

1

FLORIDA POWER & LIGHT COMPANY  
ST. LUCIE UNIT NO. 1  
EMERGENCY/OFF-NORMAL PROCEDURE 1-0120032  
REVISION 4

1.0 Title:

EXCESSIVE REACTOR COOLANT SYSTEM ACTIVITY

2.0 Review and Approval:

Reviewed by Plant Nuclear Safety Committee \_\_\_\_\_ July 14, 1975

Approved by \_\_\_\_\_ K. N. Harris \_\_\_\_\_ Plant Manager \_\_\_\_\_ July 17, 1975

Revision 4 Reviewed by Facility Review Group \_\_\_\_\_ 19 \_\_\_\_\_

Approved by \_\_\_\_\_ *[Signature]* \_\_\_\_\_ Plant Manager 6-18-19823.0 Purpose and Discussion:

3.1 This procedure provides instructions for the action to be taken in the event reactor coolant activity becomes excessive.

## 3.2 Discussion:

A crud burst, failed fuel element, or demineralizer resin exhaustion may cause reactor coolant activity to increase. An increase to levels requiring the reactor to be shut down, however, can only be caused by the activity release associated with significant fuel element failure.

4.0 Symptoms:

4.1 Reactor coolant letdown iodine monitor (Channel 41) high alarm.

/R4

4.2 An increase in the fission product inventory as indicated by an increase in one or more of the following radiochemical analyses:

4.2.1 Iodine 131, 133 values

4.2.2 Gross beta-gamma

4.2.3 Tritium

4.2.4 Reactor coolant gamma spectrum

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1

ST. LUCIE UNIT 1  
EMERGENCY/OFF-NORMAL PROCEDURE 1-0120032, REVISION 4  
EXCESSIVE REACTOR COOLANT SYSTEM ACTIVITY

5.0 Instructions:

5.1 Immediate Automatic Action:

None

5.2 Immediate Operator Action:

- 5.2.1 If the reactor coolant letdown monitor high activity alarm has energized, ensure that the alarm was caused by a high radiation condition by source checking channel 41 or run back-up radiochemical analysis as applicable.

/R4

5.3 Subsequent Action:

- 5.3.1 Increase the letdown flow rate to maximum.
- 5.3.2 Place at least one mixed bed demineralizer in service.
- 5.3.3 Survey the VCT for any significant increases of radiation levels.
- 5.3.4 Notify Operations Supervisor and Chemistry Supervisor and arrange additional personnel as necessary.
- 5.3.5 Determine RCS gross activity as soon as possible after verification of alarm.
- 5.3.6 If reactor coolant activity is significantly greater than the previous week's average:
- 5.3.6.1 Perform a radiochemical analysis of the reactor coolant to determine the cause of the increase in activity.
- 5.3.6.2 Check inservice mixed bed demineralizer D/F, if exhausted, shift to standby demineralizer.
- 5.3.7 If it is determined that the increase in reactor coolant activity has been caused by a fuel element failure:
- 5.3.7.1 Perform the  $100/\bar{E}$  computation to determine the Technical Specification limits for reactor coolant activity, based on the current inventory of nuclides present in the reactor coolant.
- 5.3.7.2 Insure dose equivalent Iodine is  $< 1.0$  uci/gram.
- 5.3.7.3 Increase the frequency of reactor coolant sampling as specified by the Chemistry Department Supervisor.

/R4

1

ST. LUCIE UNIT 1  
EMERGENCY/OFF-NORMAL PROCEDURE 1-0120032, REVISION 4  
EXCESSIVE REACTOR COOLANT SYSTEM ACTIVITY

5.0 Instructions: (continued)

5.3 (continued)

- 5.3.8 If reactor coolant activity approaches the Technical Specification limits, perform the following:
  - 5.3.8.1 Reduce power as required by Figure 3.4-1 in Technical Specifications.
  - 5.3.8.2 Increase the reactor coolant sampling frequency as necessary, based on the rate of change of reactor coolant activity.
- 5.3.9 If reactor coolant activity reaches the Technical Specification limits below, take action specified:
  - 5.3.9.1 When  $> 1.0$  uci/gm Dose Equivalent I 131 but within limits of graph (Fig. 3.4-1 Technical Specifications) may continue operations up to 100 hrs. if operations do not exceed 10% of yearly operating time.
  - 5.3.9.2 If  $> 1.0$  uci/gm for  $> 100$  hrs. or, greater than limits of Fig. 3.4-1 or, greater than  $100/\bar{E}$  uci/gm be in mode 3 with Tave  $< 500F$  within 6 hours.
- 5.3.10 Implement the emergency plan as necessary in accordance with EPIP 3100021E, "Duties of the Emergency Coordinator".
- 5.3.11 Continue sampling as necessary to determine reactor coolant activity trends.
- 5.3.12 Health Physics personnel conduct radiation surveys in the auxiliary building and post areas as necessary.
- 5.3.13 Continue purification as required.
- 5.3.14 Periodically check the inservice mixed bed demineralizer for resin exhaustion by calculating a decontamination factor.

1

ST. LUCIE UNIT 1  
EMERGENCY/OFF-NORMAL PROCEDURE 1-0120032, REVISION 4  
EXCESSIVE REACTOR COOLANT SYSTEM ACTIVITY

6.0 References:

- 6.1 FSAR, Chapter 11, Section 11.4 "Process Radiation Monitor".
- 6.2 Technical Specifications, App. "A" Section 3.48.
- 6.3 FSAR, Chapter 9, Section 9.3 "CVCS System".

7.0 Records, Reports & Notifications:

- 7.1 Entry in Plant Log.
- 7.2 Nuclear Plant Supervisor shall ensure that an evaluation is made to determine if a Licensee Event Report is required per Section 3.4.8 of App. "A" Technical Specifications.