

**West Valley Site Management Program
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RP-RPP500.00

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SUBJECT: Radiation Protection Plan for the Retained Premises

RP-RPP500.00

1.0 BACKGROUND

The New York State Energy Research and Development Authority (NYSERDA) holds title to the Western New York Nuclear Service Center (WNYNSC) on behalf of the people of the state of New York. The WNYNSC, located near West Valley, New York, approximately 30 miles south of Buffalo, in the towns of Ashford and Concord, operated as a commercial nuclear fuel reprocessing facility from 1966 to 1972. The WNYNSC is divided into three separate operational areas - the 200-acre West Valley Demonstration Project (WVDP), the State-Licensed Disposal Area (SDA), and the relatively undeveloped areas of the Retained Premises. Separate radiation protection programs are in effect for each area under its own set of applicable radiation protection regulations, licenses and permits as described below.

WVDP - After the passage of the West Valley Demonstration Project (WVDP) Act in 1980, the United States Department of Energy (DOE) assumed exclusive use and possession of 200 acres of the WNYNSC to manage and perform the WVDP. Radiation protection for the WVDP is provided by DOE's contractors under the scope of DOE's rules and regulations.

SDA - Adjacent to the WVDP, the SDA was constructed and operated as a commercial radioactive waste disposal facility from 1963 to 1975. NYSERDA holds a radioactive materials license for the SDA, which is administered by the New York State Department of Health under the scope of the ionizing radiation protection regulations in Title 12, Part 38. Work performed in those areas for which the most likely source of contamination is the SDA (i.e., the SDA buffer zone and other areas immediately surrounding the SDA) are also protected by the SDA Radiation Protection Program, which was developed in accordance with the RML.

Retained Premises - NYSERDA is the sole licensee under a provisional operating license (U.S. Nuclear Regulatory Commission [NRC] License CSF-1, issued under 10 CFR 50 *Domestic Licensing of Production and Utilization Facilities*) for the non-SDA portions of the WNYNSC.

The technical specifications of NYSERDA's NRC license are currently in abeyance pending the completion of the WVDP. NYSERDA will provide for the radiation protection, environmental safety and health, security, and management of the Retained Premises in accordance with NRC regulation 10 CFR Part 20: *Standards for Protection Against Radiation* and in keeping with the ALARA (As Low As Reasonably Achievable) philosophy.

2.0 PURPOSE

The RP-RPP consists of this plan as well as implementing procedures developed to keep doses to workers and the public both ALARA, and in compliance with the NRC standards for radiation protection. Revisions to this plan or the associated procedures will be documented, reviewed and approved by the licensee's Radiation Safety Committee (Part 20 RSC) prior to implementation.

3.0 RESPONSIBILITIES

WVSMP Management is ultimately responsible for:

- The radiation safety, security and control of radioactive materials; compliance with regulations; and complete and accurate radiation safety records.
- Compliance with current NRC and U. S. Department of Transportation (DOT) regulations as well as WVSMP procedures.
- Providing adequate resources (including space, equipment, personnel, time, and, if needed, contractors) to the radiation protection program to ensure that the public and workers are protected from radiation hazards.
- Establishing a Part 20 RSC to oversee activities involving the possible exposure to radioactive materials or contamination discovered on the Retained Premises (see RP-RPP001, *Radiation Safety Committee for the Retained Premises*).
- Selection and assignment of qualified individuals to serve as the Radiation Safety Officer (RSO) and as members of the Part 20 RSC (see RP-RPP002, *Radiation Safety Officer for the Retained Premises*).

The Part 20 RSC is responsible for exercising effective oversight of the RPP for the Retained Premises in accordance with 10 CFR Part 20 as described in *Radiation Safety Committee for the Retained Premises* RP-RPP001.

The Radiation Safety Officer is responsible for the day-to-day implementation of the RP-RPP for the Retained Premises in compliance with applicable regulations and WVSMP Procedures. The RSO has direct access to the WVSMP Director and the RSC in order to resolve problems that affect radiation protection on the Retained Premises. The RSO also has the authority to stop work if unsafe conditions exist.

4.0 RETAINED PREMISES RADIATION HAZARDS

Located southeast of the SDA on Buttermilk Road, in a relatively undeveloped area of the Retained Premises, is the Bulk Storage Warehouse (BSW). From 1969 to 1974, the warehouse, which was previously called the Plutonium Storage Facility, was used to store plutonium nitrate solution from Nuclear Fuel Services fuel reprocessing operations. Currently unoccupied, the BSW does not contain hazardous or radioactive wastes; however, radiation protection may be required when working with residual contamination encountered in the surrounding area. Posted segments of Erdman Brook and Frank's Creek contain radiological sediments from site discharges. Access to these areas is not authorized for routine work. Historically, low levels of radiological contamination have also been detected in the sediments of Buttermilk Creek with higher levels measured upstream into Frank's Creek, through the WVDP Fence, and upstream into Erdman Brook to the WVDP lagoon discharge points.

Prior to performing work in any area where radioactive materials may be encountered in unknown concentrations, NYSERDA will perform surveys on the areas of the Retained Premises under the purview of this RP-RPP to determine the magnitude and extent of radiation levels, concentrations or quantities of

radioactive material present in the work area and the potential radiological hazards involved in the work. Resulting hazard identification information will be included in safety documentation prepared for the task. Surveys will be performed in accordance with RP-RPP005, *Radiation and Contamination Surveys on the Retained Premises*.

5.0 ALARA POLICY

NYSERDA is committed to maintaining radiation exposures and releases of radioactive material within regulatory limits and ALARA (see RP-RPP006, *ALARA Policy and Reviews for the Retained Premises*). The Part 20 RSC will review work activities at the WNYNSC that are under the Part 50 license, but outside the authority of the WVDP Act to assure that safety and radiation protection practices are being implemented to keep radiation exposures and releases of radioactive material ALARA in accordance with RP-RPP007, *Radiation Safety Evaluations for the Retained Premises*. In keeping with the ALARA principle, all items released from a radiation work area will be monitored for contamination and decontaminated as necessary prior to release as described in RP-RPP005, *Radiation and Contamination Surveys on the Retained Premises*.

6.0 PERSONNEL RADIATION EXPOSURE MONITORING

Per 10 CFR 20.1502, monitoring of an individual's external radiation exposure is required if the external occupational dose for the calendar year is likely to exceed 10 percent of the dose limit appropriate for the individual. Monitoring of the radioactive material intake is required if:

- the intake in a calendar year is likely to exceed 0.1 ALI (annual limit on intake) for an adult worker, or
- the committed effective dose equivalent is likely to exceed 0.05 rem (0.5 mSv) for the occupationally exposed minor or declared pregnant woman.

In areas under the purview of this program, exposure above these limits is not expected; however, area surveys will be used to ensure that exposure levels are not present above permissible limits when personnel are working in areas that have been previously inaccessible and/or where radiological conditions may be unknown (e.g., BSW drainage or sewage systems).

When required, specific monitoring requirements will be described in the task-specific safety documentation prepared for each job. All dosimetry issued under the purview of this program will be used in accordance with RP-RPP009, *Use of Dosimetry on the Retained Premises*. External contamination monitoring for personnel and personal items released from radiation work areas under the purview of this program will be performed in accordance with RP-RPP010, *Personnel Monitoring on the Retained Premises*, and RP-RPP008, *Personnel Decontamination Procedure for the Retained Premises*.

7.0 ADMINISTRATIVE DOSE LIMITS

The WVSMP has established administrative dose limits to maintain personnel radiation exposure below regulatory dose limits, and reduce individual and collective radiation dose. The table below summarizes and compares the WVSMP's dose limits with the 10 CFR Part 20 limits. Administrative dose limits are

routinely considered in the work planning process and ALARA reviews. Any dose exceeding the WVSMP administrative dose limit will be thoroughly investigated.

ADMINISTRATIVE DOSE LIMITS			
Type of Dose	10 CFR Part 20 Limit (rem/year)	NYSERDA Annual Limit (rem/year)	NYSERDA Daily Limit (rem/day)
Adult Radiological Worker			
The more limiting of: Total effective dose equivalent to whole body, or	5	0.5	0.1
Sum of deep-dose equivalent and committed dose equivalent to any organ or tissue other than lens of eye	50	5	1
Eye dose equivalent to lens of eye	15	1.5	0.3
Shallow-dose equivalent to skin or any extremity	50	5	1
Declared Pregnant Worker			
Dose to embryo/fetus during the entire pregnancy: taken as the sum of the deep-dose equivalent to the woman and the dose to the embryo/fetus from radionuclides in the embryo/fetus and the woman	0.5 rem per gestation period	0.5 rem per gestation period	n/a
Individual Members of the Public			
Total effective dose equivalent	0.1	0.1	n/a

8.0 WASTE MINIMIZATION

The WVSMP is not a routine generator of waste; however, the WVSMP's management responsibilities for the WNYNSC Retained Premises include erosion monitoring, maintenance and environmental investigative efforts that may occasionally result in the generation of low-level radioactive wastes. Waste minimization practices will be incorporated into work planning documents prior to performing any work that may result in the generation of radioactive waste in accordance with RP-RPP011, *Waste Minimization for the Retained Premises*.