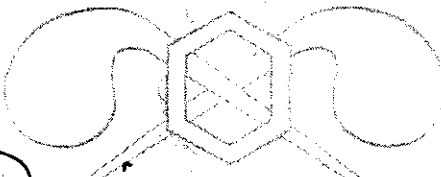
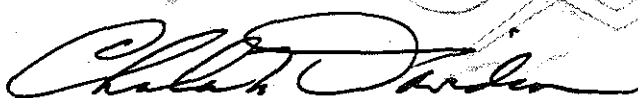
1. The DORF research reactor was last operated in September, 1977. In the time from the last shutdown into 1980, a decommissioning plan was implemented to remove all special nuclear material and remove all other radioactive material to accomplish a total and final decommissioning. These activities included removing the concrete reactor parapet and pouring additional concrete to form a continuous floor throughout the reactor building. The reactor decommissioning was reviewed by the Army Reactor Committee for Health and Safety and certified to be completed according to the regulations in existence at the time.

2. During a 1996 review by the ARO, the condition of the facility was questioned concerning its status relative to 1996 decommissioning standards. The one significant change since 1980 was a new requirement for the gamma radiation level to not exceed 5 mrem/hr at one meter from any surface in the facility (above background). The ARO requested a survey be performed at the DORF to verify

gamma radiation levels that are a result of residual reactor-produced isotopes. The result of this survey was reported to the ARO, indicating that the DORF exposure room has gamma radiation levels that easily exceeded background plus 5 rem/hr. The gamma radiation is a result of neutron activation of the structural concrete and is quite uniform throughout the exposure room concrete.

3. The current utilization of the DORF structure is for storage, processing, and packaging of short-lived radioactive waste from WRAMC. The WRAMC operations are performed under an existing NRC material license, 08-01738, and a DA Radiation Authorization, DARA 08-01-97. These licensed operations require that the DORF building be controlled access, with proper radiation safety postings and radiation exposure monitoring. As long as these licensed operations continue in the DORF building, no additional access control, posting, or radiation exposure monitoring is required. If the NRC and DARA operations cease at the DORF building, the holder of this permit must ensure that proper access control, radiation safety postings, and radiation exposure monitoring are implemented.

★ F. Final disposition of the DORF residual reactor radioactivity and release of the facility for unrestricted use requires approval from the Army Reactor Council, in accordance with AR 50-7. All activities involving the residual reactor radioactivity at the DORF must be in compliance with applicable sections of Titles 10 and 40 of the Code of Federal Regulations, AR 50-7 and AR 385-11.



Director, U.S. Army Nuclear and Chemical Agency