

ILLINOIS POWER COMPANY
CLINTON POWER STATIONCPS No. 1888.00
CLASS CODE: FNQN

TITLE: PROCESS CONTROL PROGRAM

Scope of Revision:

Rev. 0 cancelled. This is a complete re-write.

FOR INFORMATION ONLY

LIST OF EFFECTIVE TCFs					
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1.0 PURPOSE

The purpose of the Process Control Program (PCP) is to define the necessary program guidance used at Clinton Power Station (CPS) to ensure that solid radioactive waste management activities, in packaging radioactive waste for disposal, conform to the Code of Federal and State Regulations and the Waste Burial Site License Criteria. This procedure fulfills a requirement by the CPS Technical Specifications, Sections 3.11.3, 4.11.3 and 6.5.1.6.1.

2.0 DISCUSSION/DEFINITIONS

2.1 Discussion

2.1.1 A large portion of the waste produced in a nuclear power station is in a form which is either liquid or in a wet solid form (e.g., resins, filter sludge, evaporator bottoms) and requires processing to obtain an acceptable, solid, monolithic form for burial. The solidification of these wastes is to be performed by a vendor utilizing a mobile solidification system. A management review of the vendor's topical report is necessary to assure vendor operation and requirements are compatible with plant operation and plant responsibility.

2.1.2 The Clinton Power Station Radwaste Solidification System may, in the future, provide for the solidification of radioactive wastes. The radioactive wastes would be mixed with cement or other binding media (e.g., asphalt, Dow media) and conditioning additives to produce a monolithic solid with no free-standing liquids. In addition, radioactive wet solids may also be processed by dewatering to assure there is no free-standing water. Compliance with 49CFR, 10CFR20, 10CFR61, 10CFR71 and other applicable regulations would be assured by adherence to approved procedures and instructions.

2.2 Definitions

None

3.0 RESPONSIBILITY

- 3.1 The Power Plant Manager has the overall responsibility for the Solid Radioactive Waste activities at CPS.
- 3.2 The Supervisor - Radwaste is responsible for the implementation of the requirements of this procedure.
- 3.3 The Supervisor - Solid Waste is responsible for the review of this procedure and the development and implementation of procedures relating to the requirements of this procedure.
- 3.4 The Supervisor of Radiation Protection is responsible for submitting the Semi-Annual Radioactive Effluent Release Report to which Solid Radwaste Group provides information regarding Solid Radioactive Waste.

4.0 PRECAUTIONS

None

5.0 PREREQUISITES

This procedure and any changes thereto requires review by the FRG and submission to the U.S. N. R. C. in the Semi-Annual Radioactive Effluent Release Report for the period in which the changes were made.

6.0 LIMITATIONS AND ACTIONS

None

7.0 MATERIALS AND/OR TEST EQUIPMENT

None

8.0 PROCEDURE8.1 Wet Waste

8.1.1 Liquid Wet Waste

Liquid wet wastes at CPS are processed by approved procedures to a condition meeting shipping and disposal criteria on Free Standing Water (FSW). Specific instructions on processing and required FSW limits are contained in plant approved procedures and/or qualified vendor procedures approved by CPS.

8.1.2 Containers, Shipping Casks and Packaging

Solid Radioactive Waste is processed, packaged, and shipped in accordance with CPS approved procedures and/or qualified vendor procedures approved by CPS. These procedures provide specific instructions which ensure the containers, shipping casks and packaging methods comply with applicable Code of Federal Regulations, State Regulations and Radioactive Waste Burial Site Criteria.

8.1.3 Shipping and Disposal

Solid Radioactive Waste is prepared, loaded and shipped to a Federal and/or State Licensed Radioactive Waste Disposal Facility (Burial Site) in accordance with CPS approved procedures and/or qualified vendor procedures approved by CPS. These procedures shall provide specific instructions to ensure the shipments meet the intended Burial Site License Requirements as well as applicable federal and state regulations.

8.1.4 Laboratory Mixing of Samples

Qualified vendor procedures approved by CPS shall provide written instructions on sample processing and handling to determine process parameters prior to actual solidification. Included in these procedures shall be a description of the laboratory mixing method used for these samples.

8.1.5

Solidification Process

Qualified vendors utilized by CPS for radioactive waste solidification are required to provide a Process Control Program and written procedures approved by the vendor and subsequently approved by CPS prior to use. Included in these documents are:

1. A description of the Solidification Process
2. Type of Solidification agent used
3. Process control parameters
4. Parameter boundary conditions
5. Proper waste form properties
6. Specific instructions to ensure the systems are operated within established process parameters.

8.1.6

Sampling Program for Solidification

Vendors utilized by CPS for radioactive waste solidification are required to include in their approved procedures requirements to sample at least every tenth batch of each type of wet radioactive wastes (e.g., filter sludges, spent resins, evaporator bottoms, boric acid solutions and sodium sulfate solutions) to ensure solidification and to provide actions to be taken if a sample fails to verify solidification in accordance with CPS technical specification 4.11.3a and b. These procedures shall be approved by CPS prior to use.

8.1.7

Free Standing Water (FSW)

Vendors utilized by CPS to process wet wastes are required to include in their approved procedures provisions to verify that the FSW Criteria in federal and state regulations and Burial Site License Criteria are met for the specific type of waste being processed. These procedures shall be approved by CPS prior to use.

8.1.8 Corrective Actions for Free Standing Water (FSW)

Vendors utilized by CPS to process wet wastes are required to include in their approved procedures provisions for correcting processed waste in which free standing water in excess of FSW Criteria is detected. These procedures shall be approved by CPS prior to use.

8.2 Oily Waste

Oily wastes at CPS are processed in accordance with approved plant procedures. These plant procedures shall specify the proper methods to treat oily waste to comply with the criteria in the Code of Federal Regulations, State Regulations and applicable Burial Site License Requirements.

8.3 Special Cases

Based on previous industry experience, CPS foresees the potential for situations arising that may be beyond existing plant capabilities. Anticipating this possibility, provisions are made herein to accommodate such situations in a timely manner by using special techniques or processes. These special cases should be controlled as follows:

8.3.1 Implementing procedures shall be developed comparable to those used for normal plant solid waste activities based on the guidance of this PCP and incorporating the applicable provisions for process control and testing.

8.3.2 Use of this provision and supporting information included in the next Semi-Annual Radioactive Effluent Release Report described in Section 8.5.5.

8.4 ALARA

Solid Radioactive Waste Management activities at CPS shall be conducted in accordance with CPS 1895.00 ALARA Program.

8.5 Administrative Controls

- 8.5.1 Directions for extensive or complex jobs where reliance on memory cannot be trusted shall require the appropriate written procedure to be present and referred to directly.
- 8.5.2 Directives shall include appropriate quantitative and/or qualitative criteria for verifying that the specified activities have been satisfactorily accomplished.
- 8.5.3 To ensure compliance with the applicable portions of the PCP, vendor procedures shall be reviewed by the Supervisor-Solid Waste and approved by the FRG.
- 8.5.4 Documentation shall be maintained on each batch of processed waste indicating source of waste, date processed, processing parameters, physical and chemical characteristics, radiation levels, activity levels, contamination levels, and other pertinent data required to classify the waste. This documentation shall be retained in accordance with CPS No. 1977.01, Radwaste Records or 7017.01, Radiation Protection Records for documentation involving Radiological Surveys.
- 8.5.5 Information on CPS Solid Radioactive Waste shipped offsite shall be reported in the Semi-Annual Radioactive Effluent Release Report to the Nuclear Regulatory Commission. Information reported includes:
1. Container volume
 2. Total curie quantity and method of determination (measurement or estimate).
 3. Principal radionuclides and method of determination (measurement or estimate).

4. Type of waste (e.g., spent resin, DAW, etc.).
5. Type of container (e.g., STP, Type A, Type B).
6. Solidification agent (e.g., asphalt, cement, Dow media).
7. Supporting documentation of changes to the Process Control Program, and special cases.

9.0 ACCEPTANCE CRITERIA

None

10.0 FINAL CONDITIONS

None

11.0 REFERENCES

- *11.1 Title 10 and 49 Code of Federal Regulations
- 11.2 NUREG 0800 U.S. Standard Review Plan Section 11.4 Solid Waste Management Systems
- *11.3 CPS Technical Specifications Section 6.5.1.6.1 and 3.11.3 and 4.11.3
- *11.4 CPS Final Safety Analysis Report Chapter 11 Section 11.4.2.4
- 11.5 CPS No. 1977.01 Radwaste Records
- 11.6 CPS No. 7017.01 Radiation Protection Records

12.0 APPENDICES

None

13.0 DOCUMENTS

None

Attachment B

Additional Information to
Associated Technologies, Inc. (ATI)
Topical Report No.
ATI-VR-001-P-A
"ATI Volume Reduction and
Bitument Solidification System"

In the Commission's acceptance of Topical Report ATI-VR-001-P-A, the NRC requested that the licensee provide additional information when referencing the above report:

- (1) Any exceptions or deviations from the ATI Topical Report dated January 1981.

Response: The only exception being taken is that Illinois Power Company is adopting Supplement No. 1 to Topical Report No. ATI-VR-001-P-A. This supplement has been submitted to the NRC for review. Also, this supplement provides further information on the design and operational differences between the ATI system in the main report and the Transportable Volume Reduction and Bitument Solidification System (TVR-III System).

- (2) Interfaces between the plant and the MVRs ATI System.

Response: Interfaces between the plant and the mobile volume reduction system (MVRs) are described in Supplement No. 1 of the ATI Topical Report (Section 3.4) and the Clinton Power Station Final Safety Analysis Report Section 11.4 (Amendment #34).

- (3) Location and arrangement drawings of the ATI System in the plant.

Response: The system that will be used at Clinton Power Station is a mobile system. A general arrangement drawing of the system is provided in Supplement #1 of the ATI Topical Report. When ATI's system is being used, it will be located in the radwaste building truck bay.

- (4) Waste classification program to demonstrate that the solid waste product is classified in accordance with 10CFR61, Section 61.55 and the NRC Branch Technical Position on waste classification.

Response: This program is described in the Clinton Power Station, "Radwaste Material Shipping Manual" (Procedure No.). Processed waste will be sampled in accordance with procedures described in the TVR-III System. Results from the samples will be used to classify the solid waste product.

- (5) Description of the solid waste product container to be used for the ultimate disposal of the ATI solidified product.

Attachment B (Cont'd)

Response: Supplement #1 of the ATI Topical Report says that the TVR-III System will utilize 55-gallon drums. No other size will be used. The drum which ATI currently plans to use is a 55-gallon DOT Specification 17E 20/18 Gauge drum with an 11½" tap opening. This drum is available from several manufacturers and is acceptable at burial sites at Barnwell, S.C. and Richland, Washington.

- (6) The capability of the plant radioactive waste treatment system to meet the requirements of Appendix I to 10CFR50 due to the operation of the ATI System.

Response: The Topical Report No. ATI-VR-001-P-A describes permanent plant equipment. Illinois Power intends to use ATI's TVR-III, which is described in Supplement No. 1 of the ATI System. In addition, a duct which connects the discharge of exhaust gases into the Clinton Power Station ventilation systems has been provided. The ATI equipment will be located in an area of the plant which meets the ALARA (As Low As Reasonably Achievable) concept and will be monitored routinely by the Radiation Protection organization. Although the radwaste truck bay will not always be occupied, there will be times when workers will be in the area during processing. Appropriate radiological controls will be instituted.