Ø7-187-91

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION

UNIT II OPERATIONS

02-LOT-006-344-2-14 Revision 4 gk 12/13/90

TITLE: EMERGENCY OPERATING PROCEDURE, EMERGENCY RPV DEPRESSURIZATION (C-2)

	SIGNATURE	DATE
PREPARER		12-4-90
TRAINING SUPPORT SUPERVISOR	J. Engl for J. LeClair	12-4-90
TRAINING AREA SUPERVISOR	J. Kaminski	12-5-90
PLANT SUPERVISOR/ USER GROUP SUPERVISOR	for P. Fore	12/10/90

Summary of Pages

(Effective Date: 12/10/90)

Number of Pages: 9

Date	Pages
December 1990	1 - 9

TRAINING DEPARTMENT RECORDS ADMINISTRATION ONLY:

VERIFICATION: _____ _____

DATA ENTRY: _____ _____

RECORDS: _____ _____

11/5/276

ATTACHMENT 6
LESSON PLAN TEMPORARY/PUBLICATION/ADDENDUM CHANGE FORM

The attached change was made to:

Lesson plan title: Emergency Operating Procedures, Emergency RPV Depressurization (C-2)

Lesson plan number: 02-20T-2006-344-2-14

Name of instructor initiating change: D. Penfield

Reason for the change: Change Revision # to Rev. 4 due to typographical error

Type of change:

1. Temporary change ____
2. Publication change X
3. Addendum change ____

Disposition:

X 1. Incorporate this change during the next scheduled revision.

____ 2. Begin revising the lesson plan immediately. Supervisor initiate the process.

____ 3. To be used one time only.

Approvals:

Instructor: [signature] /Date 12-12-90

Training Area Supervisor (or designee): J. Kaminski /Date 12-13-90

I. TRAINING DESCRIPTION

A. Title of Lesson: Emergency Operating Procedures, Emergency RPV Depressurization (C-2)

B. Lesson Description: This lesson discusses the actions taken to perform an emergency RPV depressurization.

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

D. Method of Evaluation, Grade Format, and Standard of Evaluation: Written Examination with 80% minimum passing grade.

E. Method and Setting of Instruction: Classroom Lecture

F. Prerequisites:

1. Instructor:
   a. Certified in accordance with NTP-16.
2. Trainee:
   a. Certified in accordance with NTP-10.

G. References:

1. BWROG Emergency Procedure Guidelines, Rev. 4
2. Plant Procedure N2-EOP-C2, Rev. 4

II. REQUIREMENTS

A. AP-9, Administration of Training

B. NTP-10, Training of Licensed Operator Candidates

III. TRAINING MATERIALS

A. Instructor Materials:

1. Transparencies Package
2. Overhead Projector
3. Whiteboard and Felt Tip Markers
4. EOP Flowchart for C2
5. Training Record

B. Trainee Materials:

1. EOP Flowchart for C2
2. Course Evaluation Form

IV. EXAM AND MASTER ANSWER KEYS

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

V. LEARNING OBJECTIVES

Upon completion of this training, the trainee will have gained the knowledge to perform the following:

A. Terminal Objectives:

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

TO-2.0 (SRO ONLY) Direct the actions required per N2-EOP-C2 Emergency RPV Depressurization. (3449520603)

TO-3.0 Manually inject poison solution into the reactor from the Control Room. (2000250501)

TO-4.0 Perform the actions required for a large break LOCA outside the Primary Containment. (2009120501)

TO-5.0 Perform the actions required for a large break LOCA inside the Primary Containment. (2009150501)

TO-6.0 Monitor the automatic initiation of the HPCS System during a LOCA with normal power available and/or not available. (2060020101)

TO-7.0 Manually initiate the ADS System and monitor while activated. (2180020101)

TO-8.0 Emergency depressurize the reactor using the main steam line. (2399060401)

B. Enabling Objectives:

EO-1.0 State the purpose of the Emergency RPV Depressurization Procedure.

EO-2.0 State the entry conditions for the Emergency RPV Depressurization Procedure.

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

LESSON CONTENT	DELIVERY NOTES	OBJECTIVES/ NOTES
I. INTRODUCTION	Preliminary Activities: 1. Introduce self to class (if unfamiliar). 2. Distribute TR for completion. 3. Distribute Course Evaluation Forms and describe their use. 4. Discuss Method of Evaluation.	
A. Student Learning Objectives	Review Learning Objectives with the class.	
B. Purpose The actions in this procedure rapidly depressurize the RPV. Performance of this procedure may become necessary in order to: 1. Establish or maintain adequate core cooling. 2. Terminate or minimize the discharge of Reactor coolant from unisolable primary system breaks. 3. Reduce the energy within the RPV before reaching plant conditions for which the Pressure Suppression System may not be able to safely accommodate an SRV opening or a loss of coolant accident. 4. Minimize radioactivity release from the RPV to the Primary Containment and Secondary Containment, or to areas external to the Primary Containment and Secondary Containment.		EO-1.0

II. DETAILED DESCRIPTION

A. Entry Conditions

This procedure is entered only as directed by another emergency operating procedure.

B. Procedural Steps

1.

a. Are all control rods to at least position 02

YES - continue at Step 2

NO - continue at Step 3

b. Will the Reactor remain shutdown under all conditions without boron

YES - Continue at Step 4

NO - Continue at Step 3

c. WAIT until all injection into the RPV <u>except</u> from boron injection systems, CRD, and RCIC has been terminated and prevented.

- When these conditions are not met failure to terminate and prevent injection may result in the rapid injection of large volumes of cold unborated water from low pressure systems as RPV pressure decreases.

NOTE: TP's may be used to highlight points of interest on flowchart; use TP's to show procedural steps if flowchart not used. EO-2.0

EO-3.0

- This could add sufficient positive reactivity to induce a power excursion large enough to damage the core.

2. Does a high Drywell ECCS initiation signal (1.68 psig) exist?
   a. YES - continue at STEP #3
   b. NO - continue at STEP #4
      - This step is simply a precursor to the next step, if the response is "no", the next step is "bypassed".
3. Prevent injection form those LPCS and LPCI pumps not required to assure adequate core cooling.
   - This step prevents the rapid injection of cold unborated water into the RPV.

EO-3.0

4. Is Suppression Pool water level above El. 192 Ft.
   a. YES - continue at STEP #5
   b. NO - continue at STEP #9
      - To ensure the SRVs discharge is below the water, their operation is limited to Suppression Pool levels above 192 ft.

NOTE: El. 192 feet is the bottom of the Suppression Pool water level indicating range.

EO-3.0

Operating SRVs with Suppression Pool water level less than El. 192 feet is not allowed because the extent of the pressurization of the suppression chamber air space cannot be predicted and may exceed the design pressure capability of the Primary Containment.

5. Irrespective of the resulting RPV cooldown rate, open all 7 ADS valves.
   - The reliability of their pneumatic supply and control power.
   - Distribution of their discharges within the Suppression Pool.
6. Are all 7 ADS valves open?
   a. YES - continue at STEP #10
   b. NO - continue at STEP #7
7. Irrespective of the Resulting RPV cooldown rate, open other SRVs until 7 valves are open.

• ADS valves were chosen because of their reliability and to promote even heat dissipation in the Suppression Pool. However, if not all ADS valves can be opened other SRVs should be opened until a total of seven ADS/SRVs are open. • Opening more than seven SRVs may induce unnecessary uneven heat loads on the Suppression Pool.		EO-3.0
8. Are at least 4 SRVs open? a. YES - continue at STEP #10 b. NO - continue at STEP #9 • This is the minimum number of SRVs required for emergency depressurization. • Defined in curves and limits lesson plan. • If less than four SRVs can be opened additional steam paths must be found.	Steam paths are listed in step 9 below.	EO-3.0 EO-3.0
9. Irrespective of the resulting RPV cooldown rate, rapidly depressurize the RPV using one or more of the following:		

a. If necessary, defeat isolation interlocks.

b. Systems

1) Main condenser

2) RHR (steam condensing mode)

3) Main steam line drains

4) RCIC steam line

5) Head vent

10. While executing the following steps:
IF
RPV water level cannot be determined
THEN
Exit this procedure and enter contingency #4, RPV Flooding

Show entry point into EOP-C4.

11. WAIT until
All control rods are inserted to at least position 02
OR
The Reactor will remain shutdown without boron.
OR
If boron is being injected, SLC tank level drops to 900 gal.
OR
The Reactor is shutdown and no boron has been injected into the RPV.

12. Exit this procedure, and enter RPV control Section RP at "C".

Show entry point back in RP.

Q: What is the purpose of EOP-C2?

A: To provide actions necessary to rapidly depressurize the RPV.

Q: If RPV water level cannot be determined, then which procedure is entered from EOP-C2?

A: N2-EOP-C4.

Q: Which procedure is entered from the end of EOP-C2?

A: N2-EOP-RP.

III. WRAP-UP

A. Summary

The actions specified in this procedure rapidly depressurized the RPV. Since opening SRVs is the easiest and most effective means of depressurizing the RPV, their use is given first priority. Other systems are also identified for use if the SRVs are ineffective or not available.