NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION

UNIT II OPERATIONS

02-REQ-006-344-2-08 Revision 4

TITLE: EMERGENCY OPERATING PROCEDURES, SECONDARY CONTAINMENT CONTROL SECTION SCT

	SIGNATURE	DATE
PREPARER		10/11/90
TRAINING SUPPORT SUPERVISOR	with PCO-02-REQ-90-178	10/12/90
TRAINING AREA SUPERVISOR		10/12/90
PLANT SUPERVISOR/ USER GROUP SUPERVISOR		10/12/90

Summary of Pages

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Number of Pages 14

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THIS LESSON PLAN IS A GENERAL REWRITE

TRAINING DEPARTMENT RECORDS ADMINISTRATION ONLY:

VERIFICATION: _____ _____

DATA ENTRY: _____ _____

RECORDS: _____ _____

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I. TRAINING DESCRIPTION

A. Title of Lesson: Emergency Operating Procedures, Secondary Containment Control - Section SCT

B. Lesson Description: This lesson plan discusses actions taken to control Secondary Containment temperature.

C. Estimate of the Duration of the Lesson: 1 hour

D. Method of Evaluation, Grade Format, and Standard of Evaluation:

1. Written examination with 80% minimum passing grade.

E. Method of Setting of Instruction:

1. Classroom Lecture
2. Assign the Student Learning Objectives as review problems with the students obtaining answers from the text, writing them down and handing them in for grading.

F. Prerequisites:

1. Instructor:
   a. Certified in accordance with NTP-16 or NTP-16.1.
2. Trainee:
   a. Certified in accordance with NTP-10 or NTP-11 or
   b. Be recommended for this training by the Operations Superintendent (or designee) or the Training Superintendent.

G. References:

1. BWROG Emergency Procedure Guidelines, Rev. 4
2. Plant Procedure N2-EOP Secondary Containment Control Section SCT

II. REQUIREMENTS

A. Requirements for class:

1. AP-9, Administration of Training
2. NTP-10, Training of Licensed Operator Candidates
3. NTP-11, Licensed Operator Requalification Training

III. TRAINING MATERIALS

A. Instructor Materials:

1. Transparency Package
2. Overhead Projector
3. Whiteboard and Felt Tip Markers
4. EOP Flowchart for SCT

B. Trainee Materials:

1. EOP Flowchart for SCT
2. OLP-SCT

IV. EXAM AND MASTER ANSWER KEYS

A. Will be generated and administered as necessary. They will be on permanent file in the Records Room.

V. LEARNING OBJECTIVES

A. Terminal Objectives:

TO-1.0 Given conditions requiring the use of the Emergency Operating Procedure, use the procedure to place the plant in a stable condition as prescribed in the procedure.

B. Enabling Objectives:

EO-1.0 State the purpose of the Reactor Building Temperature Control Section of the Secondary Containment Control Procedures.

EO-2.0 State the entry conditions for the Reactor Building Temperature Control section of the Secondary Containment Control Procedures.

EO-3.0 Given the procedural step, discuss the technical basis for that step.

I. INTRODUCTION

A. Student Learning Objectives

B. Purpose

1. To provide the actions necessary to control Reactor Building temperature to: EO-1.0
   - Protect equipment in the Reactor Building.
   - Limit radioactivity release to the Reactor Building, and either
   - Maintain Reactor Building integrity, or
   - Limit radioactivity release from the Reactor Building.

C. Procedure Overview

1. The Reactor Building Temperature Control section of the Secondary Containment Control Procedure is executed concurrently with the following sections:
   a. Reactor Building Radiation Control
   b. Reactor Building Level Control
2. The symptomatic approach to emergency response, where the initiating event of the transient is not known in advance demands concurrent execution of these sections.

3. The values and trends of parameter, and the status of plant equipment during the event will dictate the order of execution of each flowpath.

II. DETAILED DESCRIPTION

A. Entry Conditions

1. Setpoints

a. The conditions which require entry into this procedure are: EO-2.0

1) Differential pressure at or above 0 in. of water.

- Indicates a potential loss of Secondary Containment structural integrity, which could result in uncontrolled release of radioactivity.

2) Area temperature above an isolation setpoint.

- Indicates steam may be discharging from Primary System. Increasing area temperatures may compromise equipment needed to carry out EOP actions, and may limit access by personnel.

3) Area radiation level alarm unexpectedly high.
   - Indicates water may be leaking from a Primary System.

4) HVR exhaust radiation level above an isolation setpoint.
   - Indicates radioactivity may be discharging to the environment when HVR should have automatically isolated.

5) Floor drain sump water level high-high.
   - Indicates steam water, or both may be discharging to the Secondary Containment.

b. The occurrence of any one of these conditions requires entry into this procedure.

c. If an entry condition clears prior to exiting this procedure, and then reoccurs, re-entry at the beginning of the procedure is required.

d. If a second entry condition occurs while performing the procedure, re-entry at the beginning is again required.

e. If all entry conditions clear while executing this procedure, this procedure may be exited.

f. Termination of the emergency rather than termination of an event is the basis for exiting conditions for EOP's. Consequently, these procedures may be exited at any point during their execution if the operator determines that an emergency no longer exists. The EOP's have been written so that if an operator remains in a procedure when an emergency no longer exists, they still provide proper guidance. Alternately, if the operator exits a procedure prematurely, reoccurrence of an entry condition will follow and the appropriate EOP procedure will be re-entered. (TMR #02-88.232)

2. Setpoint bases

a. The values selected were chosen on the basis of being simple, readily identifiable and operationally significant. They also provide advance warning of potential emergency conditions, allowing action to be taken which may prevent more severe circumstances.

B. Procedural Steps

1. Activate the Site Emergency Plan, if required, in accordance with EAP-1.

   • It is appropriate to activate the E-Plan, should plant conditions be at the action levels specified in EAP-1. EO-3.0

2. While executing the following steps

   a. IF

      HVR exhaust radiation level exceeds an isolation setpoint

      THEN

      Confirm or manually initiate isolation of HVR.

      Confirm initiation or manually initiate SBGT.

- Confirming isolation of Rx Building HVAC will ensure termination of any release of radioactivity to the environment from this system.
- SBGT is the normal means employed under post-transient conditions for maintaining a negative Secondary Containment pressure. Exhaust from SBGT is processed prior to discharge through an elevated release point.

EO-3.0

b. IF
HVR isolates
AND
HVR exhaust radiation level is below the isolation setpoint,
THEN
Restart HVR (OP-52)

EO-3.0

- Defeat the high drywell pressure and low RPV water level isolation interlock, if necessary.
- However bypassing high exhaust radiation interlocks is not authorized.

- If Rx Building HVAC is isolated, it is appropriate to restart this system and use it to regain control of Rx Building temperature and pressure once it has been confirmed that restart will not result in excessive radioactivity release.

3. Monitor and control Reactor Building Temperature
   - Provides a smooth transition from general plant procedures to EOPs. EO-3.0
   - Assures normal methods have been employed prior to more complex actions.
4. Operate unit coolers in affected areas.
   Note: Normally, these cycle automatically on temperature.
   - Assures normal method of area temperature control is being utilized. EO-3.0
5. WAIT until a RB area temperature exceeds its isolation setpoint.
   - Delaying the performance of the subsequent actions in this procedural leg confirms that area temperature is increasing and further action is required. EO-3.0

6. Isolate all systems that are discharging into the area except systems required to shutdown the reactor OR assure adequate core cooling, OR protect Primary Containment integrity OR suppress a fire.
   - There are only two possible sources of sufficient heat to cause an isolation. EO-3.0
     1) A fire
     2) Steam or liquid from a high energy source.
   - This step terminates the heat addition from the high energy source.
   - A fire is adequately addressed by not isolating systems used to suppress it.
7. Perform Steps #7 and #9 concurrently.
8. WAIT until more than one RB area temperature exceeds 135°F.
   - 135°F is the maximum safety operating temperature. EO-3.0
   - More than one area indicates a wide spread problem.
9. Shutdown the reactor (OP-1014D)
   - Places the reactor in the lowest energy state by normal means.

Note: A scram is <u>not</u> precluded in this step. EO-3.0

Note: Review definition of a "Primary System."

10. WAIT until a Primary System is discharging into the Reactor Building.
    - By the time this step is reached, at least one of the following conditions exist:
      - System has not been isolated due to adequate core cooling, shutdown of the reactor, or protecting Primary Containment integrity.
      - Isolation is not possible, i.e. no isolation valve or valve inop.
      - Source of discharge not known.

EO-3.0

11. BEFORE any area temperature reaches 135°F.
12. Enter RPV control and execute it concurrently with this procedure.
    - Entry into RPV control will result in a Rx scram and will reduce the amount of heat the RPV is discharging to decay heat levels.
    - Unless there is a fire, this action should be sufficient to terminate the Reactor Building temperature rise.
    - The "offending" system may no longer be required for adequate core cooling, shutdown, or Primary Containment integrity.

EO-3.0

13. WAIT until more than one RB area temperature exceeds 135°F.
    - More than one area indicates a widespread problem. — EO-3.0

14. Emergency RPV depressurization is required.
    - Rapidly places a reactor in a depressurized state to minimize flow out the break. — EO-3.0
    - Beyond the maximum safe operating temperature, Secondary Containment integrity and continued operation of safety related systems is no longer assured.
    - Flags direct operators that overrides in RPV control Section RP, C3, and C5, contain pertinent guidance information. — EO-3.0

III. WRAP-UP

A. Summary

Action in the Reactor Building temperature control procedure monitors and controls Reactor Building temperatures using systems normally employed for this purpose. If conditions exist such that any area temperature exceeds the maximum normal operating temperature, all systems that are discharging into the area are isolated except those systems required to shut down the reactor, assure adequate core cooling, or suppress a working fire.

If Reactor Building temperature continues to increase, with a Primary System discharging into an area and the maximum safe operating temperature for more than one area is approached, emergency RPV depressurization is required. If the temperature problem is not due to a Primary System discharge, a normal reactor shutdown is directed.