NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION

UNIT II OPERATIONS

02-REQ-006-344-2-18 Revision 5

TITLE: EMERGENCY OPERATING PROCEDURES, PRIMARY CONTAINMENT FLOODING (C-6)

	SIGNATURE	DATE
PREPARER	[signature]	10/11/90
TRAINING SUPPORT SUPERVISOR	[signature] for [signature] with TCO-02-REQ-90-178	10/12/90
TRAINING AREA SUPERVISOR	[signature]	10/12/90
PLANT SUPERVISOR/ USER GROUP SUPERVISOR	[signature]	10/12/90

MASTER CONTROLLED DOCUMENT

Summary of Pages

(Effective Date: 10/19/90)

Number of Pages: 12

Date	Pages
October 1990	1 - 12

THIS LESSON PLAN IS A GENERAL REWRITE

TRAINING DEPARTMENT RECORDS ADMINISTRATION ONLY:

VERIFICATION: ______________ ______

DATA ENTRY: ______________ ______

RECORDS: ______________ ______

14

4/29/80

I. <u>TRAINING DESCRIPTION</u>

A. Title of Lesson: Emergency Operating Procedures, Primary Containment Flooding (C-6)

B. Lesson Description: This lesson plan discusses actions taken to flood the Primary Containment.

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 <u>or</u> NTP-16.1.

2. Trainee:

a. Certified in accordance with NTP-10 or NTP-11 <u>or</u>

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-C6

II. <u>REQUIREMENTS</u>

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 C6

B. Trainee Materials:

1. EOP Flowchart for C6
2. OLP-C6

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 Primary Containment Flooding Procedure.

EO-2.0 State the entry conditions for the Primary Containment Flooding Procedure.

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

LESSON CONTENT	DELIVERY NOTES	OBJECTIVES/ NOTES
I. INTRODUCTION		
A. Student Learning Objectives		
B. Purpose		
1. To restore adequate core cooling through core submergence, by flooding the containment, when previous level control actions performed were unsuccessful.		EO-1.0
II. DETAILED DESCRIPTION		
A. Entry Conditions		
1. This procedure is entered <u>only</u> upon direction from other emergency operating procedures.		EO-2.0
B. Procedural Steps		
1. While executing the following steps:		
a. IF Primary Containment water level and Suppression Chamber pressure cannot be maintained below the Maximum Primary Containment Water Level Limit. (Fig. C6-1)		

THEN

Irrespective of whether adequate core cooling is assured, terminate injection into the Primary Containment from sources external to the Primary Containment until Primary Containment water level and Suppression Chamber pressure can be maintained below the curve (Fig. C6-1).

- Assuming a non-isolated Primary System break inside the drywell, injection into the RPV from sources external to the Primary Containment will cause containment water level to increase. EO-3.0
- If injection into the RPV is continued and the Maximum Primary Containment Water Level Limit is exceeded, the structural integrity of the containment is no longer assured. EO-3.0
- This limit is based on the elevation of the highest vent in the containment capable of rejecting all decay heat. EO-3.0

- Injection sources external to the containment are secured, regardless of whether adequate core cooling is assured, in order to remain below this limit. EO-3.0
- It is preferential to ensure Primary Containment integrity over the prevention of core degradation since the loss of the containment may result in an unrecoverable loss of adequate core cooling through possible failure. EO-3.0

b. IF

RPV water level can be restored and maintained above -14 in

THEN

Enter this procedure and enter RPV control Section RL at A.

- Once RPV water level is restored and maintained above TAF, there is no longer a need for flooding. EO-3.0
- The operator is directed to enter RPV control at "A". This action will result in securing the venting evolution of the RPV and entry into the appropriate level control path of "RPV Control." EO-3.0

2. Operate the following systems:
   a. HPCS with suction from the condensate storage tank when available.
   b. LPCS
   c. Condensate/feedwater
   d. RCIC with suction from the condensate storage tank only
      1) If necessary, defeat low RPV pressure isolation interlock.
   e. Service water to RHR crosstie
   f. Fire system
   g. ECCS keep full systems
   h. Condensate transfer
   i. LCPI, unless service water to RHR crosstie, condensate transfer, or fire system are available.
      - All available systems which draw suction on a water source external to the Primary Containment are lined up and operated to add water to the containment. EO-3.0

- Since the RPV has been depressurized prior to entering this procedure, the RCIC low steam pressure isolation may have to be bypassed. This condition allows RCIC to run at speeds approaching turbine stall speed. EO-3.0
- While containment water level is being raised, the containment pressure is being controlled using the steps set forth in Section PCP of "Primary Containment Control" to keep Primary Containment pressure below the Primary Containment Pressure Limit. EO-3.0

3. WAIT until Primary Containment water level reaches El. 248.5 ft.
4. Irrespective of the offsite radioactivity release rate, vent the RPV until RPV water level reaches -14 in. with one or more of the following systems.
   a. If necessary, defeat isolation interlocks.

b. Systems

1) Condenser

2) RCIC steam line

3) RHR

- The bottom of the lowest recirculation system piping is the lowest possible break elevation and the lowest drywell water level where steam and non-condensibles could be trapped in the RPV. EO-3.0

- As water level increases above the level of the break, steam and non-condensibles are trapped inside the RPV and cannot escape unless vented. This would cause RPV water level to be lower relative to containment water level. EO-3.0

- The RPV is vented to allow the water to rise into the RPV. One or more of the vent paths listed are used to accomplish this step. EO-3.0

- Venting is continued until RPV water level reaches TAF. EO-3.0

- Venting is done regardless of offsite radioactivity release rates to ensure the core is submerged as rapidly as possible.

5. WAIT until Primary Containment water level reaches El. 292.5 ft.

6. Maintain Primary Containment water level between 292.5 ft. and the Maximum Primary Containment Water Level Limit (Fig. C6-1) with the following systems:

   a. Inject via the RPV take suction from sources external to the Primary Containment only when required.

   b. Systems

      1) HPCS
      2) LPCS
      3) Condensate/feedwater
      4) CRD
      5) LPCI
      6) Head Spray
      7) Service water to RHR crosstie
      8) Fire System
      9) ECCS keep full systems
      10) Condensate transfer

- Elevation 292.5 ft. is the elevation corresponding to the TAF. EO-3.0

- Once containment level is raised the operator is directed to maintain the level between 292.5 ft. and the Maximum Primary Containment Water Level Limit. By maintaining level between these two points, it assures adequate core cooling due to core submergence and will not result in containment failure.

c. Since the required water level is established, injection systems are operated taking suction from sources outside the Primary Containment only as required to maintain the proper level. EO-3.0

II. WRAP-UP

A. Summary

The purpose of "Containment flooding" is to restore adequate core cooling through core submergence when previous actions performed were unsuccessful in doing so.

Prior to entering "Containment flooding", attempts were made to restore RPV water level to above TAF by injecting directly to the RPV with any available system. By flooding the containment to the level corresponding to the top of active fuel, the RPV will be flooded through the break while the RPV is vented.