

07-187-91

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION

UNIT II OPERATIONS

02-LOT-006-344-2-15

Revision

no 4

TITLE: EMERGENCY OPERATING PROCEDURES, STEAM COOLING (C-3)

	<u>SIGNATURE</u>	<u>DATE</u>
PREPARER	<u>[Signature]</u>	<u>12-4-90</u>
TRAINING SUPPORT SUPERVISOR	<u>[Signature for J. LeClair]</u>	<u>12-4-90</u>
TRAINING AREA SUPERVISOR	<u>[Signature]</u>	<u>12-5-90</u>
PLANT SUPERVISOR/ USER GROUP SUPERVISOR	<u>[Signature FOR D. TOPLEY]</u>	<u>12/10/90</u>

Summary of Pages

(Effective Date: 12/10/90)

Number of Pages: 6  
 Title: MASTER Pages  
 December 1990 1 - 6

**CONTROLLED**

TRAINING DEPARTMENT RECORDS ADMINISTRATION ONLY:

**DOCUMENT**

RECORDS:

9305030278 911031  
 PDR ADDCK 05000410  
 S PDR

4/1/278

12



ATTACHMENT 6  
LESSON PLAN TEMPORARY/PUBLICATION/ADDENDUM CHANGE FORM

The attached change was made to:

Lesson plan title: Emergency Operating Procedures Steam

Lesson plan number: 62-LOT-006-344-2-15 Cooling (C-3)

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
- 3. Addendum change

Disposition:

- 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:  /Date 12-12-90

Training Area Supervisor  
(or designee):  /Date 12/12/90

1

2



I. TRAINING DESCRIPTION

- A. Title of Lesson: Emergency Operating Procedure, Steam Cooling (C-3)
- B. Lesson Description: This lesson discusses the actions taken to provide core cooling with no RPV injection available.
- 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-C3, Rev. 4

II. REQUIREMENTS

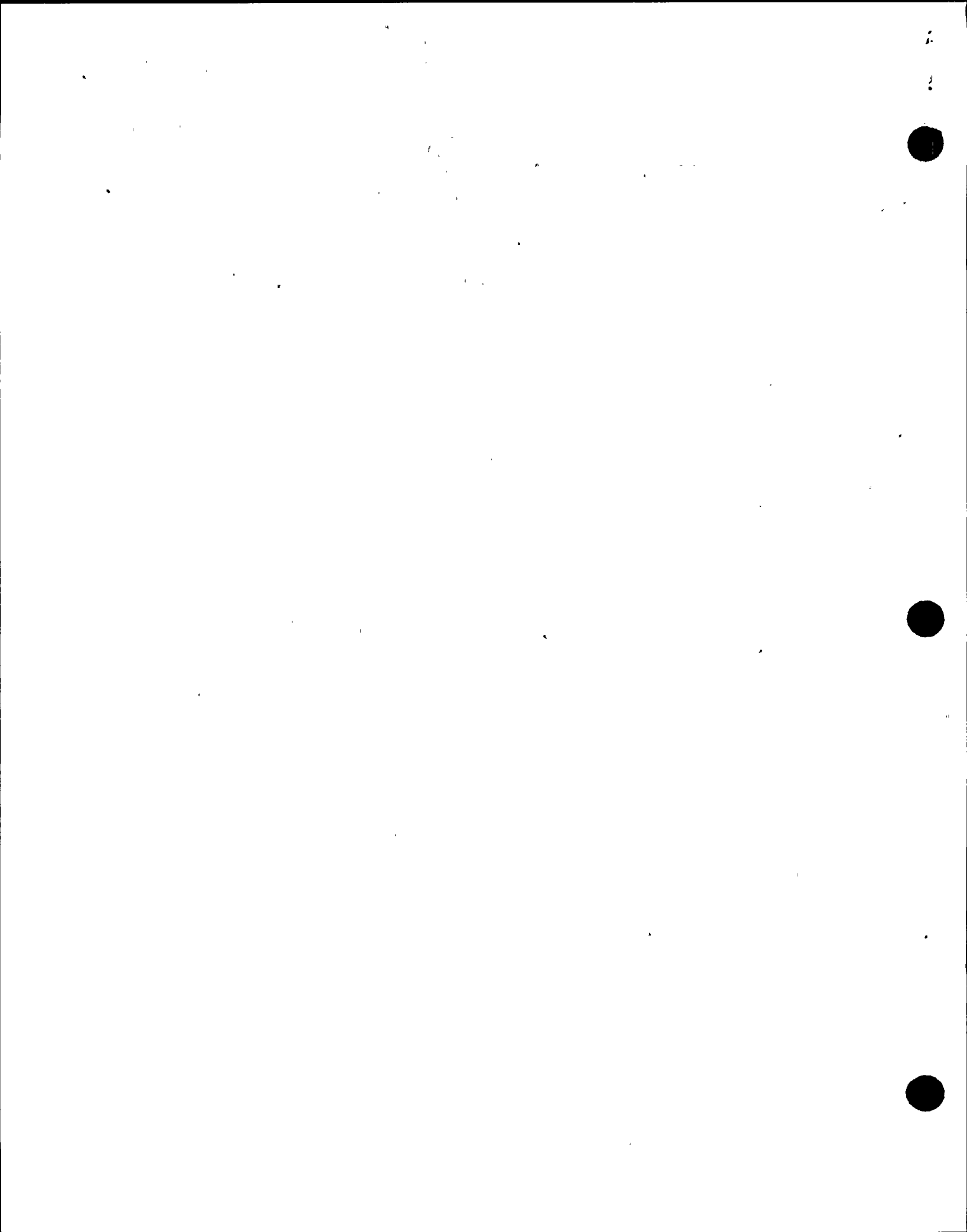
- A. AP-9, Administration of Training
- B. NTP-10, Training of Licensed Operator Candidates

III. TRAINING MATERIALS

- A. Instructor Materials:
  - 1. Transparencies Package
  - 2. Overhead Projector
  - 3. Whiteboard and Felt Tip Markers
  - 4. EOP Flowchart for RP
  - 5. Training Record
- B. Trainee Materials:
  - 1. EOP Flowchart for RP
  - 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 Procedures, 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-C3 Steam Cooling. (3449530603)

B. Enabling Objectives:

EO-1.0 State the purpose of the Steam Cooling Procedure.

EO-2.0 State the entry conditions for the Steam Cooling Procedure.

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





## I. INTRODUCTION

## A. Student Learning Objectives

## B. Purpose

The action specified in this procedure utilizes steam cooling to maximize the time that the core remains adequately cooled under conditions where no RPV injection source is available.

EO-1.0

## II. DETAILED DESCRIPTION:

## A. Entry Conditions

This procedure is only entered as directed from other emergency operating procedures.

## B. Procedural Steps

## 1. While executing the following steps:

IF

Emergency RPV Depressurization is required

OR

RPV water level cannot be determined.

OR

Any system, injection subsystem, or alternate injection subsystem is lined up for injection with at least one pump running

## 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.

Review Learning Objectives with the class.

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



## THEN

Exit this procedure and enter Contingency #2, Emergency RPV Depressurization.

Show entry point into EOP-C2.

- This step must be kept in mind throughout the performance of this procedure.
- If any injection system becomes available, the RPV is depressurized to:
  - Maximize injection flow
  - Terminate the upper core region heatup by increased steam flow and the resulting water level swell.
- This Procedure's actions are predicated on level indication being available. If it is not, action must be taken immediately.
- Consequences of not depressurizing the RPV when required could include failure of the primary or secondary containment. Therefore, depressurization takes precedence over maintenance of optimum steam cooling.

EO-3.0

EO-3.0



## 2. WAIT

Until RPV water level drops to -55 in.

- This is the Minimum Zero Injection Water Level.
- To this point, sufficient steam is produced to maintain peak clad temperature less than 1800°F.
- Waiting to this point provides time to line up sources of injection.

3. Exit the procedure and enter EOP-C2  
Emergency RPV Depressurization.

- The increased steam flow will increase core heat removal and reduce fuel temperature temporarily.

Q: What is the definition of "Minimum Zero Injection Water Level"?

EO-3.0

A: The lowest RPV water level at which the covered portion of the reactor core will generate sufficient steam to preclude any clad temperature in the uncovered portion of the core from exceeding 1800°F.

EO-3.0

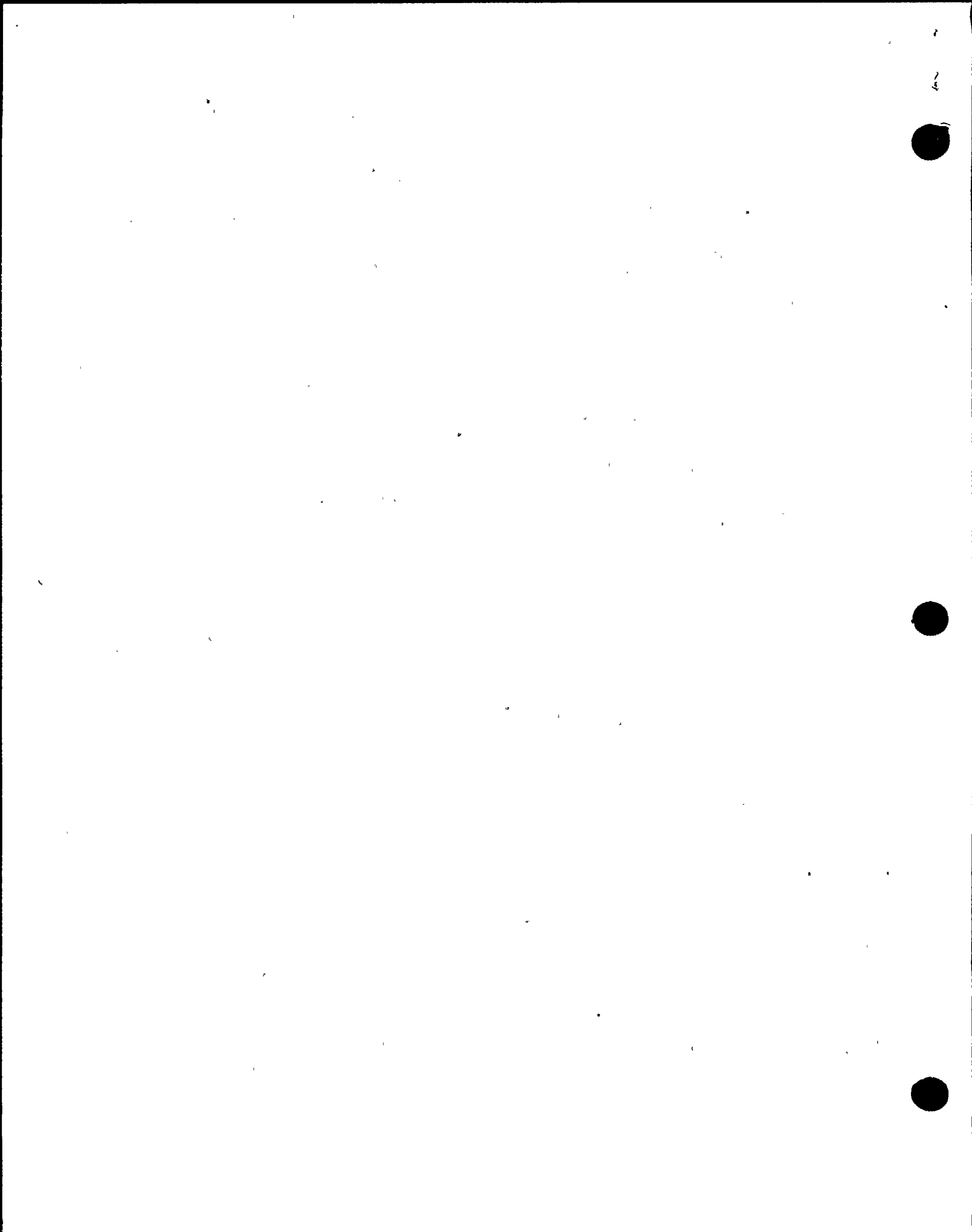
Show entry point into EOP-C2.

Q: What is the purpose of EOP-C3?

A: To provide actions necessary to maximize the time that the core remains adequately cooled under conditions where no RPV injection source is available.

Q: Which procedure is entered from EOP-C3?

A: N2-EOP-C2.



## III. WRAP-UP

## A. Summary

Actions specified in this procedure utilize steam cooling to maximize the time that the core remains adequately cooled under conditions where no RPV injection source is available. Boil-off of the coolant inventory remaining in the RPV is controlled to optimize heat transfer from the fuel to the steam flowing up through the fuel assemblies. The amount of heat removed from the fuel is a function of fuel temperature and mass flow rate of the steam through the core.

