

RPR 80

UTAH NUCLEAR ENGINEERING PROGRAM (UNEP)

RESEARCH REACTOR (UUTR)

PURPOSE

This procedure details instructions related to developing, maintaining, and documenting radiation safety procedures for the **Utah Nuclear Engineering Program (UNEP) Research (Triga) Reactor (UUTR)** on the University of Utah campus.

POLICY

The **University of Utah Radiation Safety Committee (RSC)** is responsible for assuring that each individual who uses ionizing radiation is properly qualified through appropriate training and experience. Training and experience requirements are based on regulatory standards. The **UNEP Reactor Safety Committee (ReSC)** is comprised of members as defined by a **U.S. Nuclear Regulatory Commission (NRC)** license. This license is separate from other licenses issued to the University of Utah by the **State of Utah Division of Radiation Control (UDRC)**. The operation of the UUTR is audited by the Reactor Safety Committee.

Ionizing radiation safety procedures at the UUTR are implemented and overseen by both the Director of the UNEP and the UUTR **Reactor Supervisor**. The NRC Nuclear Facility license issued specifically for research reactor operations relates to actions by qualified reactor operators and is not subject to direct review or approval by the RSC. The Director of the UNEP program is an ex-officio member of the RSC, and the **Radiation Safety Officer (RSO)** is an ex-officio member of the Reactor Safety Committee.

The UNEP submits copies of all new or revised procedures involving ionizing radiation protection to the University's RSO for review. Comments, suggestions and proposed changes are submitted by the RSO to the UNEP Director.

PROCEDURES

Emergency Response

Any response to emergencies, including spills, is to be conducted according to procedures described in the Reactor Emergency Plan and the **Radiological Health Department (RHD), Radiological Procedures and Records (RPR) 45 "RADIATION EMERGENCY NOTIFICATION AND RESPONSE"**. It is the responsibility of the UNEP to ensure all personnel and students have received appropriate spill and emergency training. Documentation of spill and emergency training is maintained by the UUTR Reactor Supervisor.

Radioactive Material Procedures

The receipt, storage, transfer, and use of all licensable radioactive materials at the UNEP facilities shall be performed in compliance with the University's *Radiation Safety Policy Manual*, applicable RPR's, and regulations of the NRC, UDRC and the **United States Department of Transportation (DOT)**.

Survey Instrument Calibration and Testing

All portable radiation survey instruments shall be calibrated according to procedures described in RPR 52 "PORTABLE RADIATION SURVEY INSTRUMENTS USE AND CALIBRATION".

Training

It is the responsibility of the UNEP management to ensure all personnel and students involved in the use and handling of ionizing radioactive material and sources, receive appropriate radiation safety training. Documentation of UUTR based radiation safety training is maintained by the UNEP. Documentation of radiation safety training conducted by the RHD is maintained by the RHD.

Area Survey Procedures

UNEP personnel are responsible for performing and documenting appropriate contamination and dose surveys. Additional surveys are performed by RHD staff in accordance with RPR 50 "RADIONUCLIDE LABORATORY EVALUATIONS". Areas of contamination due to removable material are to be cleaned to below 2,000 DPM/100cm² of removable activity. Areas of fixed contamination are to be evaluated for removal or appropriate shielding. Radiation exposure and dose rates in unrestricted adjoining areas will be monitored to ensure they are maintained below the limit defined in the regulations. Action levels for area surveys are determined by Table 10 "CONTAMINATION LIMITS AND ACTION LEVELS" in RPR 10 "RADIONUCLIDE DATA".

Personnel surveys will be performed whenever individuals exit a controlled area or whenever personnel contamination is suspected. Action levels for personnel surveys are determined by Table 10 "CONTAMINATION LIMITS AND ACTION LEVELS" in RPR 10 "RADIONUCLIDE DATA".

Transportation, Shipping and Receiving

Radioactive materials will be received, prepared for shipment, and transported only in accordance with RPR 55, "TRANSPORTATION OF RADIOACTIVE MATERIAL" and DOT regulations in the **Code of Federal Regulations (CFR)** Title 49 "Transportation". Records required to show regulatory compliance are the responsibility of UNEP management. These records must at a minimum include training records, copies of recipient's radioactive material license, and other applicable documents. These documents are to be kept on file in the UUTR Control Room cabinets.

Acquisition of radioactive material, including receipt of radioactive samples, other than those specifically obtained, used and disposed of under the authorization of the NRC Nuclear Facility license, is to be administered under the authorization of the University Broad scope license and RPR 13 "RADIOISOTOPE ACQUISITION AND DISPOSITION".

Waste Management

Short half-life and long half-life radioactive waste shall be handled and disposed of only in accordance with RPR 54 "RADIOACTIVE WASTE MANAGEMENT" and all applicable State and Federal regulations.

ALARA Program

The UNEP shall follow the As Low As Reasonably Achievable (ALARA) "Investigation procedures" outlined in RPR 46 "PERSONAL EXPOSURE INVESTIGATIONS AND REPORTING" and shall use RPR 46 as the basis for program activities performed in the laboratories at the facility.

SUPPORT SERVICES

The Radiological Health Department will:

Perform radiological evaluations in accordance with RPR 50.

Perform calibrations of portable survey instruments in accordance with RPR 52.

Provide area dosimetry and NVLAP-accredited personal dosimetry for reactor personnel and maintain dosimetry records.

Support reactor emergency preparedness in accordance with the Reactor Emergency Plan.

Analyze water samples from the reactor tank for gross alpha and beta activity every six months.

Perform sealed source leak tests as required by regulations.

Perform basic training for radiation safety isotope handling and maintain related training records.

Provide DOT training commensurate with the radioactive materials being shipped.

Assist with radioactive waste disposal via the University of Utah broad scope license.

Include the reactor effluent release information provided by the Reactor Administrator in the RHD annual reports.

Be available to NRC inspectors and provide records in accordance with RHD commitments.

REFERENCES

American National Standard: ANSI/ANS-15.11-2009

State of Utah Department of Environmental Quality, Division of Radiation Control, Utah Radiation Control Rules (R313)

University of Utah: Radiation Safety Policy Manual; Applicable Radiation Procedures and Records

US Nuclear Regulatory Commission: 10 CFR; 49 CFR; NUREG 1537; NUREG 1556 Volume 9 and Volume 11

Utah Radioactive Material License UT1800001