WATERFORD 3 SES
PLANT OPERATING MANUAL

LOUISIANA POWER & LIGHT
MIDDLE SOUTH UTILITIES SYSTEM

POM VOLUME 20
POM SECTION 1

RW-1-210
REVISION 0

LP&L W--3 RECORDS

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ADMINISTRATIVE PROCEDURE

PROCESS CONTROL PROGRAM

PORC Meeting No. 84-119

Reviewed: _____
PORC Chairman

Approved: _____ 11/9/84
Plant Manager-Nuclear — Approval Date

Effective Date

REVIEW COVER SHEET

REVIEW OF: (Change 1) RW-1-210 - Process Control Program (Rev.0)

PORC REVIEW

The PORC has reviewed this item and determined that a safety evaluation was performed (as applicable), that an unreviewed safety question does not exist (as applicable), that a change to the Technical Specifications is not required, and that nuclear safety is/was not adversely affected.

ORDER OF REVIEW	PORC MEMBER	PORC MEMBER SIGNATURE	RECOMMENDED FOR APPROVAL YES	RECOMMENDED FOR APPROVAL NO	DATE
2	Maintenance Superintendent	[signature]	✓		11/19/84
4	Operations Superintendent	[signature]	✓		11/19/84
1	Radiation Protection Superintendent	[signature]	✓		11/19/84
3	Plant Quality Manager	[signature]	✓		11/19/84
	Technical Support Superintendent				
	Assistant Plant Manager				
	PORC Chairman	[signature]	✓		11/19/84

PORC Meeting No. 1 Item No. 1 Date: 11-19-84

This item is recommended for approval? ☒ YES ☐ NO

This item requires SRC/NRC review prior to implementation? ☐ YES ☒ NO

If yes, ensure documentation supporting review is attached.

This item requires QA review prior to implementation? ☐ YES ☒ NO

QA REVIEW

Reviewed by N/A DATE N/A
Corporate QA Manager

PLANT MANAGER-NUCLEAR APPROVAL (REFER TO 5.4.12.1)

Comments:

Approved by [signature] DATE 11/19/84
Plant Manger-Nuclear

WATERFORD 3 SES

PLANT OPERATING MANUAL — Check Block Below

CHANGE/REVISION/DELETION REQUEST |_| POM |_| PORC-S/C

Procedure No. RW-1.210 Title Process Control Program

Effective Date _____ (if different from approval date)

Complete A, B, and C

A. Change No. 1 |X| Permanent |_| Deviation Expiration Date _____

B. Revision No. 0

C. Deletion |_| YES |X| NO

DESCRIPTION OF CHANGE OR REVISION

Change typographical errors in reference section, and correct improper reference in Section 5.4.1.1.

REASON FOR CHANGE, REVISION, OR DELETION

Change typographical errors in reference section and correct improper reference in Section 5.4.1.1.

REQUIRED SIGNATURES

ORIGINATOR Lawrence R Simon DATE 11/19/84

SAFETY REVIEW

Does this change, revision, or deletion:

1. Change the facility as described in the FSAR? YES ____ NO X
2. Change the procedures as described in the FSAR? YES ____ NO X
3. Conduct tests/experiments not described in the FSAR? YES ____ NO X
4. Require a change to the Technical Specifications? YES ____ NO X

If the answer to any of the above is yes, complete and attach a 10CFR50.59 Safety Evaluation.

SAFETY REVIEW Lawrence R Simon DATE 11/19/84

TECHNICAL REVIEW NA PWR DATE 11/19/84

GROUP HEAD REVIEW R W Kenning DATE 11/19/84

TEMPORARY APPROVAL* (SRO) _____ DATE _____

TEMPORARY APPROVAL* _____ DATE _____

*Temporary approval must be followed by Plant Manager/APM-N - Nuclear approval within 14 days.

REVIEW COVER SHEET

REVIEW OF: RW-1-210 - Process Control Program (Rev. 0)

PORC REVIEW

The PORC has reviewed this item and determined that a safety evaluation was performed (as applicable), that an unreviewed safety question does not exist (as applicable), that a change to the Technical Specifications is not required, and that nuclear safety is/was not adversely affected.

ORDER OF REVIEW	PORC MEMBER	PORC MEMBER SIGNATURE	RECOMMENDED FOR APPROVAL YES	RECOMMENDED FOR APPROVAL NO	DATE
	Maintenance Superintendent				11-8-84
	Operations Superintendent		✓		11-8-84
	Radiation Protection Superintendent		✓		11/8/84
	Plant Quality Manager		✓		11/8/84
	Technical Support Superintendent		✓		11/8/84
	Assistant Plant Manager				
	PORC Chairman		✓		11/8/84

PORC Meeting No. 84-119 Item No. 41 Date: 11-8-84

This item is recommended for approval? ☒ YES ☐ NO

This item requires ~~SRC~~/NRC review prior to implementation? (N 11-8-84) ☒ YES ☐ NO

If yes, ensure documentation supporting review is attached.

This item requires QA review prior to implementation? ☐ YES ☒ NO

QA REVIEW

Reviewed by N/A DATE N/A
Corporate QA Manager

PLANT MANAGER-NUCLEAR APPROVAL (REFER TO 5.4.12.1)

Comments:

Approved by N/A DATE N/A
Plant Manger-Nuclear

WATERFORD 3 SES

PLANT OPERATING MANUAL — Check Block Below

NEW PROCEDURE REQUEST — [X] POM [ ] PORC-S/C

PROCEDURE NO. RW-1-~~001~~ 210 SWK 11/5/84 REV. NO. 0 PROCEDURE TYPE Administrative

TITLE Process Control Program

EFFECTIVE DATE _____ (IF APPLICABLE)

AUTHOR L.R. Simon EXPIRATION DATE _____ (IF APPLICABLE)

DESCRIPTION OF PROCEDURE Describes methodology to be used in developing solidification, dewatering AND Waste classification implementing procedures

REASON FOR PROCEDURE Required for OL license

AUTHORIZED BY T Barkhurst DATE 11/9/84
Plant Manager-Nuclear (POM)

SAFETY REVIEW
Does this procedure: Assist. Plant Manager-Nuclear(PORC-S/C)

1. Change the facility as described in the FSAR? YES ____ NO ✓
2. Change the procedures as described in the FSAR? YES ____ NO ✓
3. Conduct tests/experiments not described in the FSAR? YES ____ NO ✓
4. Require a change to the Technical Specifications? YES ____ NO ✓

If any question 1 through 4 has been answered YES, complete and attach a 10CFR50.59 SAFETY EVALUATION.

SAFETY REVIEW Laurence R Simon 11/8/84
Signature, Author Date

TECHNICAL REVIEW _____ 11/8/84
Signature, Technical Reviewer Date

GROUP HEAD REVIEW R W Kenning 11/3/84
Signature, Group Head Date

Applicable Conditions (Temporary Procedures Only): _____

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1.0 PURPOSE

1.1 The purpose of Waterford Steam Electric Station - Unit Number 3 (Waterford 3) Process Control Program (PCP) is to describe the program which provides reasonable assurance of the complete solidification of various radioactive "wet wastes" including resin slurries and evaporator bottoms are accordance with applicable Department of Transportation (DOT), Nuclear Regulatory Commission (NRC), State and licensed burial facilities acceptance criteria for packaging and shipment to an approved burial site. Compliance with these criteria will be achieved through implementation of the PCP and related Waterford 3 and vendor supplied procedures.

2.0 REFERENCES

2.1 Waterford 3 Documents

2.1.1 FSAR Chapter 16, Technical Specification 3/4 11.3

2.1.2 FSAR Chapter 16, Technical Specification 6.13.2

2.1.3 FSAR Chapter 11.4, Solid Waste Management System

2.1.4 FSAR Chapter 13.4, Review and Audit

2.1.5 FSAR Chapter 13.2, Training

2.1.6 FSAR Chapter 13.5, Plant Procedures

2.1.7 Nuclear Operations Quality Assurance Manual, Section 2, Chapter 6

2.2 Vendor Controlled Documents

2.2.1 ~~PS-5.3-037B~~ PS-53-0378, NUS Process Services Corporation, Topical Report on Radwaste Solidification System, Rev. 0 | Change 1 LRS 11-19-84

2.2.2 TR002, NUS Process Services Corporation, Topical Report on 10CFR61 Qualified Radioactive Waste Forms, May 1984

2.2.3 4313-01354-01P Chem-Nuclear Systems Inc., Topical Report on Mobile Cement Solidification System, Rev. 2

2.2.4 CNSI-WF-C-01-NP, 10CFR61, Waste Form Certification-Cement, Chem-~~Nuclear~~ Nuclear System Inc., November 30, 1983 | Change 1 LRS 11-19-84

2.2.5 ~~CNSI-DN-11118-01-P~~ CNSI-DW-11118-01-P, Chem-Nuclear System, Inc., Dewatering Topical, December 23, 1983 | Change 1 LRS 11-19-84

2.2.6 HN-R1109, Westinghouse Hittman Nuclear, Inc., Topical Report on Radwaste Solidification System (Cement), Rev. 4

2.2.7 STD-R-05-005, Westinghouse Hittman Nuclear, Inc., Topical Report on Cement Solidified Wastes to Meet the Stability Requirements of 10CFR61, Rev. 0

2.2.8 STD-R-03-008, Westinghouse Hittman Nuclear, Inc., Topical Report for Hittman RADLOK High Integrity Containers, Rev. 0

2.2.9 FI-013, Process Control Program for Dewatering Liner with NUS PSC Internals, NUS Process Services Corp.

2.2.10 STD-P-05-003, Hittman Nuclear Development Corp., Process Control Program for Incontainer Solidification of 10 of 14 Weight Percent Boric Acid, Rev. 1

2.2.11 STD-P-05-004, Hittman Nuclear Development Corp., Process Control Program for Incontainer Solidification of Bead Resin, Rev. 1

2.2.12 Hittman Nuclear Development Corp., STD-P-03-005, Hittman Nuclear Development Corp., Dewatering Hittman Radlock Containers with Flexible Underdrains to Less Than 1% Drainable Liquid, Rev. 2

2.2.13 STD-P-04-002, Dewatering Ion Exchange Resin and Activated Charcoal Filter Media to 0.5%

2.2.14 WMG 102-NP-A, Waste Management Group, RADMAN Tropical Report

2.3 Other Documents

2.3.1 10CFR61, Licensing Requirements for Land Disposal of Radioactive Waste

2.3.2 10CFR20.311, Transfer for disposal and manifests

2.3.3 10CFR71.91, Records

3.0 DEFINITIONS

NONE

4.0 RESPONSIBILITIES

4.1 Plant Manager-Nuclear

4.1.1 The Plant Manager-Nuclear has overall administrative control responsibilities for the Process Control Program at Waterford-3. He is responsible for ensuring the following:

4.1.1.1 The preparation, review and approval of the Process Control Program procedures pertaining to the processing and packaging, of radioactive materials, and for the operation and maintenance of radwaste systems;

4.1.1.2 That plant personnel adhere to the procedural requirements of this program;

4.1.1.3 That plant interdepartmental responsibilities affecting the Process control Program are clearly established and accomplished;

4.1.1.4 That personnel receive appropriate training and are qualified for their respective duties;

4.1.1.5 Procurement of materials and supplies required for implementation and maintenance of the Process Control Program;

4.1.1.6 Operation and maintenance of radwaste systems;

4.1.1.7 Inspection of Radwaste activities; and

4.1.1.8 Adequate staffing and sufficient resources for efficient and economic operation of the Process Control Program.

4.2 Radiation Protection Superintendent

4.2.1 The Radiation Protection Superintendent is responsible for the overall effective management of the plant Process Control Program. The Radiation Protection Superintendent ensures that changes are initiated to the Process Control Program procedures when necessary and that appropriate Health Physics support is provided.

4.3 Plant Radwaste Engineer-Nuclear

4.3.1 The Plant Radwaste Engineer who reports to the Radiation Protection Superintendent holds key responsibilities for implementation of the Process Control Program such as:

4.3.1.1 Data collection, trend analysis, long-term planning, and problem solving for the plant Process Control Program;

4.3.1.2 Managing radwaste solidification dewatering and packaging;

4.3.1.3 Preparing procedures for solidification, dewatering and packaging;

4.3.1.4 Interfacing with other groups as necessary to analyze and resolve problems relating to the Process Control program such as the design of Radwaste Systems and Equipment;

4.3.1.5 Preparing periodic reports summarizing the Process Control Program.

4.4 Operations Superintendent

4.4.1 The Operations Superintendent is responsible for the effective operations of permanent plant radwaste systems and will coordinate radwaste activities with the radwaste department.

4.5 Chemistry Engineer-Nuclear

4.5.1 The Chemistry Engineer-Nuclear is responsible for interfacing with the Radwaste Engineer on items or problems relating to radwaste processes and chemistry controls or chemical reactions and performing chemical and radiochemical analyses of samples of radioactive waste or materials.

4.6 Plant Quality Manager

4.6.1 The Plant Quality Manager is responsible for the review of plant Process Control Program procedures to ensure QA Program requirements are implemented and for the performance of activity surveillance.

4.7 Nuclear Services Manager

4.7.1 The Nuclear Services Manager is responsible for providing the following services:

4.7.1.1 State-of-the-art technical advise, support, and assistance as required;

4.7.1.2 Licensing and regulatory compliance support; and

4.7.1.3 Appraising the Waterford-3 Process Control Program and recommending improvements.

4.7.2 The Nuclear Services staff interfaces directly with the plant staff in providing these services.

4.8 Corporate Quality Assurance Manager

4.8.1 The Corporate Quality Assurance Manager is responsible for assessing the implementation and effectiveness of the quality assurance aspects of the Process Control Program through regular audits and selective monitoring of activities.

5.0 PROCEDURE

5.1 Program Description

5.1.1 Solidification System Description:
Waterford 3 utilizes vendor supplied portable solidification equipment for radioactive waste solidification. References 2.2.1 through 2.2.13 provide a general description of respective vendor solidification processes and process control features; Reference 2.2.14 describes the method which will be utilized to classify wastes in accordance with 10CFR61; and Reference 2.1.1 through 2.1.7 are Waterford 3 documents which either implement or describe activities which provide reasonable assurance that wastes are solidified or dewatered in accordance with all applicable regulations and criteria.

5.1.2 Sources of Waterford 3 Solidification Feeds:
The solidification system will be used to process resins, evaporator bottoms and boric acid concentrates. During resin solidification, vendor equipment will be connected to both the Resin waste Management System outlet and dewatering inlet to allow for the transfer of resin and the dewatering of the liner. Vendor equipment will be connected to the Solid waste Management System outlet when evaporator bottoms from the radwaste evaporator and boric acid concentrates from the Boron Management System evaporator are to be solidified.

5.2 Solidification Process Parameters:

5.2.1 Solidification formulas and solidification process parameters are incorporated into the applicable vendor process control program. No exceptions or deviations from vendor supplied procedures or topical reports are anticipated. The formulas are used to calculate the ratio of waste, cement, water and other reagents required to achieve an acceptable solidified product. Compatibility requirements of the waste stream with respect to the solidification media are described in the vendor process controls program. Waste stream parameters are adjusted as necessary to meet these requirements.

5.2.2 Test solidifications are performed on waste stream samples to verify vendor calculated solidification formulas. Plant procedures describe the frequency for performing test solidifications and establish the acceptance criteria for the test solidifications in accordance with Technical Specification 3/4 11.3.

5.3 Administrative Controls

5.3.1 Administrative controls utilized to insure compliance with applicable state and federal regulations and burial site criteria are detailed in the radioactive waste solidification surveillance procedure(s). These implementing document(s) for radioactive waste solidification and dewatering describes the requirements which must be met prior to processing radioactive waste, as well as the condition of the solidified or dewatered waste. Test solidifications, full scale calculations and operation of the solidification equipment are performed by vendor personnel. Dewatering operations will be performed by vendor personnel or by qualified Plant staff. Plant staff provides Health Physics and Quality Assurance coverage, operates plant radioactive waste systems, collects waste stream samples and performs isotopic analyses. Copies of all referenced documents are available on site for use by personnel engaged in solidification activities.

5.3.2 Changes to this Process Control Program shall be described in the semi-annual Radioactive Effluent Release Report for the period in which the change is made, in accordance with Technical Specification 6.13.2.

5.4 Waste Characterization and Classification

5.4.1 Waste Classification

5.4.1.1 Solidified wastes are classified in accordance with the requirements of 10CFR61.55, as implemented by reference 2.2.~~9~~ 19 and plant waste classification and characterization procedure(s).

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5.1.4.2 Annual analysis will be performed on the waste streams to determine the isotopic abundance of gamma emmitting isotopes in the streams. Scaling factors for the non-gamma emmitting and transuranic constituents will be developed from this annual analysis. The activity of each radionuclide in the solidified waste will be determined by a calculational method employing the percent abundance and scaling factors with a dose to curie conversion factor as described in reference 2.2.14.

5.4.2 Waste Characteristics

5.4.2.1 Solidified wastes will meet the characteristics of 10CFR61.56(a) and (b). Waste containers will be labelled to identify the waste class.

5.4.2.2 The manifesting requirements of 10CFR20.311 are implemented and records are maintained in accordance with 10CFR71.91.

5.5 Quality Assurance

5.5.1 Quality Assurance related activities for the Radioactive Waste Program are implemented as described in the Nuclear Operations Quality Assurance Manual (Reference 2.1.7). These activities provide verification that the solidified wastes meet applicable state and federal regulations and burial site criteria.

6.0 ATTACHMENTS

NONE