NEW YORK POWER AUTHORITY
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
ADMINISTRATIVE PROCEDURES

TITLE: PROCESS CONTROL PROGRAM* PROCEDURE NO.: AP 1.10

REVIEWED BY: PLANT OPERATIONS REVIEW COMMITTEE

Meeting No. 85-031 Date 4/17/85

APPROVED BY: _____ Date 4/17/85
Resident Manager

CONCURRED BY: Richard L. Patch Date 4/17/85
Quality Assurance Superintendent

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1.0 PURPOSE

The purpose of the Administrative Procedure is to implement a Process Control Program (PCP) for the stabilization and solidification of radwaste at the James A. FitzPatrick (JAF) Plant. The objective of the PCP is to provide basis criteria to assure that liquid wastes, evaporator concentrates, resins and filter sludges generated at JAF and destined for offsite burial in a licensed facility are properly stabilized and packaged to meet current Nuclear Regulatory Commission (NRC), Department of Transportation (DOT), state and burial site regulations and criteria.

1.1 Systems Overview

1.1.1 Spent filter/demineralizer sludges from the reactor cleanup system are backwashed into the cleanup system phase separators for storage and are transferred to the Sludge Tank prior to processing. Spent powdered resin sludges from the fuel pool and radwaste filters are discharged to the Sludge Tank for storage. Resin sludges are either transferred from the Sludge Tank to High Integrity Containers (HICs), dewatered by a contractor mobile dewatering skid and shipped offsite for burial, or are transferred from the Sludge Tank to the Concentrated Waste Tank.

1.1.2 Spent bead resins from the condensate polishers and waste demineralizer are stored in the Spent Resin Tank. Spent resins are subsequently transferred to HICs, dewatered and shipped offsite for burial.

1.1.3 Concentrates from the radwaste evaporator are stored in the Concentrated Waste Tank. Concentrated wastes (plus any sludges from the Sludge Tank as in 1.1.1 above) are recirculated in the tank, transferred to a 200 cubic foot steel liner and solidified in the liner using a contractor mobile cement solidification system.

1.1.4 Contaminated oils and oily wastes are transferred to containers and solidified using contractor mobile solidification equipment.

2.0 APPLICABILITY

The Administrative Procedure applies at all times whenever liquid and/or wet-solid low-level radwastes are processed and packaged for shipment and disposal in a licensed burial facility.

3.0 REFERENCES

3.1 Title 10, Code of Federal Regulations, Part 20.

3.2 Title 10, Code of Federal Regulations, Part 50.

3.3 Title 10, Code of Federal Regulations, Part 61.

3.4 Title 10, Code of Federal Regulations, Part 71.

3.5 Title 49, Code of Federal Regulations, Parts 172 and 173.

3.6 USEcology - State of Washington Radioactive Materials License, WN-I019-2.

3.7 CNSI - Barnwell, Waste Management Facility Criteria, S20-AD-010.

3.8 South Carolina, Department of Health & Environmental Control, Radioactive Materials License No. 097.

3.9 Operating Guidelines for Use of Polyethylene High Integrity Containers (vendor document).

3.10 Powdered Resin Dewatering Procedure for Liners (vendor document).

3.11 Bead Resin Dewatering Procedure for Liners (vendor document).

3.12 Process Control Program for Cement Solidification Systems (vendor document).

3.13 Waste Management Group Inc. Topical Report on "RADMAN" - A Computer Code to Classify and Document Packaged LLW in Accordance with 10 CFR Part 61 Regulations, WMG-102, May, 1983 (proprietary document).

3.14 RES Department Procedures and Programs, Radiation Protection Procedures.

4.0 DEFINITIONS

None

5.0 RESPONSIBILITIES AND COMMITMENTS

5.1 Responsibilities

The Superintendent of Power is responsible for ensuring that radioactive wastes destined for burial in a licensed disposal facility are packaged, classified and shipped in accordance with NRC, DOT and burial site regulations and criteria.

The following departments are designated to implement the respective portions of the radioactive waste program:

5.1.1 Operations

The Operations Department (through the Waste Management General Supervisor, the Radwaste Supervisor, the Decon and Shipping Supervisor or their designated alternates) is responsible for processing, loading and packaging wastes in compliance with applicable burial facility regulations and criteria, for direct vendor contact to accomplish the same, and for final inspection of waste shipments.

5.1.2 Radiological and Environmental Services (RES)

The RES Department (through the Health Physics General Supervisor, the Radiation Protection Supervisors or their designated alternates) is responsible for ensuring that waste shipments are properly classified, packaged, described, marked and labeled and are in proper condition for transport in accordance with applicable DOT regulations.

5.1.3 Quality Assurance

The Quality Assurance Superintendent is responsible for ensuring that routine audits are performed of selected activities in the plant's radwaste shipping and handling program.

5.2 Commitments

5.2.1 All liquid and wet solid wastes destined for burial in a licensed facility are stabilized in accordance with burial facility criteria prior to shipment.

5.2.2 All wastes destined for burial in a licensed facility are classified in accordance with 10 CFR 20.311 according to the requirements of 10 CFR 61.55 and the burial facility criteria prior to shipment.

5.2.3 All wastes destined for burial in a licensed facility are certified to be properly packaged, marked, labeled and in proper condition for transportation in accordance with the applicable requirements of 49 CFR 172-173 and 10 CFR 71.

5.2.4 All container, shipping casks and methods of packaging used in the transportation of wastes to a licensed offsite burial facility will be in accordance with applicable NRC, DOT, state and burial facility criteria.

6.0 SPECIAL INSTRUCTIONS

None

7.0 PROCEDURE - PROCESS CONTROL PROGRAM

7.1 Background

The JAF PCP provides the basis criteria that will be used to ensure that burial facility criteria for waste content, class form and free-standing liquid are met.

The JAF Plant currently does not have an installed waste solidification system. Solidification and/or dewatering are performed by a mobile cement unit owned and operated by an outside contractor whose equipment and services are provided at state-of-the-art levels in full conformance with the existing regulatory framework and in accordance with a Quality Assurance Program approved under 10 CFR 50 Appendix B and 10 CFR 71 Appendix E.

This PCP is structured to provide management controls and assurances with regard to contracted services and specialty containers that are used in lieu of an installed system.

For the wastes and processing methods described in section 1.0 above, the process controls in this section apply.

7.2 Solidification of Liquid and Oily Wastes

7.2.1 Power Authority - Contractor Interface

The JAF Plant will ensure that the solidification contractor provides to the New York Power Authority the following documentation prior to the solidification of liquid wastes:

a. A general description of the solidification process including type of solidification agent, process control parameter boundary conditions, proper waste form properties and assurance the solidification system is operated within the established parameters.

b. A general description of the laboratory mixing of a sample of the waste to establish process parameters prior to commencing the solidification process.

c. A general description of sampling of at least one representative sample from every tenth batch to ensure solidification and the action(s) to be taken if the sample fails to verify solidification.

d. The provisions to verify the absence of free liquid.

e. The provisions to reprocess containers in which free liquids are detected.

f. For exothermic solidification processes, the process control parameters that must be met prior to capping the container.

7.2.2 JAF Implementation of Contractor Procedures

With regard to the contractor documentation identified in step 7.2.1 above, the JAF Plant Operations Review Committee shall review and approve contractor's procedures and programs prior to performance of the process operations.

7.3 Dewatering of Spent Resins

Spent filter/demineralizer sludges and spent bead resins are placed in containers and dewatered to ensure the stability of the packaged waste is in accordance with burial site criteria for waste form and minimum free standing liquid.

HICs are used as the method of packaging to ensure stability of wastes in which the specific activity of isotopes of greater than five year half-life exceeds one microcurie/milliliter.

7.3.1 Power Authority - Contractor Interface

HICs are provided by the same contractor that provides the mobile waste processing and dewatering service. The contractor provides the Authority with process control parameters and boundary conditions as well as operating guidance for each HIC type.

The wastes packaged in HICs are dewatered to below the burial site criteria for free-standing liquid using dewatering internals integral to the HIC and a contractor-supplied dewatering skid, accompanied by contractor procedures for dewatering.

The JAF Plant will ensure that the contractor providing HICs and the associated dewatering service provides the following documentation prior to dewatering:

a. A general discussion of the use of HICs for the stabilization of wastes, including process parameters, parameter boundary conditions, proper waste form properties and limitations, and storage and handling requirements.

b. A general description of the dewatering process, including process parameters, boundary conditions, appropriate waste form properties and limitations and assurance that the dewatering process is performed within established boundaries.

c. The provisions to verify the absence of free liquid.

d. The provisions to reprocess containers in which free liquids are detected.

e. The process parameters that must be met prior to capping the container.

7.3.2 Implementation of Contractor Procedures

With regard to the contractor documentation identified in step 7.3.1 above, the JAF Plant Operations Review Committee shall review and approve contractor procedures and programs prior to performance of the process operations. This will ensure that the HIC and the dewatering process are used and operated within established limits.

7.4 Waste Classification

In accordance with the provisions of 10 CFR 20.311, wastes destined for disposal in a licensed facility must be classified as Class A, B or C according to the requirements of 10 CFR 61.55.

To ensure that packaged wastes are properly classified for burial, the JAF Plant utilizes the methods of waste classification contained in the "RADMAN" computer code.

The "RADMAN" code is a series of routines which characterize packaged waste; classify waste packages in accordance with Part 61 waste classification requirements; conduct a quality control program as specified in 10 CFR 20.311; and prepare documentation required by 10 CFR 61, DOT regulations, and license conditions at the burial facilities. The "RADMAN" code operates on a waste stream characteristics data base which is specific to the wastes shipped by the JAF Plant. The data base includes types and forms of waste as well as waste-stream-specific radionuclide distributions.

The vendor who developed the "RADMAN" code documented the "RADMAN" methodology in a Topical Report (Reference 3.13) and submitted it to the NRC (Low Level Waste Licensing Branch - Division of Waste Management). The NRC has approved the "RADMAN" code as an acceptable vehicle which can be used as part of compliance to 10 CFR 20.311 and 61.55. The JAF Plant maintains a copy of the Topical Report as well as the NRC approval document.

RES department procedures contain instructions regarding use of the "RADMAN" code, which the NRC has reviewed and concluded provides an acceptable vehicle to implement waste classification requirements. The procedures also contain instructions for determining 10 CFR 61 waste classifications using methodologies similar to "RADMAN" through manual (non-automated) means.

7.5 ALARA

ALARA considerations are addressed in all phases of the solidification and stabilization process and all other processes involving handling, packaging and transfer of all types and forms of radioactive waste. ALARA considerations are addressed in the plant's Radiation Protection Procedures, and where explicit conditions warrant, through a procedural detailed ALARA review.

7.6 Quality Assurance

Contractor services related to processing, packaging and shipping of radwastes are performed under a 10 CFR 50 Appendix B Quality Assurance Plan, which is reviewed and approved by the JAF Plant Operations Review Committee. In addition, selected activities in the plant's radwaste shipping and handling program are routinely audited under the existing JAF Quality Assurance Program.

8.0 FIGURES

None

9.0 EXHIBITS

None

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J. Phillip Bayne
First Executive Vice President
Chief Operations Officer

April 23, 1985
JPN-85-32

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. Domenic B. Vassallo, Chief
Operating Reactors Branch No. 2
Division of Licensing

Subject: James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
Process Control Program

Reference: NYPA letter, C. A. McNeill, Jr. to D. B. Vassallo, dated December 21, 1984 (JPN-84-86)

Dear Sir:

Enclosed are three (3) copies of the FitzPatrick Process Control Program (PCP). This program is designed to accompany the proposed Radiological Effluent Technical Specifications submitted in the referenced letter.

The PCP has been reviewed and approved by the Plant Operating Review Committee.

If you have any questions, please contact Mr. J. A. Gray, Jr. of my staff.

Very truly yours,

J. P. Bayne
First Executive Vice President
Chief Operations Officer

Enclosure

cc: Office of the Resident Inspector
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