



ARKANSAS POWER & LIGHT COMPANY

Arkansas Nuclear One

TITLE: RECORD OF CHANGES AND REVISIONS

FORM NO. 1000.06A

RADIOACTIVE WASTE CONTROL

REV. #12 PC #

DISPOSAL OF SPENT
RADIOACTIVE RESIN
1603.006 REV. 1

Safety Related YES ☒ NO ☐

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APPROVED BY:

APPROVAL DATE

George H. Lewis
(General Manager)

11/15/82

REQUIRED EFFECTIVE DATE:



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CONTROL

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1.0 PURPOSE

The purpose of this procedure is to delineate the sequence of actions required for the disposal of spent radioactive resins, and to document the critical portions of these actions.

2.0 SCOPE

This procedure applies to spent radioactive resins generated at ANO.

3.0 REFERENCES

3.1 References used to develop this procedure.

None

3.2 References used to implement this procedure.

3.2.1 1104.02, "Makeup and Purification System Operation"

3.2.2 1409.26, "Resin Transfer from T13 to Transfer Cask"

3.2.3 2104.17, "Spent Resin Transfer"

3.2.4 2409.13, "Resin Transfer from 2T13"

3.2.5 1622.003, "Radiological Posting Requirements"

3.2.6 1622.007, "ALARA Job Coverage Practices"

3.2.7 Hittman Nuclear and Development Corp. STD-P-05-004 Process Control Program for Incontainer Solidification of Bead Resin.

3.2.8 Chem Nuclear Systems, Inc. procedure FO-AD-002 "Operating Guidelines for Use of Polyethylene High Integrity Containers".

3.2.9 Chem Nuclear Systems, Inc. procedure FO-OP-003 "De-Watering Bead Resins in a Conical Bottom High Integrity Container to less than 1% Free Standing Water.

3.2.10 Chem Nuclear Systems, Inc., procedure FO-OP-015-436 "Operating Procedure for Resin Transfer and Dewatering of Bead-Type Resins at Arkansas Power & Light - Arkansas Nuclear One.



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3.3 Related ANO Procedures

- 3.3.1 1000.31, "Radiation Protection Program"
- 3.3.2 1000.33, "ALARA Manual"
- 3.3.3 1603.003, "Radioactive Material Shipments"
- 3.3.4 1603.007, "Control of Radioactive Material"
- 3.3.5 1603.010, "Handling of Radioactive Material Containers"
- 3.3.6 1612.003, "Radiological Work Permits"

4.0 DEFINITIONS

None

5.0 RESPONSIBILITIES

5.1 The Radioactive Waste Coordinator is responsible for the following items:

- 5.1.1 Arranging contractor for resin handling and transportation services.
- 5.1.2 Securing a work area for resin transfer and packaging.
(This is normally the west end of the train bay).
- 5.1.3 Coordinating the various ANO Departmental functions.

NOTE: For the disposal of spent radioactive resins, the Radioactive Waste Coordinator is normally the supervisor in charge.

- 5.2 The Health Physics Superintendent is responsible for providing an adequate number of Health Physics Technicians to provide radiological protection.
- 5.3 The Mechanical Maintenance Superintendent is responsible for providing an adequate number of Mechanical Maintenance personnel to provide maintenance support.
- 5.4 The applicable Unit's Shift Supervisor is responsible for providing sufficient personnel to transfer the resin from the holding tank to the disposal container.



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5.5 The Radiochemistry Supervisor is responsible for providing personnel to obtain and analyze a sample of the resin to be disposed of.

6.0 PREREQUISITES

- 6.1 An ALARA review has been completed, and an RWP has been issued.
- 6.2 A transportation cask or another shielded container is available to move the disposal container.
- 6.3 If applicable, sufficient contractor personnel have arrived and have been issued TLD's.
- 6.4 The work area has been lined with protective material.
- 6.5 The disposal container has been placed inside the shielded container.
- 6.6 The applicable Unit's Shift Supervisor has been notified that the prerequisites have been completed and has given his permission to commence the work.

7.0 INSTRUCTIONS

NOTE: Unless specified, the following steps may be worked simultaneously.

- 7.1 Place the cask in the work area and wrap with protective covering to avoid contamination of the trailer or cask.
- 7.2 If necessary, realign the resin transfer hose to the appropriate connection as follows:
 - 7.2.1 Health Physics shall set up the area in accordance with the RWP and good radiological practices. Approximately one gallon of water should be anticipated to leak out when the system is broken.

Area Set Up Complete _____
Health Physics Technician

- 7.2.2 Unit One and Unit Two operations shall perform a valve lineup, as applicable, in accordance with the applicable procedures listed in Section 3.2.

Valve Lineup Complete _____
Waste Control Operator



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- 7.2.3 Connect the resin transfer hose to the appropriate connection. Catch basins or similar devices shall be erected to control leakage.

Resin Transfer Hose Connected
to Appropriate Connection and
Catch Basins Erected

Mechanic

- 7.3 Obtain permission from the Unit One Shift Supervisor and a Health Physics Supervisor to raise the train bay access hatch to the Unit One Auxiliary Building. Raise the hatch and connect the hoses to the disposal container.

- 7.3.1 Permission granted to raise hatch

HP Supv.

- 7.3.2 Permission granted to raise hatch

Unit One Shift Supervisor

NOTE: This step is not applicable if the resin transfer is not being done in the Train Bay.

- 7.4 Complete contractor (if used) and radiological equipment setup in the work area.

- 7.5 Transfer the resin in accordance with the appropriate procedures listed in Section 3.2. Adequate precautions shall be taken in accordance with the RWP and Health Physics instruction to maintain exposures ALARA. Secure resin transfer upon instructions from Health Physics or the Radioactive Waste Coordinator, or other involved personnel.

- 7.6 De-water the transferred resin in accordance with the applicable contractors procedure as listed in Section 3.2.

NOTE: De-watering to be performed by contractor using contractors procedures and not by AP&L.

- 7.7 Repeat Steps 7.5 and 7.6 until the required amount of resin has been transferred.

- 7.8 Radiochemistry shall obtain and analyze a sample of the de-watered resin. A copy of the sample results shall be provided to the Radioactive Waste Coordinator.

Resin Sample for Analysis

Radiochemist



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7.9 If solidification is to be performed, disconnect the transfer hoses and replace the hatch.

NOTE: When the connection to the disposal container is broken, highly contaminated resin beads and/or water may leak out of the hose.

7.9.1 Perform solidification in accordance with the applicable contractors procedures listed in Section 3.2.

NOTE: Solidification to be performed by contractor using contractors procedures and not by AP&L.

7.10 If resin is to be shipped in a de-watered form, complete dewatering in accordance with the applicable contractor's procedure listed in Section 3.2.

NOTE: Dewatering to be performed by contractor using contractors procedures and not by AP&L.

7.10.1 After completion of de-watering, disconnect hoses and replace the hatch, as applicable.

NOTE: When the connection to the disposal container is broken, highly contaminated resin beads and/or water may leak out of the hose.

7.11 Install and seal the lid on the disposal container.

7.12 Remove the protective covering from the cask and trailer. This material should be set aside for decontamination.

7.13 Health Physics shall perform a comprehensive radiation and contamination survey of the cask and trailer. The maximum allowable $\beta\gamma$ contamination is 1,000 dpm/100cm². Decontaminate the cask and trailer as necessary. A copy of the completed survey shall be provided to the Radioactive Waste Coordinator.

7.13.1 Cask and trailer is acceptable for transfer to radwaste.

HP Technician

7.14 Remove the trailer from the work area and store as directed by the Radioactive Waste Coordinator. Post the storage area in accordance with 1622.003 "Radiological Posting Requirements".

7.14.1 Storage area properly posted

HP Technician

NOTE: If further resin transfers are to be performed prior to job completion, repeat steps 7.1 through 7.14 as applicable.



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7.15 After completion of the final resin transfer, decontaminate the equipment, used protective coverings, and the work area.

7.16 Material that was not successfully decontaminated shall be packaged and surveyed in accordance with 1603.010 "Handling of Radioactive Material Containers" and transferred to the Radioactive Waste Storage Building in accordance with 1603.007 "Control of Radioactive Material" for storage or disposal.

7.17 Health Physics shall perform a comprehensive contamination survey of the work area and decontaminate as necessary.

7.17.1 Work Area released for unrestricted access.

HP Supervisor

8.0 FORMS AND ATTACHMENTS

None