

BIG ROCK POINT NUCLEAR POWER PLANT

PROCESS CONTROL PROGRAM (PCP)

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- 1.0 Liquid wastes are treated by filtering and demineralization for clean wastes and either recycled or released to Lake Michigan. Bead resin and filter media will be shipped dewatered as described in Section 2.0. Liquid wastes, if required, will be processed using the methodology described in Section 3.0, if solidified, or Section 5.0, if absorbed for shipment to Richland only.
- 2.0 DEWATERING SOLIDS IN HIGH INTEGRITY CONTAINERS (HIC)
 - 2.1 Solids such as bead resin and filter media will be dewatered and shipped in HICs per approved vendor procedures and the HIC certificate of compliance.
 - 2.2 High integrity containers are approved by the individual burial ground agreement states as meeting 10 CFR 61 waste form stability requirements.
 - 2.3 Free water determination shall be verified by the successful completion and documentation of the vendors approved dewatering procedure.
- 3.0 DELAWARE CUSTOM MATERIAL (DCM) - SILICATE CEMENT

Liquid wastes can be solidified by the DCM method. The silicate solidifies and the cement gives structural strength.

 - 3.1 For solidification, acquire a representative sample of waste. Before following the guidelines outlined below, determine the type of waste to be solidified, example, lab waste, laundry waste, decon solutions, boric acid, oil, etc. Sample for pH, boric acid, visible organics and radioactivity.

Use analysis to determine the proper laboratory procedure to test.

All batches shall be lab tested prior to solidification in a larger container unless sample analysis ($\text{pH} \pm 20\%$) matches the analysis of a waste type which has previously passed lab test criteria.

For all oil waste, do not exceed 50% by volume. Oil must be emulsified with a detergent or boric acid in some type of neutral aqueous waste or tap water.

NOTE: Oil cannot be shipped to Barnwell, South Carolina.

For spent resins, liquid absorbent, or other earthen-like material, dilute with an equal volume of concentrate or tap water to solidify.

All results must be recorded initially, at approximately 24 hours and approximately 48 hours after testing. Grade observations to evaluate sample mixes. The 48-hour test can be omitted if the 24-hour test is good.

The quantity of chemicals added to solidify radwaste shall be within 20% of the quantity as determined by the laboratory test of Step G.

3.2 SOLIDIFICATION AND FREE WATER DETERMINATION

Solidification shall be considered successful if, 48 hours after completion of Appendix A solidification, there is not standing water on the waste surface and the surface is not penetrated more than 2" with a 1" diameter rod. If deeper penetration is possible, then the drum can still be considered solid if the penetration hole remains open after the rod is withdrawn.

Silicate cement shall cure for a minimum of 28 days prior to shipment for disposal. For silicate cement drums, the following shall be done:

Each drum shall be inspected for absence of detectable freestanding liquid after curing at least 28 days. With the drum lid installed, invert each drum and allow drum to remain upside down for at least 24 hours.

After 24 hours, inspect each drum by placing upright and removing the lid. The Radwaste Supervisor or designate and a QC Inspector shall inspect each drum for presence of liquid. Drums which failed the 48 hour solidification evaluation should be capable of passing at this point. If no detectable freestanding liquid is present, the drum can be prepared for shipment. Radwaste Supervisor and QC Inspector document if no detectable freestanding liquid is present.

In the event liquid is observed, those drums with liquid shall be drained of all liquid. When no further liquid can be drained from the drum in a 24-hour period, the drum shall be core-bored or overpacked with two bags of approved absorbent and inspected by QC and Radwaste Supervisor to verify that the drum is dry. After this verification (and documentation) the drum may be prepared for shipment.

Inspect the drum lid and gasket for defects prior to lid installation. Install lid. Use a different lid if defects are found which prevent a tight seal between drum and lid.

4.0 10 CFR 61 REQUIREMENTS

- 4.1 10 CFR 61 classification requirements will be met using Wastetrak computer software program using the scaling factor methodology of AIF/NESP-027, Methodologies for Classification of Low-Level Radioactive Wastes From Nuclear Power Plants, 1983.

The scaling factors will be updated by an ongoing analysis program of actual waste streams. The program will initiate with semiannual samples of available waste streams and may be modified to longer intervals if the data base warrants. Waste streams should include, if available; bead resin, reactor coolant, clean waste, filter crud, and compacted trash.

- 4.2 Documentation of the waste stream analysis, waste form stability and computer software scaling factor security shall be maintained by the Palisades RMC section.

5.0 ABSORBED MATERIALS (Richland Burial Site Only)

5.1 PACKAGING ABSORBED LIQUIDS, INCLUDING OILS

Container must meet DOT Specification 7A requirements as listed in 49 CFR.

Container must be lined with 4 mil plastic liner and sealed at the top when container is packed.

Container must be filled with enough absorbent material to absorb at least twice the volume of radioactive liquid contents (ratio based on absorbency and not on volume or weight). Liquid should be placed at approximately every 12 inches of absorbent to ensure even dispersion.

5.2 PACKAGING OF SCINTILLATION VIALS

Container must meet DOT Specification 7A requirements as listed in 49 CFR.

Container must be lined with 4 mil plastic liner and sealed at the top when container is packed. It is recommended that a layer of absorbent be placed in the bottom of the drum prior to the installation of the plastic liner.

Place approximately 3 inches of absorbent at the bottom of the container, inside the plastic liner. Vials and absorbent must be placed in the container in alternate layers not exceeding 6 inches in depth.

The vials are NOT to be opened.

Container must be filled with enough absorbent material to absorb at least twice the volume of radioactive liquid contents (ratio based on absorbency not on volume or weight).

ATTACHMENT I

TABLE I - ABSORBENTS

- A. Diatomaceous Earth (Medium Grind)
 - B. Speedi Dry
 - C. Celatom (M-P 78)
 - D. Floor Dry - Super Fine
 - E. Hi Dri
 - F. Florco and Florcox
 - G. Instant-Dri
 - H. Safe-T-Sorb
 - I. Oil-Dri (Safe n Dri)
 - J. Zonolite - Grade No. 2, 3 or 4 (Vermiculite)
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Absorbency efficiencies and volumes of absorbent required could vary. In all cases, it is the responsibility of the waste generator and/or packager to determine the efficiency and proper proportions required for the liquids being absorbed.

A written request must be submitted and Departmental approval received prior to use of any absorbent not listed in Table 1. This request must contain the following information:

1. A statement of the absorbency of the material as determined by the manufacturer and copy of the manufacturer's descriptive information.
2. Absorbency for the actual liquid to be disposed must be determined by a bench test (e.g., Westinghouse, Gardner Coleman).
3. Additional factors such as vibration tests, gas generation, long term chemical and radiological stability.

Approval of the absorbent or the procedure approval by the Department does not alter any liability or surety arrangements.