

ATTACHMENT B

Process Control Program Revision 0A  
Issued 2/16/17



**FPL**

# TURKEY POINT PLANT

## RADIATION PROTECTION PROCEDURE

SAFETY RELATED  
INFORMATION USE

Procedure No.

**0-HPA-045**

Revision No.

**0A**

Title:

### PROCESS CONTROL PROGRAM

Responsible Department: RADIATION PROTECTION

Special Considerations:

**FOR INFORMATION ONLY**

Before use, verify revision and change documentation  
(if applicable) with a controlled index or document.

DATE VERIFIED \_\_\_\_\_ INITIAL \_\_\_\_\_

Revision	Approved By	Approval Date	UNIT #	DATE
0	Cynthia Cashwell	02/09/10	PROCEDURE	0-HPA-045
0A	David Houtz	02/16/17	COMPLETED	0A
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REVISION SUMMARY	
Rev. No.	Description
0A	<b>PCR 2185413, 02/16/17, Jerry Phillabaum</b> Editorial: Update procedure references.
0	<b>PCR 09-1964, 02/09/10, Andrew Snyder</b> Complete rewrite and update of the process control procedure. This procedure has been converted to the new format.

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## 1.0 PURPOSE

1. The Turkey Point Process Control Program (PCP) implements the requirements of 10 CFR Part 50.36a and General Design Criterion 60 of Appendix A to 10 CFR 50. Specifically, the PCP applies to waste form classification of all radioactive waste destined for land burial in accordance with 10 CFR 20.2006. In addition, the specific requirements are provided for dewatering of bead resins for disposal and for vendor supplied processes for solidification, encapsulation or absorption of liquid or wet solid radioactive wastes when performed on site and under the licenses issued to Turkey Point by the Nuclear Regulatory Commission.

If the radioactive waste is shipped to a licensed radioactive waste disposal facility for disposal, the Turkey Point Plant is responsible to meet all of the license conditions, including waste form and waste classification requirements of the disposal site radioactive material license.

If the radioactive waste is shipped to a radioactive waste processor for further processing of the waste prior to disposal, the Turkey Point Plant is responsible to meet all of the license conditions of the radioactive waste processor. In this case, however, it is the responsibility of the radioactive waste processor to meet the requirements of the radioactive waste disposal site license for the radioactive waste shipped to the disposal site.

2. Discussion

- A. The PCP contains provisions to assure that dewatering of bead resins results in a waste form with characteristics that meet the requirements of 10 CFR 61 as implemented by 10 CFR 20 and of the low level radioactive waste disposal site. The Process Control Program includes in addition to this procedure the following related procedures:

- (1) 0-NCOP-502, DTS Media Dewatering
- (2) 0-NCOP-506, Operation of the Primary Fillhead and Resin Liner
- (3) 0-HPS-040.5, 10 CFR 61 Compliance and Radioactive Waste/Material Shipment Classification and Characterization

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**1.0 PURPOSE (continued)**

**2. (continued)**

- B.** Vendor supplied processes for solidification, encapsulation or absorption of liquid radioactive waste are conducted in accordance with a vendor process control program and appropriate operating procedures specific to the process control and are reviewed and accepted by PNSC and approved by the Plant General Manager. Once approved for use at Turkey Point Plant, changes to the vendor's process control program must be documented in accordance with Technical Specification 6.8 and FSAR 12.10 and reviewed and accepted by PNSC and approved by the Plant General Manager prior to continued use at Turkey Point Plant.
- C.** All radioactive waste shipped for land burial must meet the requirements of 10 CFR 20.2006 regarding waste form classification and packaging. This is implemented through procedure 0-HPS-040.5, 10 CFR 61 Compliance and Radioactive Waste/Material Shipment Classification and Characterization.

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## 2.0 PRECAUTIONS AND LIMITATIONS

1. Process Control Procedures used for the dewatering of radioactive bead resins that establish the conditions that must be met shall be based on full scale testing. This is to provide reasonable assurance that the dewatering and drying of the resin and disposal container will result in volumes of free standing water, at the time of disposal, within the limits of 10 CFR, Part 61 as implemented by 10 CFR 20 and of the low level radioactive waste disposal waste.
2. Vendor supplied solidification, encapsulation and absorption processes performed on site shall be based on process control procedures, operating procedures and testing that ensures that the final waste form will meet the applicable requirements of 10 CFR 61 and of the disposal license. Evidence that the vendor's process control program will meet the applicable waste form requirements of 10 CFR 61 and the disposal site license may be in the form of topical reports, NRC approved documentation, vendor test reports, inspection reports or other documentation as appropriate for the specific waste form requirements that must be met or both (e.g., Class A unstable, Class A stable, Class B or Class C). Procedures which are to be used must be controlled per the vendor's QA program.
3. All changes to the Turkey Point Plant Process Control Program shall become effective after review and acceptance by PNSC and approval of the Plant General Manager.
4. All changes to the Turkey Point Plant Process Control Program shall be documented in accordance with FSAR 12.10. This documentation shall contain the following:
  - A. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s), and,
  - B. A determination that the change will maintain the overall conformance of the solidified or dewatered waste product to existing requirements of Federal, State or other applicable regulations.

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### 3.0 RESPONSIBILITIES

1. It is the responsibility of the Plant General Manager to assure that all necessary procedures, equipment and support are provided to properly implement the PCP.
2. It is the responsibility of the Chemistry Manager or his designee to assure that the radioactive bead resin will be dewatered in accordance with PCP.
3. It is the responsibility of the Radiation Protection Manager (RPM) or his designee to assure that radioactive waste material is classified in accordance with the PCP.
4. FPL Dewatering equipment shall be operated by or under the direction of FPL personnel by utilizing approved station procedures.



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#### 4.0 INSTRUCTIONS

##### 4.1 Dewatered Radioactive Bead Resins:

1. Disposal of dewatered radioactive bead resins is limited to the containers for which full scale dewatering tests have been conducted; and, in the case of high integrity containers, for which certification has been established.
2. Dewater the container per 0-NCOP-502, DTS Media Dewatering, or 0-NCOP-506, Operation of the Primary Fillhead and Resin Liner.
  - A. Only containers compatible with FPL owned or leased resin transfer/dewatering equipment may be used.
3. Radioactive bead resins shall be dewatered, as appropriate, to meet shipping and transportation requirements during transit and disposal site requirements when received at the disposal site.
  - A. With dewatering **NOT** meeting disposal site, shipping and transportation requirements, suspend shipment of the inadequately dewatered bead resin and correct the PROCESS CONTROL PROGRAM, the applicable procedures or the dewatering system, or both, as necessary to prevent recurrence.
  - B. With dewatering **NOT** performed in accordance with the PCP:
    - (1) If the dewatered bead resin has **NOT** already been shipped for disposal, verify each container to ensure that it meets burial ground, shipping and transportation requirements and
    - (2) Take appropriate administrative action to prevent recurrence
4. Prior to disposal, each container of radioactive bead resins shall be tested for free standing liquids to assure that it meets shipping, transportation and disposal site requirements.
5. Close the container per the manufacturer's instructions.

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#### 4.2 Solidification

1. Solidification, encapsulation or absorption of radioactive materials shall be performed in accordance with FPL approved vendor procedures. These procedures shall provide for the following:
  - A. Vendor's procedures, checksheets, checklists, etc., shall be FPL site specific and reviewed and accepted by PNSC and approved by the Plant General Manager prior to implementation.
  - B. These procedures shall include Hold Points for FPL-PTN verification of crucial steps within the process. These steps may include, but are **NOT** limited to the following:
    - (1) Sampling of the waste stream
    - (2) Review and acceptance of waste analysis
    - (3) Verification of process test specimens
    - (4) Verification of waste additions
    - (5) Verification of chemical additions
    - (6) Verification of mixing
    - (7) Verification of final waste form and
    - (8) Verification of free standing liquid
2. All radioactive waste material packaged and destined for land disposal shall conform to the requirements of 10 CFR 20.2006 as implemented by procedure 0-HPS-040.5, 10CFR61 Compliance and Radioactive Waste/Material Shipment Classification and Characterization. If waste form classification exceeds Class C or packaging does **NOT** meet the requirements of the waste form class, the RPM shall be notified and shipment shall **NOT** be made.

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#### 4.2 Solidification (continued)

3. The annual Radioactive Effluent Release Reports shall include:

A. The following information for each class of solid waste (as defined by 10 CFR Part 61) shipped off site during the report period:

- (1) Volume
- (2) Total curie quantity (specify whether determined by measurement or estimate)
- (3) Principal radionuclides (specify whether determined by measurement or estimate)
- (4) Type of waste (e.g., dewatered spent resin, compacted dry waste, evaporator bottoms)
- (5) Type of container (e.g., LSA, Type A, Type B, Limited Quantity)
- (6) Solidification agent or absorbent (e.g., cement, bitumen, vinyl chloride)

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#### 4.2 Solidification (continued)

##### 3. (continued)

B. The following information for major changes to the solid radioactive waste system:

- (1) A summary of the evaluation that led to the determination that the change could be made in accordance with 10 CFR 50.59;
- (2) Sufficient detailed information to totally support the reason for the change without benefit of additional or supplemental information;
- (3) A detailed description of the equipment, components and processes involved, and the interfaces with other plant systems;
- (4) An evaluation of the change which shows the predicted quantity of solid waste that differs from those previously predicted and in the license application and amendments thereto;
- (5) A comparison of the predicted releases of radioactive materials as solid waste to the actual release for the period prior to when the changes are to be made.
- (6) An estimate of the exposure to plant operating personnel as a result of the change.
- (7) Documentation that the change was reviewed and accepted by PNSC and approved by the Plant General Manager.

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## 5.0 RECORDS

### 5.1 Records Required

1. Records shall be as per 0-NCOP-502, DTS Media Dewatering, 0-NCOP-506, Operation of the Primary Fillhead and Resin Liner, and 0-HPS-040.5, 10 CFR 61 Compliance and Radioactive Waste/Material Shipment Classification and Characterization.
2. Records of vendor supplied solidification, encapsulation or absorption processes for liquid radioactive wastes.
3. Annual Radioactive Effluent Release Reports.
4. Notifications:
  - A. If it is suspected that the free standing water requirements may **NOT** be met for any container of radioactive bead resin shipped to a disposal site, notify the Plant General Manager and the RPM.
  - B. If the process control procedures have **NOT** been followed or if free standing water may be present in the final shipping container of bead resin in amounts greater than allowed by regulations, notify the RPM or designee.
5. Records:
  - A. Records of reviews performed for changes shall be retained as required by FSAR 12.10 and shall be maintained in the plant files in accordance with RM-AA-100, Records Management Program.

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## 6.0 FUNCTIONAL CRITERIA

None

## 7.0 TERMS AND DEFINITIONS

1. Absorption - The process of absorbing liquid radioactive waste materials onto an absorbent material.
2. Dewatering - The process of removing free standing water from a final disposal package which contains radioactive bead resins to meet the applicable requirements of 10 CFR 61 and of the disposal site license and can include drying to a relative humidity end point.
3. Encapsulation - The process of enclosing radioactive waste material within a disposal site approved stabilization media, such that the final product meets the applicable requirements of 10 CFR 61 and of the disposal site license.
4. Free Standing Water - Liquid which is **NOT** retained by the waste form.
5. Solidification - The process of solidifying liquid radioactive waste material in a disposal site approved stabilization media, such that the final product meets the applicable requirements of 10 CFR 61 and the disposal site license.
6. The Process Control Program (PCP) - Contains the current formulas, sampling, analysis, tests and determinations to be made to ensure that processing and packaging of solid radioactive wastes, based on demonstrated processing of actual or simulated wet solid wastes, will be accomplished in such a way as to assure compliance with 10 CFR Parts 20, 61 and 71, State regulations, burial ground requirements and other requirements governing the disposal of solid radioactive waste.
7. Visual Inspection - The direct observation of the bead resins during the entire period of resin transfer as they are packaged in the final disposal container.
8. Waste Form Classification - Classification of radioactive waste as per 10 CFR 61.55 and 10 CFR 61.56.

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## 8.0 REFERENCES AND COMMITMENTS

### 8.1 References

#### 8.1.1 Implementing References

##### 1. Regulatory Guidelines

- A. Title 10CFR, Parts 20, 30, 61 and 71
- B. Radioactive waste sampling, analysis and waste classification. Waste shall be classified as per 10 CFR 61.55. Waste Classification and methods set forth in NRC BTP on Radioactive Waste Classification shall be used.
- C. Radioactive waste processing including waste solidification and stabilization. Acceptance criteria shall meet criteria in:
  - 10 CFR 61.56, Waste Characteristics
  - NRC BPT on Waste Form
  - Disposal Site criteria
- D. Radioactive waste packaging and shipping acceptance criteria shall meet requirements in:
  - 10 CFR 20, Appendix F/Appendix G
  - 10 CFR 71, Packaging and Transportation of Radioactive Material
  - 49 CFR 170-189, Transportation of Hazardous Materials

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### 8.1.2 Developmental References

1. Quality Instructions/Plant Procedures
  - A. LI-AA-1000, On-Site Review Group
  - B. QI-5-PTN-1, Instructions, Procedures and Drawing
  - C. AD-AA-100, Procedure Program
2. Final Safety Analysis Report
  - A. 3/4 - 11.1, Waste Disposal System
  - B. 12.10, Process Control Program

### 8.2 Commitments

1. None