

**VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET**

**Task Identification:**

Title: Isolate Leaking RHR Pipe Weld and Determine Technical Specification  
Required Actions  
Failure Mode: N/A  
Reference: P&ID G191172 / G191299 / G191301  
Task Number: 2990100304 (AO Task)

**Task Performance:** AO/RO/SRO \_\_\_ RO/SRO Only X SE Only \_\_\_

Sequence Critical: Yes \_\_\_ No X

Time Critical: Yes \_\_\_ No X

Individual Performing Task: \_\_\_\_\_

Examiner: \_\_\_\_\_

Date of Evaluation: \_\_\_\_\_

Activity Code: N/A

Method of Testing: Simulation \_\_\_ Performance X Discuss \_\_\_

Setting: Classroom \_\_\_ Simulator X Plant \_\_\_

Performance Expected Completion Time: 24 minutes

Evaluation Results:

Performance: PASS \_\_\_ FAIL \_\_\_ Time Required: \_\_\_\_\_

Prepared by: \_\_\_\_\_  
Operations Training Instructor

8/19/03

Date

Reviewed by: \_\_\_\_\_  
SRO Licensed/Certified Reviewer

8/19/03

Date

Approved by: \_\_\_\_\_  
Operations Training Superintendent

8/20/03

Date

**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

**Initial Conditions:**

The plant is operating at full power. No equipment is out of service.

**Initiating Cues:**

A crack/leak has been reported by the RBAO to the Shift Manager on RHR-V10-49C. The leak is on the pump side of the valve (C RHR pump vent). The Shift Manager directs you to identify mechanical and electrical components to isolate, vent, and drain the pump, and determine Technical Specification LCO before and after leak isolation.

**Task Standards:**

P-10-1C Breaker identified  
P-10-1C Pump Isolation Vent, Drain Vales identified  
MOV Breakers identified  
Correct Technical Specification LCO determined

**Required Materials:**

Controlled Prints  
Technical Specifications

**Simulator Setup:**

Any IC, need controlled prints, can be done in any setting with controlled prints available

**Evaluation**

**Performance Step**

TIME START: \_\_\_\_\_

**SAT/UNSAT**

**Step 1: Determine correct print for RHR system.**

Standard: Operator determines G191172 is the RHR system print.

**SAT/UNSAT**

**\* Step 2: Determine isolation boundaries.**

Standard: The following valves identified to be shut: RHR-V10-69C, 47C,  
13C Handwheel, 15C Handwheel

**SAT/UNSAT**

**\* Step 3: Determine vent path.**

Standard: The following valves identified to be open: RHR-V10-49C, 162C

**SAT/UNSAT**

**\* Step 4: Determine drain path.**

Standard: Either or both of the following valve(s) open: RHR-V10-22C, 21C; **and**  
12A open

**SAT/UNSAT**

**Step 5: Determine correct print for RHR pump motor breaker.**

Standard: Operator reviews G191299 or CWD 1300.

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Interim Cue: If the operator attempts to use procedure lineups, direct him to use controlled prints.

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**SAT/UNSAT**

**\* Step 6: Determine RHR Pump "C" Breaker.**

Standard: 4 KV Bus 3 Compartment 5

**SAT/UNSAT**

**Step 7: Determine correct print for RHR MOV 15/13.**

Standard: Operator reviews G 191301 Sheet 2 of 2 or CWD 1263, 1267

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Interim Cue: If the operator attempts to use procedure lineups direct him to use controlled print.

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SAT/UNSAT

**Step 8: Determine RHR 13C/15C MOV power supplies.**

Standard: MMC 9B, Cubicle 6G and 7J

SAT/UNSAT

**\*Step 9: Determine Technical Specification LCO prior to leak isolation.**

Standard: 3.7.A.8 due to failure to comply with 3.7.A.3 24 Cold Shutdown.

SAT/UNSAT

**\* Step 10: Determine Technical Specification LCO after leak isolation..**

Standard: RHR LPCI 3.5.A.3 – 7 days

\* Critical Step

TIME FINISH: \_\_\_\_\_

**Terminating Cue:** Mechanical and electrical boundaries identified and Technical Specification LCOs determined. Order of steps not critical. Control authority will determine order of steps.

**Evaluator Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**System:** K/A's:

**System Generic K/A's:** 2.1.24 Ability to obtain and interpret station electrical and mechanical drawings

(CFR: 45.12 / 45.13)

IMPORTANCE

RO 2.8

SRO 3.1

2.1.12 Ability to apply technical specifications for a system.

(CFR: 43.2 / 43.5 / 45.3)

IMPORTANCE

RO 2.9

SRO 4.0

Tear-Out Sheet

**Initial Conditions:**

The plant is operating at full power. No equipment is out of service.

**Initiating Cues:**

A crack/leak has been reported by the RBAO to the Shift Manager on RHR-V10-49C. The leak is on the pump side of the valve (C RHR pump vent). The Shift Manager directs you to identify mechanical and electrical components to isolate, vent, and drain the pump, and determine Technical Specification LCO before and after leak isolation.

Valves shut for isolation \_\_\_\_\_

Valves open for vent \_\_\_\_\_

Valves open for drain \_\_\_\_\_

ACB open for RHR pump BUS

ACB open for MOVs MCC(s)

Technical Specification Required Actions:

Before Isolation \_\_\_\_\_

After Isolation \_\_\_\_\_

# VYNPS

## 3.7 LIMITING CONDITIONS FOR OPERATION

- at normal cooldown rates if the torus water temperature exceeds 120°F.
- e. Minimum Water Volume  
- 68,000 cubic feet
- f. Maximum Water Volume  
- 70,000 cubic feet
- 2. Primary containment integrity shall be maintained at all times when the reactor is critical or when the reactor water temperature is above 212°F and fuel is in the reactor vessel except while performing low power physics tests at atmospheric pressure at power levels not to exceed 5 Mw(t).
- 3. If a portion of a system that is considered to be an extension of primary containment is to be opened, isolate the affected penetration flow path by use of at least one closed and deactivated automatic valve, closed manual valve or blind flange.
- 4. Whenever primary containment integrity is required, the leakage from any one main steam line isolation valve shall not exceed 31 scf/hr at 44 psig ( $P_a$ ), and the combined leakage from all four main steam lines shall not exceed 62 scf/hr at 44 psig ( $P_a$ ).

## 4.7 SURVEILLANCE REQUIREMENTS

- 2. The primary containment integrity shall be demonstrated as required by the Primary Containment Leak Rate Testing Program (PCL RTP).
- 3. (Blank)
- 4. Verify leakage rate through each main steam line isolation valve is  $\leq 23$  scf/hr and that the combined maximum pathway leakage rate for all four main steam lines is  $\leq 46$  scf/hr when tested at  $\geq 24$  psig ( $P_t$ ).

### 3.7 LIMITING CONDITIONS FOR OPERATION

- b. Within the 24-hour period subsequent to placing the reactor in the Run mode following a shutdown, the containment atmosphere oxygen concentration shall be reduced to less than 4 percent and maintained in this condition. Deinerting may commence 24 hours prior to a shutdown.
- 8. If Specification 3.7.A.1 through 3.7.A.7 cannot be met, an orderly shutdown shall be initiated immediately and the reactor shall be in a cold shutdown condition within 24 hours.
- 9. Drywell/Suppression Chamber d/p
  - a. Differential pressure between the drywell and suppression chamber shall be maintained  $>1.7$  psi except as specified in 3.7.A.9.b and 3.7.A.9.c below.
  - b. The  $>1.7$  psi differential pressure shall be established within 24 hours of achieving operating pressure and temperature. The differential pressure may be reduced to  $<1.7$  psi 24 hours prior to commencing a cold shutdown.
  - c. The differential pressure may be reduced to  $<1.7$  psi for a maximum of four hours (period to begin when the

### 4.7 SURVEILLANCE REQUIREMENTS

- 9. Drywell/Suppression Chamber d/p
  - a. The differential pressure between the drywell and suppression chamber shall be recorded once per shift.
  - b. The operability of the low differential pressure alarm shall be verified once per week.



### 3.5 LIMITING CONDITION FOR OPERATION

2. From and after the date that one of the Core Spray Subsystems is made or found to be inoperable for any reason, reactor operation is permissible only during the succeeding seven days unless such subsystem is sooner made operable, provided that during such seven days, the other Core Spray Subsystem and the LPCI Subsystems shall be operable.
3. From and after the date that one of the LPCI pumps is made or found to be inoperable for any reason, reactor operation is permissible only during the succeeding seven days unless such pump is sooner made operable, provided that during such seven days, the LPCI and Containment Cooling Subsystem with the inoperable pump is not otherwise inoperable, and the other LPCI and Containment Cooling Subsystem and both Core Spray Subsystems shall be operable.

### 4.5 SURVEILLANCE REQUIREMENT

2. Deleted.

3. Deleted.

VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET

**Task Identification:**

Title: Take Actions for Inadequate Shift Staffing  
Failure Mode: N/A  
Reference: AP 0894 / TRM Section 6.1  
Task Number: 34100403

**Task Performance:** AO/RO/SRO \_\_\_ RO/SRO Only X SE Only \_\_\_

Sequence Critical: Yes \_\_\_ No X

Time Critical: Yes \_\_\_ No X

Individual Performing Task: \_\_\_\_\_

Examiner: \_\_\_\_\_

Date of Evaluation: \_\_\_\_\_

Activity Code: N/A

Method of Testing: Simulation \_\_\_ Performance X Discuss \_\_\_

Setting: Classroom \_\_\_ Simulator X Plant \_\_\_

Performance Expected Completion Time: 15 minutes

Evaluation Results:

Performance: PASS \_\_\_ FAIL \_\_\_ Time Required: \_\_\_\_\_

Prepared by: [Signature]  
Operations Training Instructor

8/19/03  
Date

Reviewed by: [Signature]  
SRO Licensed/Certified Reviewer

8/19/03  
Date

Approved by: [Signature]  
Operations Training Superintendent

8/20/03  
Date

**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

**Initial Conditions:**

0200 today full power operations. You are the Shift Manager

**Initiating Cues:**

The Chemistry Technician falls down the admin building stairs, compound fractures his right leg, and is transported to the hospital. Determine shift staffing required actions.

**Task Standards:**

- Correct individuals identified
- Event report initiated

**Required Materials:**

AO 0894  
VYAPOF 0009.01 pages 1 & 2

**Simulator Setup:**

Any IC

**Evaluation**

**Performance Steps**

TIME START: \_\_\_\_\_

SAT/UNSAT

**Step 1: Obtain procedure AP 0894 and review discussion section and administrative limits.**

Standard: Operator obtains AP 0894 and reviews administrative limits.

SAT/UNSAT

**Step 2: Operator refers to Table 1 and determines the Chemistry Technician is a required position.**

Standard: Table 1 reviewed – Chemistry Technician determined to be a required position.

SAT/UNSAT

**\* Step 3: Notifies the Chemistry Department head.**

Standard: Sam Wender: Phone 802-365-4177, phone number identified  
Pager 742-9073, may direct Security Shift Supervisor to  
page

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Interim Cue: The actual home phone number or pager number must be found. The call should be simulated. OP 3531, Emergency Call-in, in the control room has the phone list. The list is not in any other E-Plan books for privacy reasons. When the operator opens OP 3531, give him the phone list.

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SAT/UNSAT

**\* Step 4: Notifies the Operations Manager.**

Standard: Chris Wamser: Phone 603-363-4183, phone number identified  
Pager 742-9175; , may direct Security Shift Supervisor to  
page  
Cell Phone 802-380-0509

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Interim Cue: The actual home phone number or pager number must be found. The call should be simulated.

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**SAT/UNSAT**      **Step 5:      Initiates an Event Report.**

Standard:      Operator initiates an Event Report.

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Interim Cue:    Do not allow the operator to do this on the computer (it would be real). Provide the operator with Hard Copy Forms.

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\* Critical Step

TIME FINISH: \_\_\_\_\_

**Terminating Cue:**    VYAPOF 0009.01 filled out and simulated turned in.

**Evaluator Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**System:**      **K/A's:**

**System Generic K/A's:**      **2.1.5 Ability to locate and use procedures and directives related to shift staffing and activities**

(CFR: 41.10 / 43.5 / 45.12)

**IMPORTANCE**

**RO 2.3**

**SRO 3.4**

Tear-Out Sheet

**Initial Conditions:**

0200 today full power operations. You are the Shift manager

**Initiating Cues:**

The Chemistry Technician falls down the admin building stairs, compound fractures his right leg, and is transported to the hospital. Determine shift staffing required actions.

VERMONT YANKEE NUCLEAR POWER STATION

**ADMINISTRATIVE PROCEDURE**

**AP 0894**

**REVISION 7**

**STAFFING AND OVERTIME LIMITS**

USE CLASSIFICATION: **INFORMATION**

| LPC<br>No. | Effective<br>Date | Affected Pages            |
|------------|-------------------|---------------------------|
| 1          | 07/31/02          | 3 of 5; Table 1 Pg 1 of 1 |
|            |                   |                           |

**Implementation Statement:** N/A

Issue Date: 05/21/99

|            |       |             |                 |
|------------|-------|-------------|-----------------|
| Dept. Mgr. | _____ | Proc. No.   | <u>AP 0894</u>  |
| PORC       | _____ | Rev. No.    | <u>7</u>        |
| Plant Mgr. | _____ | Issue Date  | <u>05/21/99</u> |
|            |       | Review Date | <u>09/05/02</u> |

## STAFFING AND OVERTIME LIMITS

### PURPOSE

To identify the shift staffing and overtime requirements for all modes of plant operation and set forth the policy by which those requirements shall be satisfied.

The use classification of this procedure is **Information Use**.

### DISCUSSION

This procedure sets forth the minimum shift personnel required and contains certain administrative limits on overtime for key personnel.

Except during extended shutdown periods, the use of overtime should be considered on an individual basis and not for the entire staff on shift.

The Shift Supervisor is responsible for ensuring the minimum shift requirements are met on his assigned shift. Under no circumstances shall the Shift Supervisor voluntarily allow staffing to be less than required by Technical Specifications/Technical Requirements Manual and this procedure. Circumstances which are beyond the control of the Shift Supervisor shall require immediate actions to restore the shift complement as soon as possible and to make the notifications required by this procedure. "Circumstances which are beyond the control of the Shift Supervisor" are those which make shift personnel unable to perform their duties; for example, sickness, injury, fitness-for-duty issues.

The Shift Supervisor, or applicable Department Manager is responsible for ensuring the overtime limits are met during all modes of plant operation including refueling outages.

Department Managers of shift personnel are responsible for ensuring that work schedules for their shift personnel are established.

Station personnel are responsible for working assigned shift hours and for adhering to administrative requirements established by this procedure. Additionally, the individual employee is also responsible for tracking his/her individual work hours and informing supervision if asked to work overtime which exceeds these guidelines.

It is recognized that unusual circumstances may arise requiring deviation from the overtime limits. Such deviations shall be authorized by the Plant Manager or the appropriate Superintendent or Shift Outage Manager. The paramount consideration in such authorization shall be that significant reductions in the effectiveness of key personnel would be highly unlikely.

Plant management recognizes that during the transition from Eastern Daylight Time to Eastern Standard Time personnel on site will work an additional hour that day. This additional hour of work may cause personnel to exceed normal overtime limits, which has been evaluated and approved by Senior Management. Key Personnel are NOT required to initiate the "Justification for Excessive Overtime" form for this situation.



## ATTACHMENTS

- |    |               |                                      |
|----|---------------|--------------------------------------|
| 1. | Table I       | Minimum Shift Staffing Requirements  |
| 2. | Figure I      | Dwg - Control Room                   |
| 3. | VYAPF 0894.01 | Justification for Excessive Overtime |

## REFERENCES

1. Technical Specifications (TS)/Technical Requirements Manual (TRM)
  - a. TS Section 6.1
  - b. TRM Section 6.1
2. Administrative Limits
  - a. An operator will be designated the Operator-at-the-controls (OATC) each shift. He will remain in the OATC/limited time access area (see Figure 1) unless properly relieved by another licensed operator. His primary watch station is the OATC area, and time spent by the OATC in the limited time access area will be of short duration (<5 min.).
  - b. In cases where it is appropriate to relieve individuals of their duties and allow them to leave site, the Shift Supervisor shall ensure that the individuals' replacement is on site before allowing the individual to leave. Should the individual leave site without the Shift Supervisor's authorization, that individual will be held accountable for his/her actions.
  - c. Key personnel who perform safety-related functions shall adhere to the following limits (NRC Generic Letter 82-12):
    - 1) An individual should not be permitted to work more than 16 hours straight (excluding shift turnover time).
    - 2) An individual should not be permitted to work more than 16 hours in any 24 hour period (excluding shift turnover time).
    - 3) An individual should not be permitted to work more than 24 hours in any 48 hour period (excluding shift turnover time).
    - 4) An individual should not be permitted to work more than 72 hours in any 7 day period (excluding shift turnover time).
    - 5) A break of at least eight hours (including shift turnover time) should be allowed between work periods.
3. Other
  - a. Agreement as to Wages, Working Conditions and Seniority between VYNPC and Local No. 300 IBEW (current edition)
  - b. NUREG 0737 Item I.A.1.3
  - c. NRC Generic Letter 82-12, dated 6/15/82
  - d. Department Training Programs

- e. NRC Generic Letter 83-14 dated 3/7/83; Definition of "Key Maintenance Personnel"
- f. Letter, D.A. Reid to J.T. Herron, "Shift Staffing", dated 11/23/92
- g. 10 CFR 50.54m
- h. Letter VYNPC to USNRC, Reply to a Notice of Violation and Controls for Outage Overtime Inspection Report 93-14, dated 9/27/93.
- i. Letter VYNPC to USNRC, Reply to a Notice of Violation and Controls for Overtime Inspection Report 94-20, dated 10/18/94
- j. AP 0009, Event Reports
- k. AP 3700, Fire Training

## DEFINITIONS

1. Key Personnel
  - a. Individuals responsible for correct operation or the performance of maintenance, repair, modification or calibration of safety-related structures, systems or components, and who are personally performing or immediately supervising the performance of such activities.
2. Safety-Related Functions
  - a. Activities which affect safety-related structures, systems, and components.
  - b. Structures, systems, and components that are relied upon to remain functional during and following design basis events to assure any of the following:
    - Reactor coolant pressure boundary integrity
    - The capability to shut down the reactor and maintain it in a safe shutdown condition
    - The capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the guidelines of 10 CFR 100.
  - c. Examples of safety-related work activities include:
    - Maintenance work conducted on safety-related systems, structures, or components
    - Operations watchstanders (e.g., Shift Supervisors, Supervisory Control Room Operators, Shift Engineers, Reactor Operators, Auxiliary Operators, and personnel involved in fuel handling)
    - RP/Chem technicians responsible for accident assessment
    - TS surveillance of safety-related systems, structures, or components

## PROCEDURE

1. The shift staff required in Table I shall be present and responsible to the Shift Supervisor at all times except as specified below.
2. The Department Manager is responsible for scheduling appropriate personnel to fulfill the shift requirements.
3. If at any time the Shift Supervisor is notified or aware that the shift staffing requirements of Table I cannot be met, he shall:
  - a. immediately contact the appropriate Department Supervisor/Manager to correct the deficiency as soon as possible,
  - b. immediately contact the Operations Manager,
  - c. initiate an Event Report per AP 0009,
4. If an individual, listed as Key Personnel, exceeds the Administrative Limits without prior approval/authorization detailed in Step 5:
  - a. immediately contact the appropriate Department Supervisor/Manager to correct the deficiency or obtain the necessary approvals per Step 5,
  - b. initiate an Event Report per AP 0009.

### NOTE

The individual is responsible to inform his/her supervisor of required work which may cause the administrative limits to be exceeded when the assignment is made to allow ample time for the supervisor to obtain approval/authorization.

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5. If an individual, listed as Key Personnel, is required to work outside the Administrative Limits:
  - a. the responsible supervisor shall ensure the individual is physically fit to exceed the administrative limit, initiate the "Justification for Excessive Overtime" (VYAPF 0894.01) and route it to the appropriate manager.
  - b. the responsible supervisor may obtain verbal approval from the Plant Manager, Operations Superintendent, Technical Services Superintendent, Maintenance Superintendent, Director of Design Engineering (or higher), or Outage Manager (during outages), prior to the occurrence with a written followup using VYAPF 0894.01.
  - c. the Plant Manager or applicable superintendent or Shift Outage Manager shall authorize overtime on VYAPF 0894.01.

## FINAL CONDITIONS

1. VYAPF 0894.01 transmitted to DCC. Authorized deviations (VYAPF 0894.01) shall be retained for NRC review, however, they are not considered QA Records.

TABLE I  
MINIMUM SHIFT STAFFING REQUIREMENTS

| POSITION                              | QUALIFICATIONS<br>AND/OR TRAINING                               | DEPARTMENT       | NUMBER REQUIRED<br>DURING<br>STARTUP/OPERATION | NUMBER REQUIRED<br>DURING COLD<br>SHUTDOWN OR<br>REFUELING | REMARKS   |
|---------------------------------------|---|------------------|--|--|---|
| Shift Supervisor                      | Senior Operator License   | OPS              | 1  | 1  |   |
| Supervisor Control<br>Room Operator   | Senior Operator License   | OPS              | 1  | 0  | Independent Sr. Lic.<br>Op. present on<br>refueling floor<br>during core<br>alterations IAW<br>Technical<br>Specifications. |
| Control Room<br>Operator/ACRO         | Operator License  | OPS              | 2  | 1  |   |
| Auxiliary Operator                    |   | OPS              | 3  | 1  |   |
| Shift Engineer                        | Bachelors Degree in<br>Engineering or Science<br>or equivalent. | OPS              | 1  | 0  | Must be available<br>within 10 minutes of<br>Control Room.  |
| Radiation<br>Protection<br>Technician | Radiation Protection<br>Technician Training<br>Program          | RP               | 1  | 1  |   |
| Fire Brigade<br>Commander             | AP 3700   | OPS              | 1  | 1  | Normally filled by<br>Shift Engineer.   |
| Fire Brigade                          | AP 3700   | OPS/<br>SECURITY | 4  | 4  | Normally fulfilled by<br>3 Aux Oper/ACRO.<br>1 Security Officer.  |
| Duty and Call<br>Officer              | As approved by<br>Technical Services<br>Superintendent          |                  | 1  | 1  | On call.  |
| Security Force                        | Per Training and<br>Qualification Plan for<br>Security          | SECURITY         | Per Security Plan                              | Per Security Plan  | SSS responsible for<br>maintaining minimum<br>staffing.   |
| Chemistry<br>Technician               | Chem. Technician<br>Training Program                            | CHEM             | 1  | 1  | Must be available<br>within 10 minutes of<br>Control Room to<br>fulfill communicator<br>responsibilities.                   |

## JUSTIFICATION FOR EXCESSIVE OVERTIME

Administrative Limit to be Exceeded:

### NOTE

Justification is not required for the one hour of additional overtime caused from the transition from Eastern Daylight Time to Eastern Standard Time.

-----

An individual should not be permitted to work:

- \_\_\_\_\_ More than 16 hours straight (Excluding shift turnover time)
- \_\_\_\_\_ More than 16 hours in any 24 hour period (Excluding shift turnover time)
- \_\_\_\_\_ More than 24 hours in any 48 hour period (Excluding shift turnover time)
- \_\_\_\_\_ More than 72 hours in any 7 day period (Excluding shift turnover time)
- \_\_\_\_\_ Without a break of at least eight hours (Including shift turnover time) between work periods

Date: \_\_\_\_\_

Time: \_\_\_\_\_

The reason for exceeding the guidelines is as follows:

NAME/POSITION

DEPARTMENT

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Assessed By:

Supervisor

Overtime Authorized By:

Plant Manager/Superintendent/Director/Shift Outage Manager

Forward to DCC for retention

VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET

**Task Identification:**

Title: Determine if Equipment Can Be Removed From Service for Minor Unscheduled Maintenance  
Failure Mode: N/A  
Reference: AP 0125  
Task Number: 34200103, 34200303

**Task Performance:** AO/RO/SRO \_\_\_ RO/SRO Only X SE Only \_\_\_

Sequence Critical: Yes \_\_\_ No X

Time Critical: Yes \_\_\_ No X

Individual Performing Task: \_\_\_\_\_

Examiner: \_\_\_\_\_

Date of Evaluation: \_\_\_\_\_

Activity Code: N/A

Method of Testing: Simulation \_\_\_ Performance X Discuss \_\_\_

Setting: Classroom \_\_\_ Simulator X Plant \_\_\_

Performance Expected Completion Time: 10 minutes

Evaluation Results:

Performance: PASS \_\_\_ FAIL \_\_\_ Time Required: \_\_\_\_\_

Prepared by: \_\_\_\_\_

Operations Training Instructor

8/19/03  
Date

Reviewed by: \_\_\_\_\_

SRO Licensed/Certified Reviewer

8/19/03  
Date

Approved by: \_\_\_\_\_

Operations Training Superintendent

8/20/03  
Date



**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

**Initial Conditions:**

The plant is operating at full power. ORAM-Sentinel is out of service. A HPCI LCO is in progress.

**Initiating Cues:**

The Maintenance Manager has directed you to determine if diesel fire pump can be removed from service for PMS (battery replacement). Maintenance has personnel available to perform the work which is currently scheduled for next week. Per AP 0125 should the diesel fire pump be removed from service?

**Task Standards:**

Per AP 0125 Appendix B note, combinations marked on the SSC redundancy matrix by a black box should be avoided → NO

**Required Materials:**

AP 0125

**Simulator Setup:**

N/A

**Evaluation**

**Performance Step**

TIME START: \_\_\_\_\_

SAT/UNSAT

**Step 1: Obtain AP 0125 Section 4.2 initiation of work activities.**

Standard: AP 0125 Section 4.2 obtained, Operator may review the discussion section.

SAT/UNSAT

**Step 2: Perform Appendix B.**

Standard: Operator refers to Appendix B of AP 0125.

SAT/UNSAT

**Step 3: Operator determines no de-energization plan is required.**

Standard: No de-energization plan is required.

SAT/UNSAT

**Step 4: Consider impact on plant safety with HPCI OOS / Appendix R / Plant Configuration / External conditions.**

Standard: HPCI OOS is noted.

---

Interim Cue: Appendix R Coordinator has determined necessary compensatory actions and will provide them to you. Weather is calm, no storms, no off sight electrical problems.

---

SAT/UNSAT

**\* Step 5: With ORAM Sentinel OOS Figure 1 should be used for guidance.**

Standard: Operator refers to Figure 1 AP 0125

SAT/UNSAT

**\* Step 6: Using Figure 1 operator connects HPCI OOS with Diesel Fire Pump OOS and determines black box.**

Standard: Intersection of HPCI / Diesel Fire Pump black box noted.

SAT/UNSAT

**\* Step 7: Operator informs Maintenance that Diesel Fire Pump maintenance can not be performed.**

Standard: Permission to perform maintenance not granted.

\* Critical Step

TIME FINISH: \_\_\_\_\_

**Terminating Cue:** Diesel Fire Pump maintenance not allowed.

**Evaluator Comments:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**System:** K/A's:

**System Generic K/A's:** 2.2.17 Knowledge of the process for managing maintenance activities during power operations

(CFR: 43.5 / 45.13)

**IMPORTANCE**

**RO 2.3**

**SRO 3.5**

Tear-Out Sheet

**Initial Conditions:**

The plant is operating at full power. ORAM-Sentinel is out of service. A HPCI LCO is in progress.

**Initiating Cues:**

The Maintenance Manager has directed you to determine if diesel fire pump can be removed from service for PMS (battery replacement). Maintenance has personnel available to perform the work which is currently scheduled for next week. Per AP 0125 should the diesel fire pump be removed from service?

Diesel Fire Pump Maintenance:              Allowed              Not Allowed

(circle one)

VERMONT YANKEE NUCLEAR POWER STATION

**ADMINISTRATIVE PROCEDURE**

**AP 0125**

**REVISION 12**

**PLANT EQUIPMENT**

USE CLASSIFICATION: **INFORMATION**

| LPC<br>No. | Effective<br>Date | Affected Pages |
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**Implementation Statement:** N/A

Issue Date: 04/10/03

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## 1.0 PURPOSE, SCOPE, AND DISCUSSION

### 1.1. Purpose

To provide administrative guidelines for:

1. Removal of power block equipment (also called asset) from operating service to allow the performance of maintenance, surveillance or modification.
2. Return of that equipment to service upon completion of the work activities.
3. Equipment made unavailable for any reason that is required to be logged by the Maintenance Rule Program (Figure 2).

### 1.2. Scope

This procedure applies any time inspections are made or work is performed on any power block equipment. Work on security equipment or work that impacts plant security requires Security Shift Manager approval and is not within the scope of this procedure.

### 1.3. Discussion

NUMARC 93-01 identifies that during the planning and scheduling phase and prior to authorizing the removal of Structures, Systems, and Components (SSCs) from service, each planned maintenance activity that results in the removal of an SSC which supports a key plant safety function should be assessed for its impact on performance of the key plant safety function. The assessment should take into account the current plant configuration as well as expected changes to plant configuration and is applicable regardless of plant mode (i.e., should be considered during shutdown/refueling operations as well as when the plant is on-line).

To ensure that Vermont Yankee meets the intent of the NUMARC guidance, VY has established an equipment removal from service methodology. This methodology includes, the development, review and application of a pre-analyzed, risk assessed, integrated work week schedule and the use of the ORAM-Sentinel risk monitor or of an SSC redundancy matrix to provide additional risk insights prior to the authorization for the release of work when the pre-analyzed schedule does not address the configuration of the plant due to schedule changes and/or emergent work. In addition, during the planning/scheduling and performance of work activities where SSCs are removed from service, the overall unavailability of any SSC which could provide a significant contribution to plant risk should be minimized.

The above methodology has been incorporated into the Operating Cycle System Scheduling Guideline, Limiting Condition of Operation (LCO) Maintenance Plan Guideline, Outage Guideline and this procedure. The continued use of the guidance provided within these documents provides the necessary elements to ensure Vermont Yankee's Risk Management Philosophy is achieved.

There are four different causes for the removal of plant equipment from operational service. These are briefly described as follows:

1. Surveillance - provides verification of the operability and/or the performance characteristics of plant equipment by testing its operation under specified conditions. Each surveillance test is conducted in accordance with an approved plant procedure.
2. Corrective Maintenance - maintenance performed on plant equipment to correct a malfunction or other non-conforming conditions. AP 0021, AP 0047, AP 0049, AP 0050, AP 0053, and OP 0452 define the administrative control of corrective maintenance.
3. Preventive Maintenance (PMs) - maintenance initiated by a pre-planned program to detect, correct, or test for degraded conditions of plant equipment which could lead to equipment malfunction or failure. PMs may be controlled by the Maintenance or I/C Department's preventive maintenance programs, AP 0200 or AP 0310 respectively. AP 0021 defines the administrative control of preventive maintenance. Performance of LCO-Maintenance shall be coordinated through the use of the LCO-Maintenance Guideline.
4. Modification - physical changes to plant equipment to improve performance characteristics, reliability, etc. APs 0020, 0022, 6001, 6004, 6008 and OP 0452 define the administrative controls for modifying and testing plant equipment.

An activity in any of the above classifications may or may not be sufficient reason to cause the affected plant equipment to be removed from operating status. However, when conditions are such that the equipment must be made inoperable, it is necessary to take proper precautions to ensure that:

1. The Shift Manager is made fully knowledgeable of the intended work scope (including initial work scope and significant changes) and the start and successful completion of the work activity,
2. The Shift Manager grants his permission to perform the work prior to initiating the work effort by:

**NOTE**

The Shift Manager may find it beneficial to review the work plans using AP 0048 (or AP 0053, as applicable) for guidance to ensure all required critical attributes have been considered.

- a. Ensuring that the plant safety or performance capability is not compromised, and,



- b. Ensuring that the maintenance or inspection activity can be safely performed under the existing plant operating conditions.
  - c. Inform the operating crew of the equipment degradation or inoperability as appropriate. Consider performing a pre-job brief per AP 0052 to ensure appropriate compensatory actions are in place and contingency planning is addressed for the duration of the repair effort. (ER950690\_01)
3. Upon completion of work activities, the equipment has been returned to normal operating status including assurance of functional operability (testing) and verification of final equipment lineups. Refer to VYAPF 0155.02 for a list of systems requiring independent verification.

In accordance with AP 6002, Preparing 50.59 Evaluations, the results of an Applicability Determination (AD) has determined that an AD is not required for future changes provided the Procedure Scope is not changed. The basis for this conclusion is that this document is a managerial and an administrative monitoring process, subject to 10CFR50 Appendix B, that does not alter the design, performance requirements, operation, or control of systems, structures, or components (SSCs) and all changes are reviewed by QA prior to implementation.

## **2.0 DEFINITIONS**

- 2.1. Non-Power Block Equipment – Structures, Systems and Components (SSCs) which are within or support the equipment listed in Appendix K of AP 0021 as long as that equipment is less than or equal to 440 volts (i.e., no 480 volt).
- 2.2. Power Block Equipment – All SSCs within the Owner Control Area unless exempted by the Non-Power Block Equipment definition.

## **3.0 PRIMARY RESPONSIBILITIES**

- 3.1. Shift Manager (or CRS) - The Shift Manager authorizes all work and verifies that the equipment is properly returned to service. The SM also performs the duties of Work Management when Work Management is not available. The SM may also be responsible to determine any additional PMT requirements to be performed by the Operations Department. The SM is also responsible for determining if an activity constitutes an infrequently performed test or evolution.
- 3.2. Planner or Work Party - The planner or work party assigned to perform work activities is responsible to preplan the activities per AP 0048.
- 3.3. Work Week Manager - The Work Week Manager for the week the maintenance or work activity is to be performed is responsible for performing a risk assessment and/or the Maintenance Rule System Determination and for adding the work activity to the VY Weekly Work Schedule unless it is minor maintenance.

- 3.4. Operations Management - Operations Management is responsible for reviewing the work performed and the PMT completed and for preparation of an operational sequence when required for de-energization plans.
- 3.5. Operations Control Center - The Operations Center must prepare de-energization plans to the Shift Manager.

#### **4.0 PROCEDURE**

##### **4.1. Work Activity Preparation**

- 4.1.1. The planner or work party assigned to perform a work activity or to make an inspection on a piece of plant equipment, must preplan the work effort in accordance with AP 0048 or AP 0053. The WR/WO must contain sufficient detail to:

- 4.1.1.1. Define the problem,
- 4.1.1.2. Explain what is intended to be done,
- 4.1.1.3. Indicate if the equipment is to be removed from service.

- 4.1.2. The Work Week Manager for the week the maintenance or work activity is to be performed shall:

- 4.1.2.1. Perform a risk assessment per AP 0172, Work Schedule Risk Management – Online or AP 0173, Work Schedule Risk Management – Outages. Perform a Maintenance Rule System Determination using Figure 2. This assessment(s) shall be independent and in addition to the PRA and MR assessments performed by the Shift Manager or the duty CRS as described below.

- 4.1.2.2. Add the work activity to the VY Weekly Work Schedule unless it is a:

- 4.1.2.2.1. Minor Maintenance activity that has been determined to be non-PRA significant, or
- 4.1.2.2.2. FIN work activity that is considered to have no impact on plant risk per AP 0053.

**NOTE**

Throughout this procedure, the duty CRS may act as an alternate to the Shift Manager provided he has been granted verbal authority by the duty Shift Manager.

- 4.1.3. If the Shift Manager agrees that the equipment need not be removed from service and he has sufficient information to determine the scope of work, then:
  - 4.1.3.1. Inform the operating crew of the equipment degradation or inoperability as appropriate. Consider performing a pre-job brief per AP 0052 to ensure appropriate compensatory actions are in place and contingency planning is addressed for the duration of the repair effort, (ER950690\_01)
  - 4.1.3.2. The Shift Manager authorizes the work to commence per AP 0021, AP 0049, AP 0050, AP 0053, AP 6001,
  - 4.1.3.3. The work party then performs the work,
  - 4.1.3.4. The repair department informs the Shift Manager that the activity is completed per AP 0021, AP 0049, AP 0050, or AP 0053,
  - 4.1.3.5. The Shift Manager:
    - 4.1.3.5.1. Ensures equipment operability (to the extent necessary),
    - 4.1.3.5.2. Verifies final equipment lineups,
- 4.2. Initiation of Work Activities
  - 4.2.1. If the Shift Manager agrees that the equipment needs to be removed from service, then:
    - 4.2.1.1. The Shift Manager performs Appendix A or B as required,
    - 4.2.1.2. The Shift Manager logs any Technical Specification equipment that is out of commission per AP 0152,
    - 4.2.1.3. The Shift Manager ensures a Risk Assessment is performed in accordance with AP 0172 or AP 0173 or both.
    - 4.2.1.4. The Shift Manager will ensure that any Maintenance Rule equipment that is out of service is logged per Appendix C, (Maint\_Rule\_94001)
    - 4.2.1.5. The Shift Manager will then authorize the work to commence per AP 0021, AP 0049, AP 0050, AP 0053, AP 6001,

## APPENDIX B

### CONDITIONS REQUIRED TO REMOVE POWER BLOCK NON-TECHNICAL SPECIFICATIONS REQUIRED EQUIPMENT FROM SERVICE

Equipment may be removed from service for the performance of corrective or preventive maintenance provided the following actions are performed:

#### A. Prior to Removal of Equipment from Service

1. A planned evolution, which will remove from service or otherwise make inoperable any power supply (i.e., bus, MCC, or power distribution panel or lighting panel), must have a De-energization Plan written. The Operations Control Center prepares and presents it to the Shift Manager for implementation. (LER9512\_02 and ER96- 1131)

#### NOTE

An approved Operations Procedure may be Substituted for a De-energization Plan provided all the attributes are addressed in the procedure. If the procedure is adequate, then no additional actions in this section are required.

- a. Operations Control Center prepares the De-energization Plan with the following attributes:
  - 1) A step by step sequence for accomplishing the de-energization. A reference to a procedure section, which accomplishes the de-energization, is allowed.
  - 2) Identification of loads which are impacted by the de-energization of the power supply. This can be in the form of a drawing that identifies the loads.
  - 3) Any unusual or abnormal indications and plant responses anticipated as a result of the de-energization process.
  - 4) Identification of any Appendix R lights that are affected, and what compensatory actions required by OP 4800. VYOPF 4800.07 will be referred to prior to de-energizing the source of power to any lighting panel.
  - 5) Expected outage duration.
  - 6) Major work expected to be completed under the plan.

## APPENDIX B (Continued)

- 7) Initial conditions to be satisfied prior to de-energization.
  - 8) A step-by-step sequence for accomplishing the re-energization.
  - b. The De-energization Plan will be reviewed by an independent reviewer assigned by the OCC Supervisor. The independent reviewer must ensure that the attributes described in steps A.1.a.1) through 8) above have been properly included in the sequence.
  - c. Once the sequence is found to be satisfactory, the preparer and reviewer sign the plan, and can then present it to the Duty Shift Manager with the work package for implementation.
2. The Shift Manager evaluates the work activity, and based on consideration of the following, that removing the equipment from service will not compromise plant safety or performance. (VYB 880261 and Maint\_Rule\_94001):
- a. Affect on other plant equipment, including equipment that is out of service already.

### NOTE

EMPAC Asset Record or the applicable plant program documents may be used for impact review.

- b. Affect any plant programs.
  - 1) If the affected equipment is listed in Appendix E1, Index of Safe Shutdown Components, of the Safe Shutdown Capability Analysis, verify that an assessment has been performed by the Appendix R Coordinator to determine if compensatory actions are required. (Memo VYE 98/213)
- c. Expected changes in plant configuration due to the work activity.
- d. Conditions external to the plant such as adverse weather or offsite electrical power supply maintenance activities or casualties.
- e. Interaction other ongoing tests or maintenance activities.

## APPENDIX B (Continued)

### NOTE

Use of ORAM-Sentinel per AP 0172 (Online) or AP 0173 (Outages) provides additional guidance for this evaluation. If ORAM-Sentinel is unavailable, the SSC Redundancy Matrix (Figure 1) provides additional guidance for this evaluation during power operations. Configurations which remove from service or degrade those system/equipment combinations identified on the Matrix with a Black Box or an "X" should be avoided.

- f. The Shift Manager will ensure that the out of service time for those SSCs identified in Figure 2 are minimized to the extent practical during any tagging, work, and return to service activities.
3. Shift Manager reviews the following prior to removal of equipment from service: (INS9010OP4 and LER9501S1\_03).
- a. The Administrative Limits of the applicable operating procedures.
  - b. Determine if any alternate testing is required or desirable.
  - c. If alternate testing is not required or desired, consider how alternate equipment operability will be ensured. For example:
    - 1) Verification of control board lineup
    - 2) Verification of other Technical Specification operability
    - 3) Verification of alternate testing completed on surveillance schedule.
    - 4) Visual check of alternate systems
4. When releasing plant equipment for various activities, the Shift Manager shall determine if the activity constitutes an infrequently performed test or evolution (IPTE) and recommend, to the Operations Manager, that additional controls, be implemented as required per AP 6100.

During backshift, the Shift Manager may contact the primary DCO to recommend that a Management Designee be appointed to oversee the balance of the evolution (SOER9101OP1).

## SSC REDUNDANCY MATRIX

[illegible]

## General

The SSC Redundancy Matrix relates systems / system functions to other systems that are provided a similar function or help to mitigate similar types of accident consequences. The matrix is designed to help assess plant risk when equipment is degraded or inoperable. The focus is on system combinations. A complete basis for the matrix can be found in SAFTY 96-028, "Matrices to Assess Plant Risk." When Maintenance Affects Multiple Systems.

### Interpretation

A mark on the redundancy matrix (either a black box or an X) means that the associate systems (top of column and side of row) are redundant. Redundancy here means one of two things:

**Black Box = Functional Link** - When marked with a black box, the systems perform a similar function. For example, HPCI and RCIC both provide high pressure injection to the RPV, hence the matrix relates these systems with a black box.

**X<sub>2</sub>—Event Link.** When marked with an X, the systems help to mitigate the same type of accident scenario (but do not necessarily accomplish the same function). For example, the Vernon 1Y provides emergency electric power, and the Diesel fire pump provides RPV injection capability. While these functions are different, both systems can help mitigate Station Blackout scenarios so the matrix relates these systems with an X.

### Limitations and Considerations for Use of the Matrix

**It shows only inter-system redundancy:** A black box means that there is some functional redundancy between systems. However, there is often redundancy within individual systems as well.

It does not illustrate all "support system" dependencies: The black boxes show only "direct" relationships between systems that satisfy the same function. Many support systems must be considered with the front-line systems they support.

It does not show the impact of plant trip initiators. The matrix displays information about the mitigative functions of systems. Some systems can also cause a plant trip. The likelihood of an event or plant trip occurring while mitigative system functions are degraded or out of service must be considered independently.

## Guidelines for Use

The matrix is designed to aid in the qualitative assessment of risk by showing the risk that a system function or mitigation will fail. In general, the risk impact of a system degradation or failure is greatest when other systems cannot accomplish a similar function (marked with a black box) or mitigate a similar event (marked with an X) are also degraded or out of service. When a system is degraded or out of service, the redundant system(s) deserve heightened attention or consideration prior to removal from service to assure that key safety functions are met for possible accident scenarios.

In general, the function-based links between systems (black boxes) usually have more significant risk implications than the purely event-based links (Xs).

VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET

**Task Identification:**

Title: Determine Emergency Plan Allowed Radiation Exposure  
Failure Mode: N/A  
Reference: OP 3507  
Task Number: 34403403

**Task Performance:** AO/RO/SRO \_\_\_ RO/**SRO** Only X SE Only \_\_\_

Sequence Critical: Yes \_\_\_ No X

Time Critical: Yes \_\_\_ No X

Individual Performing Task: \_\_\_\_\_

Examiner: \_\_\_\_\_

Date of Evaluation: \_\_\_\_\_

Activity Code: N/A

Method of Testing: Simulation \_\_\_ Performance X Discuss \_\_\_

Setting: Classroom \_\_\_ Simulator X Plant \_\_\_

Performance Expected Completion Time: 15 minutes

Evaluation Results:

Performance: PASS \_\_\_ FAIL \_\_\_ Time Required: \_\_\_\_\_

Prepared by: [Signature]  
Operations Training Instructor

8/19/03  
Date

Reviewed by: [Signature]  
SRO Licensed/Certified Reviewer

8/19/03  
Date

Approved by: [Signature] for MEG  
Operations Training Superintendent

8/20/03  
Date



**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

**Initial Conditions:**

A Site Area Emergency has been declared due to an ATWS. Reactor building ARMs have increased by a factor of 100. ARM 2 RB-252 by the elevator is reading 1000 mr/hr. ARM 4 RB-252 by TIP room is reading 1000 mr/hr. Airborne radiation levels at this time are not above normal.

**Initiating Cues:**

You are the Plant Emergency Director (PED). Shutting CRD 56 is the only available method for driving control rods in. Time estimate for shutting CRD 56 is 3 minutes for one operator.

**Task Standards:**

- Determine the allowed dose for this task
- Determine if the RBAO should be sent to perform this task, 3507.02 filled out
- Determine the RBAO Emergency radiation exposure limit and if CRD56 can be shut

**Required Materials:**

OP 3507

VYOPF 3507.02 pages 1 & 2

VYOPF 3544.02 Completed by on shift RP technician and provided to the PED if he asks for it

**Simulator Setup:** Any IC

**Evaluation**

**Performance Step**

TIME START: \_\_\_\_\_

SAT/UNSAT

**Step 1: PED locates OP 3507, Emergency Radiation Exposure Control, reviews Discussion Section, Precautions/Limitations.**

Standard: Correct procedure located and used, precaution/limitations reviewed.

SAT/UNSAT

**Step 2: PED determines that 5 REM TEDE is authorized for Plant Emergency Personnel.**

Standard: Appendix A limits exposure to 5 REM

SAT/UNSAT

**\* Step 3: PED plans/determines dose.**

Standard:  $(3 \text{ min})(1000 \text{ mr/hr})(1\text{hr}/60 \text{ min}) = 50 \text{ mr}$

SAT/UNSAT

**Step 4: PED limits exposure to RBAO to Appendix A limits.**

Standard: Appendix A allows 5 rem.

SAT/UNSAT

**Step 5: PED verifies operator satisfies considerations of Appendix A Note 1.**

Standard: PED checks RBAO against 7 criteria of the note.

---

Interim Cue: If asked the RBAO is male, 58 years old, volunteers for the task, has a lifetime exposure of 5 REM, is aware of the risks, is strong and in good physical condition, has shut CRD 56 before.

---

SAT/UNSAT

**\* Step 6: PED fills out VYOPF 3507.02, briefs the RBAO and directs him to shut CRD 56.**

Standard: VYOPF 3507.02 page 1 completed, RBAO briefed and signs for brief.  
RBAO sent to shut CRD 56

---

Interim Cue: If asked provide completed VYOPF 3544.02 which was performed by the on shift RP technician.  
The RBAO's name is John DOE, his SS # is 123-45-6789, and the evaluator should sign for the briefing as the RBAO

---

\* Critical Step

TIME FINISH: \_\_\_\_\_

**Terminating Cue:** RBAO sent into reactor building to shut CRD 56.

**Evaluator Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**System:** K/A's:

**System Generic K/A's:** 2.3.4 Knowledge of radiation exposure limits and contamination control/including permissible levels in excess of those authorized

(CFR: 43.4 / 45.10)

**IMPORTANCE**

**RO 2.5**

**SRO 3.1**

## **EXAMINEE HANDOUT**

### **Initial Conditions:**

A Site Area Emergency has been declared due to an ATWS. Reactor building ARMs have increased by a factor of 100. ARM 2 RB-252 by the elevator is reading 1000 mr/hr. ARM 4 RB-252 by TIP room is reading 1000 mr/hr. Airborne radiation levels at this time are not above normal.

### **Initiating Cues:**

You are the Plant Emergency Director (PED). Shutting CRD 56 is the only available method for driving control rods in. Time estimate for shutting CRD 56 is 3 minutes for one operator.

VERMONT YANKEE NUCLEAR POWER STATION

**OPERATING PROCEDURE**

**OP 3507**

**REVISION 30**

**EMERGENCY RADIATION EXPOSURE CONTROL**

USE CLASSIFICATION: **REFERENCE**

| LPC<br>No. | Effective<br>Date | Affected Pages |
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## PURPOSE

To specify emergency worker dose guidelines, including emergency center habitability, and the methods to administer emergency personnel dosimetry and related record keeping.

## DISCUSSION

During a plant emergency, abnormally high levels of radiation and/or radioactivity may be encountered. These levels may range from slightly above those experienced during normal plant operation to life-endangering levels of several hundred Rem in a short period of time (e.g., spent fuel cask accident, loss of coolant accident or a spent fuel pool immersion). Under all emergency situations care should be taken to minimize personnel exposures from external and/or internal sources of radiation.

If tasks are being conducted within areas that show no significant increase in general area dose rates from normal plant radiological conditions and dose commitment to any individual of less than 1 rem is required, then the normal work process will be used to control radiation exposure of personnel. If tasks are being conducted within areas that show a significant increase in general area dose rates from normal plant radiological conditions or an individual dose commitment of 1 rem or greater is required, then the emergency dose control process will be used to control radiation exposure of personnel. (EPEX93RP1)

Specific exposure guidelines for entry or re-entry into plant areas under emergency conditions are defined in Appendix A. Initially, the Shift Supervisor/Plant Emergency Director (until relieved by the TSC Coordinator) shall authorize emergency dose guidelines consistent with these depending on the emergency. Exposure to individuals providing emergency functions will be consistent with the limits specified in Appendix A with every attempt being made to keep exposures below these limits in accordance with the principles of ALARA. The Radiation Protection staff personnel will assist with the coordination of emergency dose commitments as needed.

The Radiation Protection (RP) Manager, is responsible for developing emergency radiological protection programs for plant staff support personnel. Emergency Kits are provided with self-reading dosimeters. Each member reporting to the site will be provided a TLD badge. Dose records will be maintained at each center based upon the results of either Electronic Alarming Dosimeters or self-reading dosimeters. This information will be cross-referenced with TLD badge data, as soon as they can be processed by a qualified TLD processing facility.

Guideline action levels for continuous habitability of all emergency centers are presented in Appendices A and B.

In accordance with AP 6002, Preparing 50.59 Evaluations, the results of an Applicability Determination (AD) has determined that an AD is not required for future changes provided the scope of the procedure or program is not revised to include a different type of activity. The basis for this conclusion is that document is an Emergency Implementing Procedure and is subject to 10CFR50.54(q) to determine if the changes decrease the effectiveness of the Emergency Plan if they have the potential to affect our ability to meet the standards of 10CFR50.47(b) and the requirements of 10CFR50 Appendix E.

## ATTACHMENTS

1. Appendix A Emergency Dose Limits
2. Appendix B Emergency Center Habitability and Protective Action Criteria
3. VYOPF 3507.01 Personnel Exposure Log
4. VYOPF 3507.02 Emergency Radiation Exposure Briefing/Debriefing
5. VYOPF 3507.03 Potassium Iodide Administration Record
6. Figure 1 Line Diagram of EOF HEPA Ventilation

## REFERENCES AND COMMITMENTS

1. Technical Specifications and Site Documents
  - a. None
2. Codes, Standards and Regulations
  - a. None
3. Commitments
  - a. 10 CFR 20
  - b. NCRP Report #116
  - c. 10 CFR 50 App. E
  - d. Information Notice No. 84-40
4. Supplemental References
  - a. EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, Revised 1991
  - b. DP 0530, Radiation Protection Data and Information Logging, VYDPF 0530, Report #0028
  - c. OP 3544, Operation of the Operations Support Center (OSC)
  - d. OP 3508, On-Site Medical Emergency Procedure
  - e. AP 6807, Collection, Temporary Storage and Retrieval of QA Records

## PRECAUTIONS/LIMITATIONS

1. During any emergency involving radiological hazards, personnel radiation exposure should be minimized consistent with the nature of the emergency response required.



## PROCEDURE

### A. Emergency Radiation Exposure Control

#### 1. Normal Plant Radiological Conditions

##### **NOTE**

This section applies for tasks being conducted within areas that show no significant increase in general area (TEDE) dose rates from normal plant radiological conditions and each individual's dose commitment requirement is less than 1 rem.

- a. An RP Representative or designated individual shall plan and control radiation exposure of personnel in accordance with the normal work process to ensure exposures are maintained within administrative limits.

#### 2. Off-Normal Plant Radiological Conditions

##### **NOTES**

- This section applies for tasks being conducted within areas that show a significant increase in general area dose rates from normal plant radiological conditions which may result in any individual dose commitment of 1 rem or greater.
- Upon indication of off-normal Plant radiological conditions, Plant Emergency Personnel will immediately be authorized an Emergency Dose Limit of 4.5 Rem TEDE. Authorization to the 10 Rem limit (Protecting Valuable Property) 25 or 75 REM limit (Lifesaving or Protection of a Large Population) may only be made with the joint concurrence of the Shift Supervisor/Plant Emergency Coordinator or TSC Coordinator and the senior Radiation Protection representative.

- a. An RP Representative or designated individual shall:
  - 1) Plan and control radiation exposure of personnel using VYOPF 3507.02, Emergency Radiation Exposure Briefing and Debriefing form.
  - 2) Limit radiation exposure of personnel in accordance with the guidance contained in Appendix A.

# EMERGENCY RADIATION EXPOSURE BRIEFING/DEBRIEFING

JOB NO. \_\_\_\_\_ (From VYOPF 3544.02)

|   |                      |
|---|----------------------|
| EMERGENCY DOSE COMMITMENT AUTHORIZED              |                      |
| TEDE DOSE COMMITMENT AUTHORIZED: _____            |                      |
| APPROVED BY: _____                                | APPROVAL TIME: _____ |
| Note: SS/PED or TSC Coordinator approval required |                      |

|  |  |
|--|--|
| RADIOLOGICAL BRIEFING  |  |
| Known or Anticipated Radiation/Contamination/Airborne Levels:                                    |  |
| Maximum Stay Time/Allowable Dose: _____  |  |
| Required Dosimetry:    Self-Reading <input type="checkbox"/> Multibadge <input type="checkbox"/> |  |
| Portable Dose<br>Rate Meter:   | Ion Chamber <input type="checkbox"/> Teletector <input type="checkbox"/><br>Neutron Meter <input type="checkbox"/> Other (Specify) |
| Respiratory Protection: SCBA <input type="checkbox"/> Respirator <input type="checkbox"/>        |  |
| Protective Clothing:            Full <input type="checkbox"/> Other (Specify)                    |  |
| KI Needed?            YES <input type="checkbox"/> NO <input type="checkbox"/>                   |  |
| Special Instructions: (Specify)  |  |

BRIEFER INITIALS: \_\_\_\_\_ DATE/TIME: \_\_\_\_\_

| LIST OF INDIVIDUALS ATTENDING BRIEFING |     |           |
|--|-----|-----------|
| NAME (PRINT)                           | SSN | SIGNATURE |
|  |     |           |
|  |     |           |
|  |     |           |
|  |     |           |
|  |     |           |
|  |     |           |

EMERGENCY RADIATION EXPOSURE BRIEFING/DEBRIEFING (Continued)

|  |   |                                     |
|--|---|-------------------------------------|
| RADIOLOGICAL DEBRIEFING INFORMATION  |   |                                     |
| Time of Return:  |   |                                     |
| Job Completed:      YES <input type="checkbox"/> NO <input type="checkbox"/> |   |                                     |
| Comments/Status (If applicable):   |   |                                     |
|  |   |                                     |
| Actual Radiation/Contamination/Airborne Levels Found:                        |   |                                     |
|  |   |                                     |
| Observed Personal Hazards:   |   |                                     |
|  |   |                                     |
| Problems Encountered/General Comments:                                       |   |                                     |
|  |   |                                     |
| Post-Entry Exposure<br>Follow-up:  | TLD and Dosimetry <input type="checkbox"/><br>Other Bio-assay (Specify) | Body Count <input type="checkbox"/> |

DEBRIEFER INITIALS: \_\_\_\_\_ DATE/TIME: \_\_\_\_\_

OSC COORDINATOR INITIALS: \_\_\_\_\_ DATE/TIME: \_\_\_\_\_

TSC COORDINATOR INFORMED BY (INITIALS): \_\_\_\_\_ DATE/TIME: \_\_\_\_\_  
OR SS/PED

## APPENDIX A

### EMERGENCY DOSE LIMITS<sup>a</sup> (refer to Notes 1 and 2)

| <b>Dose Limit</b><br>(refer to Note 3)<br>(TEDE) | <b>Work Activity</b>                         | <b>Condition</b>   |
|--|--|--|
| <b>5 Rem</b>                                     | All  | Maintain ALARA and to extent practicable limit emergency workers to these limits |
| <b>10 Rem</b>                                    | Protecting Valuable Property                 | Lower dose not practicable   |
| <b>25 Rem</b>                                    | Lifesaving or Protection of Large Population | Lower dose not practicable   |
| <b>75 Rem</b>                                    | Lifesaving or Protection of Large Population | Only on a voluntary basis to persons fully aware of the risks involved           |

#### NOTES

1. For emergency dose limits the following considerations should be made:
  - a. Declared pregnant women will not be allowed to participate.
  - b. The use of volunteers for exposures during emergency actions is desirable. Older workers with low lifetime accumulated effective dose should be given priority.
  - c. The individual's awareness of the biological consequences that such an exposure can have, including the risks associated with exposure of a developing embryo/fetus for female workers.
  - d. All practical protective measures to limit such an exposure.
  - e. Concurrence of individual(s) involved (i.e., voluntary risk acceptance).
  - f. The probability of success should be balanced against the expected exposure limit.
  - g. The individual's familiarity with the task and speed with which the individual can conduct the task.
2. After the emergency has been concluded, doses received by emergency workers are required to be accounted in accordance with 10 CFR Part 20 occupational dose limits.
3. Emergency dose limits for the lens of the eye and for any organ (including skin and extremities) are three and ten times the listed values, respectively.

<sup>a</sup> EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, Revised 1991.

# OSC TEAM WORK STATUS FORM

JOB NO. \_\_\_\_\_

JOB LOCATION \_\_\_\_\_

BRIEF JOB DESCRIPTION:

|  |
|--|
|  |
|  |
|  |
|  |
|  |
|  |
|  |

NAME OF OSC TEAM MEMBERS

Work Coordinator (if applicable)

Team Members:

|  |
|--|
|  |
|  |
|  |
|  |
|  |

EMERGENCY DOSE COMMITMENT REQUIRED? (VYOPF 3507.02 ATTACHED)

☐ YES   ☐ NO

RAD PROTECTION INITIALS: \_\_\_\_\_

TIME TEAM DISPATCHED: \_\_\_\_\_ TIME TEAM RETURNED: \_\_\_\_\_

DISPOSITION OF JOB:

|  |
|--|
|  |
|  |
|  |
|  |

Manpower Status Board updated at completion of job: ☐

OSC COORDINATOR'S FINAL INITIALS: \_\_\_\_\_

Top Copy: Assigned Team

Second Copy: Manpower Status Board

Third Copy: OSC Dispatcher

VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET

**Task Identification:**

Title: PAR Based on Plant Conditions (Evacuate)  
Failure Mode: N/A  
Reference: OP 3511, Off-Site Protective Action Recommendations, Rev 11  
Task Number: 3441703, 34470603

**Task Performance:** AO/RO/SRO \_\_\_ RO/SRO Only X SE Only \_\_\_

Sequence Critical: Yes \_\_\_ No X

Time Critical: Yes X No \_\_\_

Individual Performing Task: \_\_\_\_\_

Examiner: \_\_\_\_\_

Date of Evaluation: \_\_\_\_\_

Activity Code: \_\_\_\_\_

Method of Testing: Simulation \_\_\_ Performance X Discuss \_\_\_

Setting: Classroom \_\_\_ Simulator X Plant \_\_\_

Performance Expected Completion Time: 15 minutes

Evaluation Results:

Performance: PASS \_\_\_ FAIL \_\_\_ Time Required: \_\_\_\_\_

Prepared by: \_\_\_\_\_  
Operations Training Instructor

8/19/03  
Date

Reviewed by: \_\_\_\_\_  
SRO Licensed/Certified Reviewer

8/19/03  
Date

Approved by: \_\_\_\_\_  
Operations Training Superintendent

8/20/03  
Date

**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

**Initial Conditions:**

A failure to SCRAM and a loss of cooling accident has occurred. All ECCS systems responded as expected. The following plant data is available:

- Rx water level us -30" and stable
- Containment RAD level is 10000R/hr and increasing
- Torus pressure is 4 psig and steady
- Containment isolation valves AC-6 and AC-6B have failed to close
- Stack high range monitor RM17-155 is alarming
- The Shift Manager has declared a General Emergency and the EOF has not yet been named. A stack release is in progress.

**Initiating Cues:**

Determine the Protective Action Recommendation based on plant conditions per OP 3511, and provide to the Shift Manager for approval.

**Task Standards:**

PAR and VYOPF 3511.01 complete

**Required Materials:**

OP 3511, VYOPF 3511.01

**Simulator Setup:**

Any IC, in RUN

**NOTE:**      **MET DATA is variable in the simulator and may be different in the same IC from day to day. Evaluators should verify correct wind direction and down wind towns prior to JPM.**



**Evaluation**

**Performance Step**

TIME START: \_\_\_\_\_

SAT/UNSAT

**Step 1: Obtain Procedure OP 3511, Section 1 and review precautions.**

Standard: Operator obtains and reviews procedure.

SAT/UNSAT

**Step 2: Utilize Figure 1 (OP 3511) to determine the appropriate protective action recommendation based on plant conditions, and record on VYOPF 3511.01.**

Standard: Operator obtains Figure 1 of OP 3511 and VYOPF 3511.01 from OP 3511.

SAT/UNSAT

**\* Step 3: Determine wind direction from meteorological data.**

Standard: Operator records current upper wind direction on Figure 1. (Any method of data acquisition from Appendix I of 3513 is acceptable)

---

Interim Cue: MET DATA is variable in the simulator and may be different in the same IC from day to day. Evaluators should verify correct wind direction and down wind towns prior to JPM.

---

SAT/UNSAT

**\* Step 4: Determine from initial conditions that substantial core damage is in progress.**

Standard: Operator answers yes to "substantial core damage" decision block on Figure 1 of OP 3511 due to containment rads > 5000 R/hr

SAT/UNSAT

**\* Step 5: Determine from initial conditions that containment failure has occurred and a release is underway.**

Standard: Operator answers yes to "containment failure projected or release underway" decision block on Figure 1 of OP 3511 due to AC-6 and 6a failure to close.

SAT/UNSAT

**\* Step 6: Determine that a puff release is not underway.**

Standard: Operator answers no to "is a puff release underway?" decision block on Figure 1 of OP 3511.

SAT/UNSAT      \* **Step 7:      Determine PAR of evacuation for Vernon, Hinsdale and appropriate down wind towns and complete VYOPF 3511.01**

Standard:      Operator determines correct PAR and completes VYOPF 3511.01 using Table III of OP 3511.

SAT/UNSAT      **Step 8:      Review PAR with SM (Senior Manger in charge) for approval.**

Standard:      Operator requests approval of PAR from Shift Manager.

---

Interim Cue:    The Shift Manger states that he will complete the remainder of the procedure.

---

\* Critical Step

TIME FINISH: \_\_\_\_\_

**Terminating Cue:**

**Evaluator Comments:** \_\_\_\_\_

**System:      K/A's:**

**System Generic K/A's:      2.4.29 Knowledge of the emergency plan**

**(CFR: 43.5 / 45.11)**

**IMPORTANCE**

**RO 2.6**

**SRO 4.0**

## **EXAMINEE HANDOUT**

### **Initial Conditions:**

A failure to SCRAM and a loss of cooling accident has occurred. All ECCS systems responded as expected. The following plant data is available:

- Rx water level is -30" and stable
- Containment RAD level is 10000R/hr and increasing
- Torus pressure is 4 psig and steady
- Containment isolation valves AC-6 and AC-6B have failed to close
- Stack high range monitor RM17-155 is alarming
- The Shift Manager has declared a General Emergency and the EOF has not yet been named. A stack release is in progress.

### **Initiating Cues:**

Determine the Protective Action Recommendation based on plant conditions per OP 3511, and provide to the Shift Manager for approval.

VERMONT YANKEE NUCLEAR POWER STATION

**OPERATING PROCEDURE**

**OP 3511**

**REVISION 12**

**OFF-SITE PROTECTIVE ACTION RECOMMENDATIONS**

USE CLASSIFICATION: **REFERENCE**

| LPC<br>No. | Effective<br>Date | Affected Pages |
|------------|-------------------|----------------|
|            |                   |                |
|            |                   |                |

**Implementation Statement:** N/A

Issue Date: 01/20/03

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## PURPOSE

To specify the criteria that is utilized for making a Protective Action Recommendation (PAR) to the appropriate Emergency Planning Zone States.

## DISCUSSION

### Responsibilities:

1. Shift Supervisor/Plant Emergency Director (SS/PED):

Authorizes the initial Protective Action Recommendation to the State authorities until relieved by the TSC Coordinator or Site Recovery Manager.

2. Technical Support Center (TSC) Coordinator:

Authorizes Protective Action Recommendation to the State authorities until relieved by the Site Recovery Manager.

3. EOF Coordinator/Radiological Assistant:

Evaluates radiological data used to determine the appropriate Protective Action Recommendation and provides recommendation to the Site Recovery Manager at the EOF/RC.

4. Site Recovery Manager (SRM):

The cognizant individual with the overall responsibility and authority to provide the appropriate Protective Action Recommendation to the State authorities.

The decision making process to determine the Protective Action Recommendation for the plume exposure emergency planning zone is based on two criteria. The criteria include the consideration of plant conditions at the General Emergency classification, and projected and measured radiological doses in the environment.

For a Protective Action Recommendation based on plant conditions at the General Emergency classification, information is obtained on in-core fuel conditions, fission product inventory in containment, containment integrity, and release conditions. This information is then utilized to determine the appropriate Protective Action Recommendation (i.e., shelter or evacuation) based upon the guidance contained in Figure 1.

For a Protective Action Recommendation based on release of radioactivity, the appropriate information concerning projected and measured dose rates in the environment is utilized. Determination of the population at risk is based upon meteorological data (wind speed, wind direction, and stability class). The exposure time is based upon available information such as plant conditions or type of accident. In the event that this cannot be readily approximated, a default release duration estimate is utilized. The projected and measured dose is calculated from this information.

The projected or measured dose is then utilized to determine the appropriate Protective Action Recommendation based upon Environmental Protection Agency (EPA) guidance.

In accordance with AP 6002, Preparing 50.59 Evaluations, the results of an Applicability Determination (AD) has determined that an AD is not required for future changes provided the procedure scope is not changed. The basis for this conclusion is that this document is a managerial and an administrative monitoring process, subject to 10CFR50 Appendix B, that does not alter the design, performance requirements, operation, or control of Systems, Structures, or Components (SSCs).

## ATTACHMENTS

- |    |               |  |
|----|---------------|--|
| 1. | VYOPF 3511.01 | Protective Action Recommendation Worksheet                               |
| 2. | VYOPF 3511.02 | Deleted  |
| 3. | Table 1       | Deleted  |
| 4. | Table 2       | Deleted  |
| 5. | Table 3       | General Emergency Protective Action Guidelines Based on Plant Conditions |
| 6. | Table 4       | Dose Projection Protective Action Guidelines - Towns 10 Miles Downwind   |
| 7. | Table 5       | Dose Projection Protective Action Guidelines - Towns 5 Miles Downwind    |
| 8. | Figure 1      | Flow Chart - General Emergency Protective Action Recommendations         |

## REFERENCES AND COMMITMENTS

1. Technical Specifications and Site Documents
  - a. None
2. Codes, Standards, and Regulations
  - a. NUREG 0654, Rev. 1, "Criteria for Preparation and Evaluation of the Radiological Emergency Response Plans at Nuclear Power Plants."
3. Commitments
  - a. None
4. Supplemental References
  - a. EPA 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Accidents.", October 1991
  - b. USNRC IE Notice 83-28, "Criteria for Protective Action Recommendations for General Emergencies", May 4, 1983
  - c. Vermont Yankee Nuclear Power Station Emergency Plan



- d. YAEC Memorandum J.G. Parillo to S.R. Miller, "Monitor Indications for Failed Fuel", dated 6/27/95, REG 110/95
- e. AP 3125, Emergency Plan Classification and Action Level Scheme
- f. OP 3504, Emergency Communications
- g. OP 3513, Evaluation of Off-Site Radiological Conditions
- h. OP 3540, Control Room Actions During an Emergency
- i. OP 3542, Operation of the Technical Support Center (TSC)
- j. OP 3544, Operation of the Operations Support Center (OSC)
- k. OP 3546, Operation of the Emergency Operations Facility/Recovery Center (EOF/RC)
- l. OP 3547, Security Actions During an Emergency
- m. AP 6807, Collection, Temporary Storage and Retrieval of QA Records

#### PRECAUTIONS/LIMITATIONS

- 1. Emphasize to States' representatives that no compensation in the recommendation is made for the time to implement and complete protective actions.
- 2. An immediate Protective Action Recommendation based on General Emergency classification level must be implemented as delineated in Section I of this procedure.
- 3. A Protective Action Recommendation is reviewed against protective action actually implemented prior to re-issuing an updated recommendation.
- 4. If possible and if time permits, confer with the appropriate State and Federal authorities to ensure that questions on protective actions to be applied are answered prior to formal recommendation.

## PROCEDURE

### NOTES

- If a Protective Action Recommendation (shelter or evacuation) is warranted, ensure that a General Emergency has been declared, consistent with AP 3125.
- A Protective Action Recommendation is approved by the senior manager in charge of emergency activities at the time the recommendation is made. This person reviews and approves the recommendation, then transmits it to the states.
- Section I or II may be performed out of sequence and independent of each other.

### **I. Protective Action Recommendation Based on Plant Conditions**

- A. Immediate actions by the senior manager in charge or designated alternate (General Emergency Declared)

### NOTES

- Initial notification of the General Emergency based on plant conditions, with determined Protective Action Recommendation, must be initiated to state authorities within 15 minutes.
- A Protective Action Recommendation becomes valid and the 15-minute clock begins when the senior manager in charge of emergency activities at the time the recommendation is made approves and signs VYOPF 3511.01.
- Initial notification of the General Emergency based on plant conditions, with determined Protective Action Recommendation, should not be delayed due to performing dose projections or awaiting their results.
- Two individuals should be assigned to formulate the PAR independently to ensure accuracy.

1. Use Figure 1 and Table 3 (ER2000-1363) to determine the appropriate Protective Action Recommendation (PAR) based on plant conditions.
  - a. If the actual or potential release pathway is a stack release, use the upper wind direction.
  - b. If the actual or potential release pathway is a ground release, use the lower wind direction.

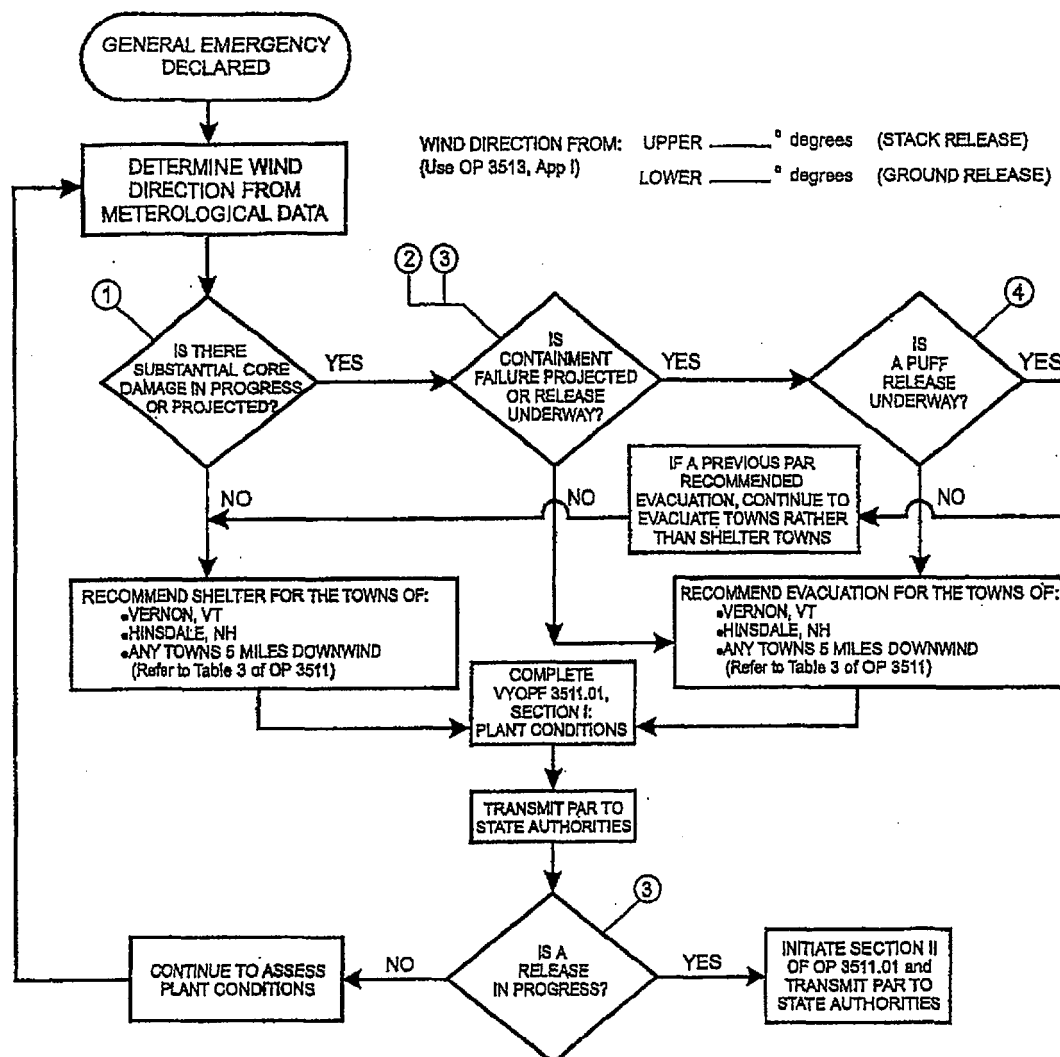
- c. If the actual or potential release pathway is a multiple release (stack and ground), use both the upper and lower wind direction.
2. If available, a second individual should independently verify the PAR. The verification may be performed by the individual who is approving the PAR (PED, TSC Coordinator, or Site Recovery Manager).

**NOTE**

Any prior protective action recommendations that are still in effect shall be included with updated information and documentation (VYOPF 3511.01).

3. Record appropriate PAR information in Section I of VYOPF 3511.01.
  4. Review PAR with the Site Recovery Manager or senior manager in charge to obtain approval.
  5. Transmit approved PAR to State authorities as delineated in OP 3540 (PED or TSC Coord.) (use VYOPF 3540.06) or OP 3546 (Site Recovery Manager) (use VYOPF 3546.02).
  6. Forward completed VYOPF 3511.01 to the Site Recovery Manager or senior manager in charge.
- B. Subsequent Actions
1. Continue to obtain updated information on plant conditions.
  2. If significant changes occur with plant or meteorological conditions, repeat steps in Section I.A. to re-evaluate Protective Action Recommendation.

FIGURE 1  
GENERAL EMERGENCY PARs



**NOTES**

(1) INDICATORS OF SUBSTANTIAL CORE DAMAGE MAY INCLUDE:

- Significant Radioactive Inventory in Primary Containment
  - Containment radiation monitor readings >5000 R/hr
- Loss of Critical Functions for Core Protection
  - Reactor water level <TAF
  - ECCS not available to maintain core cooling

(2) INDICATORS OF CONTAINMENT FAILURE MAY INCLUDE:

- Drywell Pressure >42 psig and Increasing
- PCIS Failure to Isolate Containment
- Primary Containment H<sub>2</sub>/O<sub>2</sub> Concentration Increasing

(3) INDICATORS OF SIGNIFICANT RELEASE OF RADIOACTIVITY TO ENVIRONMENT MAY INCLUDE:

- Increasing and Elevated Stack High Range Monitor Readings
- Measurable Radiation Levels Above Background at or Beyond Site Boundary
- Extremely High and Increasing Reactor Building ARM Readings

(4) INDICATORS OF A PUFF RELEASE MAY INCLUDE:

- Predictable Release Duration for Short Time Period (e.g., Release Duration <1 Hour)
- Controlled Release Where the Timing of the Duration is Known

TABLE 3

## GENERAL EMERGENCY PROTECTIVE ACTION GUIDELINES BASED ON PLANT CONDITIONS

| WIND IS FROM:                               | TOWNS 5 MILES DOWNWIND |   |
|---|------------------------|---|
| Sector A<br>(348° - 11°)<br>North           | Vernon<br>Hinsdale     | Bernardston<br>Northfield<br>Guilford   |
| Sector B<br>(12° - 33°)<br>NorthNorthEast   | Vernon<br>Hinsdale     | Bernardston<br>Northfield<br>Guilford   |
| Sector C<br>(34° - 56°)<br>NorthEast        | Vernon<br>Hinsdale     | Bernardston<br>Northfield<br>Guilford   |
| Sector D<br>(57° - 78°)<br>EastNorthEast    | Vernon<br>Hinsdale     | Guilford<br>Bernardston                 |
| Sector E<br>(79° - 101°)<br>East            | Vernon<br>Hinsdale     | Brattleboro<br>Guilford<br>Bernardston  |
| Sector F<br>(102° - 123°)<br>EastSouthEast  | Vernon<br>Hinsdale     | Brattleboro<br>Guilford                 |
| Sector G<br>(124° - 146°)<br>SouthEast      | Vernon<br>Hinsdale     | Brattleboro<br>Guilford                 |
| Sector H<br>(147° - 168°)<br>SouthSouthEast | Vernon<br>Hinsdale     | Brattleboro<br>Guilford                 |
| Sector J<br>(169° - 191°)<br>South          | Vernon<br>Hinsdale     | Brattleboro<br>Guilford<br>Winchester   |
| Sector K<br>(192° - 213°)<br>SouthSouthWest | Vernon<br>Hinsdale     | Winchester                              |
| Sector L<br>(214° - 236°)<br>SouthWest      | Vernon<br>Hinsdale     | Winchester                              |
| Sector M<br>(237° - 258°)<br>WestSouthWest  | Vernon<br>Hinsdale     | Winchester                              |
| Sector N<br>(259° - 281°)<br>West           | Vernon<br>Hinsdale     | Winchester<br>Northfield                |
| Sector P<br>(282° - 303°)<br>WestNorthWest  | Vernon<br>Hinsdale     | Winchester<br>Northfield                |
| Sector Q<br>(304° - 326°)<br>NorthWest      | Vernon<br>Hinsdale     | Winchester<br>Northfield<br>Bernardston |
| Sector R<br>(327° - 347°)<br>NorthNorthWest | Vernon<br>Hinsdale     | Winchester<br>Northfield<br>Bernardston |

# PROTECTIVE ACTION RECOMMENDATION WORKSHEET

INFORMATION CURRENT AT: \_\_\_\_\_ / \_\_\_\_\_ (Time/Date)

## PROTECTIVE ACTION RECOMMENDATIONS

### SECTION I: PLANT CONDITIONS

(Fill in with appropriate letter designation for affected towns from Table 3)

S= Shelter in Place

OR

E= Evacuate

#### VERMONT TOWNS

\_\_\_\_\_ Brattleboro

\_\_\_\_\_ Guilford

\_\_\_\_\_ Vernon

#### NEW HAMPSHIRE TOWNS

\_\_\_\_\_ Hinsdale

\_\_\_\_\_ Winchester

#### MASSACHUSETTS TOWNS

\_\_\_\_\_ Bernardston

\_\_\_\_\_ Northfield

Performed By: \_\_\_\_\_

Verified By: \_\_\_\_\_

### SECTION II: RADIOLOGICAL DOSE

(Fill in with letter designation for affected towns)

E= Evacuate

OR

(Check if appropriate)

\_\_\_\_\_ NO PARs Based on Radiological Dose

#### VERMONT TOWNS

\_\_\_\_\_ Brattleboro

\_\_\_\_\_ Dummerston

\_\_\_\_\_ Guilford

\_\_\_\_\_ Halifax

\_\_\_\_\_ Vernon

#### NEW HAMPSHIRE TOWNS

\_\_\_\_\_ Chesterfield

\_\_\_\_\_ Hinsdale

\_\_\_\_\_ Richmond

\_\_\_\_\_ Swanzey

\_\_\_\_\_ Winchester

#### MASSACHUSETTS TOWNS

\_\_\_\_\_ Bernardston

\_\_\_\_\_ Colrain

\_\_\_\_\_ Gill

\_\_\_\_\_ Greenfield

\_\_\_\_\_ Leyden

\_\_\_\_\_ Northfield

\_\_\_\_\_ Warwick

The following was used (Check as applicable):

☐ Nomogram ☐ ODPS ☐ METPAC ☐ Field Data

Performed By: \_\_\_\_\_

Verified By: \_\_\_\_\_

(The following information to be filled in by Senior Manager in charge or designated alternate)

Approved By: \_\_\_\_\_ (Time/date) \_\_\_\_\_

☐ PED

☐ TSC Coordinator

☐ Site Recovery Manager (Check one)

Transmit approved PAR to State Authorities as delineated in OP 3540 (PED or TSC Coordinator using OP 3540.06) or OP 3546 (Site Recovery Manager using OP 3546.02)

VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET

**Task Identification:**

Title: Isolate Leaking RHR Pipe Weld  
Failure Mode: N/A  
Reference: P&ID G191172 / G191299 / G191301  
Task Number: 2990100304 (AO Task)

**Task Performance:** AO/RO/SRO \_\_\_ RO/SRO Only X SE Only \_\_\_

Sequence Critical: Yes \_\_\_ No X

Time Critical: Yes \_\_\_ No X

Individual Performing Task: \_\_\_\_\_

Examiner: \_\_\_\_\_

Date of Evaluation: \_\_\_\_\_

Activity Code: N/A

Method of Testing: Simulation \_\_\_ Performance X Discuss \_\_\_

Setting: Classroom \_\_\_ Simulator X Plant \_\_\_

Performance Expected Completion Time: 15 minutes

Evaluation Results:

Performance: PASS \_\_\_ FAIL \_\_\_ Time Required: \_\_\_\_\_

Prepared by: \_\_\_\_\_  
Operations Training Instructor

8/19/03  
Date

Reviewed by: \_\_\_\_\_  
SRO Licensed/Certified Reviewer

8/19/03  
Date

Approved by: \_\_\_\_\_  
Operations Training Superintendent

8/21/03  
Date

**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

**Initial Conditions:**

The plant is operating at full power. No equipment is out of service.

**Initiating Cues:**

A crack/leak has been reported by the RBAO to the Shift Manager on RHR-V10-49C. The leak is on the pump side of the valve (C RHR pump vent). The Shift Manager directs you to identify mechanical and electrical components to isolate, vent, and drain the pump

**Task Standards:**

P-10-1C Breaker identified

P-10-1C Pump Isolation Vent, Drain Vales identified

MOV Breakers identified

No steps are sequence critical, the control authority will determine the tagging sequence

**Required Materials:**

Controlled Prints/CWDs

**Simulator Setup:**

Any IC, need controlled prints, can be done in any setting with controlled prints available



**Evaluation**

**Performance Step**

TIME START: \_\_\_\_\_

SAT/UNSAT

**Step 1: Determine correct print for RHR system.**

Standard: Operator determines G191172 is the RHR system print.

SAT/UNSAT

**\* Step 2: Determine isolation boundaries.**

Standard: The following valves identified to be shut: RHR-V10-69C, 47C, 13C Handwheel, 15C Handwheel

SAT/UNSAT

**\* Step 3: Determine vent path.**

Standard: The following valves identified to be open: RHR-V10-49C, 162C

SAT/UNSAT

**\* Step 4: Determine drain path.**

Standard: Either or both of the following valve(s) open: RHR-V10-22C, 21C; **and** 12A open .

SAT/UNSAT

**Step 5: Determine correct print for RHR pump motor breaker.**

Standard: Operator reviews G191299 or CWD 1300.

---

Interim Cue: If the operator attempts to use procedure lineups, direct him to use controlled prints.

---

SAT/UNSAT

**\* Step 6: Determine RHR Pump "C" Breaker.**

Standard: 4 KV Bus 3 Compartment 5

SAT/UNSAT

**Step 7: Determine correct print for RHR MOV 15/13.**

Standard: Operator reviews G 191301 Sheet 2 of 2 or CWD 1263, 1267.

---

Interim Cue: If the operator attempts to use procedure lineups direct him to use controlled print.

---

SAT/UNSAT

**Step 8: Determine RHR 13C/15C MOV power supplies.**

Standard: MMC 9B,Cubicle 6G and 7J

\* Critical Step

TIME FINISH: \_\_\_\_\_

**Terminating Cue:** Mechanical and electrical boundaries identified.

**Evaluator Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**System:** K/A's:

**System Generic K/A's:** 2.1.24 Ability to obtain and interpret station electrical and mechanical drawings

(CFR: 45.12 / 45.13)

**IMPORTANCE**

**RO 2.8**

**SRO 3.1**

Tear-Out Sheet

**Initial Conditions:**

The plant is operating at full power. No equipment is out of service.

**Initiating Cues:**

A crack/leak has been reported by the RBAO to the Shift Manager on RHR-V10-49C. The leak is on the pump side of the valve (C RHR pump vent). The Shift Manager directs you to identify mechanical and electrical components to isolate, vent, and drain the pump

|                           |                     |
|---------------------------|---------------------|
| Valves shut for isolation | _____               |
| Valves open for vent      | _____               |
| Valves open for drain     | _____               |
| ACB open for RHR pump     | <u>BUS</u> _____    |
| ACB open for MOVs         | <u>MCC(s)</u> _____ |

VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET

**Task Identification:**

Title: Perform Emergency in Functional Test  
Failure Mode: N/A  
Reference: OP 0105  
Task Number: 2010070101

**Task Performance:** AO/RO/SRO \_\_\_ RO/SRO Only X SE Only \_\_\_

Sequence Critical: Yes \_\_\_ No X

Time Critical: Yes \_\_\_ No X

Individual Performing Task: \_\_\_\_\_

Examiner: \_\_\_\_\_

Date of Evaluation: \_\_\_\_\_

Activity Code: N/A

Method of Testing: Simulation \_\_\_ Performance X Discuss \_\_\_

Setting: Classroom \_\_\_ Simulator X Plant \_\_\_

Performance Expected Completion Time: 10 minutes

Evaluation Results:

Performance: PASS \_\_\_ FAIL \_\_\_ Time Required: \_\_\_\_\_

Prepared by: [Signature]  
Operations Training Instructor

8/19/03  
Date

Reviewed by: [Signature]  
SRO Licensed/Certified Reviewer

8/19/03  
Date

Approved by: [Signature] for WEG  
Operations Training Superintendent

8/20/03  
Date

**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

**Initial Conditions:**

All control rods are fully inserted. Rod Sequence A-2 is latched on the RWM. Reactor assembly is complete.

**Initiating Cues:**

The Shift manager directs you to perform the RMCS "emergency in" functional test in accordance with OP 0105 Phase 1A, Step 15.

**Task Standards:**

Emergency-in functional test completed, all control rods at "00"

**Required Materials:**

VY Simulator, VYOPF 0105.02, OP 0105

**Simulator Setup:**

Simulator; Any IC; all rods in; reactor mode switch in START and Hot STBY; RWM latched to sequence A-2; A-2 Sequence on CRP 9-5

**Evaluation**

**Performance Step**

TIME START: \_\_\_\_\_

SAT/UNSAT

**\* Step 1: Select and pull a control rod in Group I to position 48.**

Standard: Operator identifies any control rod in Group 1 and withdraws it to position 48.

SAT/UNSAT

**\* Step 2: Go to notch override AND rod out for 3 to 5 seconds.**

Standard: Notch override AND notch out held for 3 to 5 seconds.

SAT/UNSAT

**Step 3: Verify computer types coupling check SAT.**

Standard: Operator checks alarm typer – “CUP Check SAT”

SAT/UNSAT

**Step 4: Observe rod remains at position 48.**

Standard: Operator observes control rod remains at position 48.

SAT/UNSAT

**\* Step 5: Using the emergency in switch continuously insert the control rod to position 00.**

Standard: Control rod is driven continuously to position 00 using the emergency in switch.

---

Interim Cue: If the operator responds to the control rod drift alarm with the ARS, inform him another operator will address the control rod drift alarm.

---

SAT/UNSAT

**Step 6: Note completion of Step on VYOPF 0105.02.**

Standard: Operator initials completed step.

SAT/UNSAT

**Step 7: Report satisfactory completion of emergency in functional test to the Shift Manager.**

Standard: Shift Manager informed of satisfactory emergency functional test.

\* Critical Step

TIME FINISH: \_\_\_\_\_

**Terminating Cue:** VYOPF 0105.02 initialed for SAT emergency in functional test.

**Evaluator Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**System:** K/A's:

**System Generic K/A's:** 2.2.1 Ability to perform pre-startup procedures for the facility including operating those controls associated with plant equipment that could affect reactivity

(CFR: 45.1)

IMPORTANCE

RO 3.7

SRO 3.6

Tear-Out Sheet

**Initial Conditions:**

All control rods are fully inserted. Rod Sequence A-2 is latched on the RWM. Reactor assembly is complete.

**Initiating Cues:**

The Shift manager directs you to perform the RMCS "emergency in" functional test in accordance with OP 0105 Phase 1A, Step 15.



VERMONT YANKEE NUCLEAR POWER STATION

**OPERATING PROCEDURE**

**OP 0105**

**REVISION 10**

**REACTOR OPERATIONS**

USE CLASSIFICATION: **CONTINUOUS**

| LPC No. | Effective Date | Affected Pages                |
|---------|----------------|-------------------------------|
| 1       | 10/23/02       | VYOPF 0105.01 Pg 5 of 8       |
| 2       | 10/24/02       | VYOPF 0105.01 Pg 1 of 8       |
| 3       | 10/24/02       | VYOPF 0105.01 Pg 5 of 8       |
| 4       | 10/26/02       | 46,79,80,106,118 & 123 of 137 |
| 5       | 10/28/02       | 43 of 137                     |
| 6       | 12/19/02       | VYOPF 0105.13 Pg 1 of 1       |
| 7       | 02/25/03       | 129 of 137                    |
| 8       | 07/31/03       | 96 of 137                     |
| 9       | 08/05/03       | 90 of 137                     |

**Implementation Statement:** N/A

Issue Date: 10/18/02

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## PURPOSE

To provide Operations Department personnel with the instructions necessary to prepare the plant for, and to achieve; 1) plant startup from all rods inserted to normal full power operations, 2) plant shutdown from normal full power operations to all rods inserted with reactor coolant temperature <212°F, 3) Reactor heatup with MSIVs closed, 4) plant shutdown without the startup transformers, 5) hot standby behind the MSIVs, and 6) Insequence Critical testing.

## DISCUSSION

Each order to commence a reactor startup from any shutdown condition is issued by the General Manager, Plant Operations or his designated alternate. The Shift Manager, upon receipt of such orders, schedules the startup of various components and systems to meet the startup and load schedules, and issues these orders to the Control Room Supervisor.

It is the intent of this procedure to outline the many steps required to achieve a safe reactor startup, plant startup, maneuvering at power, plant shutdown, reactor shutdown, and shutdown operations. The sequence of steps phase to phase, or section to section specified may be altered and/or performed concurrently at the discretion of the Shift Manager and the Control Room Supervisor to suit existing plant conditions. A variance is a step that is omitted, or, if going from one phase to another without all the steps of the previous phase being completed. Any variance shall be documented on the Variance form and approved by the Shift Manager and the CRS on VYOPF 0105.09.

Instructions are also provided for:

Appendix "A", Reactor Heatup with MSIVs Closed

Appendix "B", Plant Shutdown Without the Startup Transformers.

Appendix "C", Hot Standby Behind the MSIVs.

Appendix "D", In-sequence Critical Procedure.

Appendix "E", Startup Event Line

Appendix "F", Shutdown Event Line

VYOPF 0105.09, Procedure Variance Form.

Following Plant Shutdowns after long operating cycles, or Startups after extended or refueling outages, the potential exists for significant conditions to exist which could jeopardize plant safety margins. These evolutions may be designated as Infrequently Performed Test or Evolutions (IPTEs) and a Management Designee assigned by the General Manager, Plant Operations to provide line management authority and be responsible for the safe conduct of the evolution. Further details for conducting IPTEs and responsibilities of the Management Designee are addressed by AP 6100. (SOER9101OP1)

Event Lines outlining the major evolutions required to startup and shutdown the reactor have been developed (Appendix E and F). The Event Lines do not provide procedural guidance, OP 0105, Reactor Operations procedure does. The Event Lines were not developed to be used as a procedure in the way the EOP flowcharts are utilized. On Startup and Shutdown Event Lines, as the evolutions are completed, the boxes are checked off. The Event Lines will be used during the turnover process as an outline. Thus Event Lines provide an overview for both plant and shift management of the major evolutions required to startup and shutdown the plant. Certain evolutions not performed by the Operations Department are included on the Event Lines for information only. These evolutions are in brackets and include both surveillance and maintenance activities.

RTP means Rated Thermal Power, 1593 MWT, as defined by Tech Specs.

## ATTACHMENTS

- |     |               |  |
|-----|---------------|--|
| 1.  | Appendix A    | Reactor Heatup With the MSIVs Closed                                 |
| 2.  | Appendix B    | Shutdown With Startup Transformers Out of Service                    |
| 3.  | Appendix C    | Hot Standby Behind the MSIVs   |
| 4.  | Appendix D    | In-Sequence Critical Procedure                                       |
| 5.  | Appendix E    | Startup Event Line   |
| 6.  | Appendix F    | Shutdown Event Line  |
| 7.  | VYOPF 0105.01 | Reactor Startup Prerequisite List                                    |
| 8.  | VYOPF 0105.02 | Reactor Startup To Criticality Check Sheet                           |
| 9.  | VYOPF 0105.03 | Reactor Criticality Check Sheet, Regular and In-Sequence             |
| 10. | VYOPF 0105.04 | Reactor and Generation Systems Heatup To Low Power Prerequisite List |
| 11. | VYOPF 0105.05 | Reactor and Generation Systems Heatup To Low Power Check Sheet       |
| 12. | VYOPF 0105.06 | Increasing Power Check Sheet   |
| 13. | VYOPF 0105.07 | Decreasing Power/Shutdown Check Sheet                                |
| 14. | VYOPF 0105.08 | In-Sequence Critical Prerequisite List                               |
| 15. | VYOPF 0105.09 | Procedure Variance Form  |
| 16. | VYOPF 0105.10 | Shutdown With S/U Transformers Out of Service Check Sheet            |
| 17. | VYOPF 0105.11 | Hot Standby Behind the MSIVs Check Sheet                             |
| 18. | VYOPF 0105.12 | Deleted  |
| 19. | VYOPF 0105.13 | Plant Operating Parameters   |
| 20. | Figure 1      | Turbine Trip Logic   |
| 21. | Figure 2      | Speed Load Changer Setting   |

## 1. PHASE 1 From Cold Shutdown to Reactor Critical, RCS <212°F

### REFERENCES AND COMMITMENTS

1. Technical Specifications and Site Documents
  - a. All Tech. Spec. Sections apply.
  - b. TRM Section 3.6.B/4.6.B
  - c. Tech. Spec. Amendment No. 190, Reactor Coolant System Chemistry
  - d. Tech. Spec. Amendment No. 193, RETS
  - e. VYNPS UFSAR, Section 13.6
2. Codes, Standards, and Regulations
  - a. 10CFR50, Appendix J
3. Commitments
  - a. NVEY94084\_03, "RE: BVY 94-90, Encl. A; Thermal Hydraulic Stability - Develop Procedures to Provide Operations Guidance"
  - b. INS9424\_01, Review OP 0112 And Other Procedures Associated With 10-4-94 Hot Shutdown As Detailed On Section 2.3, Pages 6-7
  - c. ER 9508\_01, PCIS Actuation Due To High Steam Line Flow. S.T. Rec.1 - Address Procedural Issues RE: Reset of MTS-2 (OP 2160)
  - d. LER9317OP1, Bypass Valves Opened With MSIV Low Condenser Vacuum Isolation Bypassed
  - e. CAR93069OP4, Revise OP 0101 As Detailed in Recommendation 3 - Initiation of Containment Inerting After Transfer of Mode Switch To Run/Also Revise VYOPF 0101.01
  - f. UND95020, Revise OP 0102 To Ensure Thermal Limits Are Verified After Change In Reactor Power. Include Rec.'s in 10/3/94 FJH Memo Regarding Scaling Factor With 3D Monicore Unavailable/Limiting CR Pattern
  - g. UND97028\_03, Revise OP 0105 and OP 0109 To Address Recs. In J. Brooks' Memo Dated 12/9/97 RE: Performance of a Full Core Scram While Shutting Down
  - h. UND97058\_01, Revise OP 0105 to Include a Maneuvering at Power Section to Address Crew F Concerns
  - i. VYB91043OP2, Ensure MOO Dir 84-01, Reactor Shutdown Procedure Continues to be Properly Implemented
  - j. UND9217OP1, Memo, R.D. Pagodin to D.A. Reid, "Evaluation of Mode Switch Concerns", dated 3/16/92
  - k. SER9306OP1, Unplanned Reactor Coolant System Heatup During Refueling Outage
  - l. SOER9101OP1, Memo, D.A. Reid to Dist., "SOER 91-01 Implementation", dated 1/2/92
  - m. LER 9508\_01, PCIS Actuation Due To High Steam Line Flow. S.T. Rec. 1 - Address Procedural Issues RE: Reset of MTS-2 (OP 2160)

- n. ER970191\_01, Reactor Vessel Flange Temperature Not Recorded On Form VYAPF 0105.03. Per Rec.1, Revise Form To Eliminate Possibility Of Form Appearing To Be Complete W/Info Pre-typed In Data Blocks.
- o. ER970839\_03, RE: Modify Reactor Feedwater System Operating Procedures
- p. ER981351\_01, Include HPCI and RCIC Under ECCS Systems Reactor Startup Prerequisite List
- q. ER981423\_06, Revise OP 0105 to Reference Annunciator 5-K-8 Clearing Prior to Reaching 30% CTP
- r. ER950543\_03, Control Rod Drive 30-19 Rod Position
- s. UND97039\_01, Change 26 Mlbs to 27.0-27.5 Mlbs for OP 0105 and 27.5-29.0 for All Other Procedures per Response to UND97039
- t. NVY96175\_06, Consider Exercising the Stability Monitor During Startups
- u. ER981421\_01, Add AOG Rupture Disc to Startup Pre-Requisites. See Part 4 of ER.
- v. NVY99004\_02, Re Tech Spec Amendment 165, Re Primary Containment Isolation Valves (PCIS). Review all procedures impacted by the amendment and revise as necessary. Ensure that control room communications is (or will be) "immediately available."
- w. ER971781\_02, Evaluate Adding a Caution Statement to OP 0105 Regarding Operation with High Rod Lines.
- x. ER990031\_02, FCV-4 Not in Auto/Bal as Required by OP 0105
- y. ER991995\_01, Evaluate and Correct Procedural Guidance on Feed System High Path Flush for Startups
- z. ER991941\_07, Revise OP 0105 "Reactor Operations" To Include Guidance Noted on the Original Hard Copy ER.
- aa. ER2000-1386\_02, Add Installation and Removal of Extinguishers from the Heater Bay to the Shutdown and Startup Checklists
- ab. SEN 208\_01, Revision to OP 0105 Checklist Additions
- ac. ER2000-1448\_01, Add Note to Procedure Regarding Responsiveness of Recirc Master Controller
- ad. ER2001-0819\_01, Positively Control CIV Bleader Valves by 2nd Verification and Signoffs
- ae. ER-2001-1353\_01, Revise OP 0105 to Delete Requirement for Performing HPCI and RCIC Surveillance Testing Prior to Reaching 20% RTP
- af. ER-2001-2151\_02, Review OP 0105 and OP 0150
- ag. ER-2001-1839\_05, Revise AP 0105
- ah. UND-2001-137\_01, Procedure Revisions for Process Computer ERFIS Software Changes
- ai. UND-2001-198\_02, Change OP 0105 and OP 2170
- aj. UND-2002-011\_01, Review OP 0105 to Specify Required Indicator to Determine When RPV Temperature <212°F. Specify Desired Cooldown Rate Range for Normal Cooldowns
- ak. ER-2001-0542\_01, Consider Adding Admin Controls to Perform Instrumentation Surveillances When Shutting Down or After a Scram Within 12 Hours of Entering Startup or Refuel Mode Where IRM and APRM-Setdown Function is Required
- al. UND-2001-145\_86, Revise AP 0105 Startup Prerequisite Checklist to Include Valve Lineups
- am. ER-2002-1231\_01, Revise OP 0105 to Add a Caution/Statement to the RHR-46 A/B Leakage Test Steps

#### 4. Supplemental References

- a. BVS 94-91, "Response To NRC Generic Letter 94-02", dated 9/9/94
- b. NRC Letter SSINS-0200, "Average Reactor Power", dated 8/22/80
- c. Memo, J.W. Durborow to Assessment Coordinator, "PTR8803OP6", dated 6/16/89 (PTR8803OP9)
- d. SURV9012901, Procedure Changes for Vessel Level Control and Acceptable RWCX HX Inlet Temperature
- e. SOER 94-01, "Nonconservative Decisions and Equipment Performance Problems Result in a Reactor Scram, Two Safety Injections and Water Solid Conditions", dated 8/5/94
- f. GESIL-357, Control of Reactor Vessel Temperature/Pressure During Shutdown
- g. IEC-81-11, Decay Heat Removal During Shutdown
- h. INF92039, Unplanned Return to Criticality During Reactor Shutdown
- i. GESIL-548, Increased Containment Oxygen Concentration During RCIC System Operation
- j. DWG 5920-3773, Reactor Assembly for Nuclear Boiler
- k. DWG 5920-0576, Shroud Head and Separators
- l. GEK-5585, General Electric Turbine Manual Volumes I, II, and III
- m. DWG G191279, Logic Turbine Gen Interlock
- n. GEK 72173 Electrical Pressure Regulator Pump Unit
- o. PTR 88-03, "Low Power Scram Due to BPOJ Control", dated 7/3/88
- p. LER 90-04, "Rx Scram Due to Pressure Control Failure", dated 4/20/90
- q. Letter, G.E. to VY "Differential Expansion Detector Rotor Short - Red Band Setpoint", dated 6/19/91
- r. SOER 8402OP5, Procedures for Bypassing the Rod Worth Minimizer
- s. Memo, RAP/JSC to SRM, VYS 132/95, "HPCI Steam Admission Valve (V23-14) Short Term Recommendations"
- t. Safety Evaluation for Pressure Locking of V23-14, No. 95-61
- u. LER 91-11, "Inadvertent Group 6, PCIS Actuation Due to an Incomplete Procedure, dated 5/28/91
- v. NRC Information Notice 92-39, Unplanned Return to Criticality During Reactor Shutdown
- w. SOER 8802, Premature Criticality Events During Reactor Startup
- x. GESIL Service Information Letter (SIL) 251 Rx/Bottom Heat Coolant Temp and SIL 251, Supplement 1
- y. ADMINLETTER9703, Plant Restart Discussions Following Natural Disasters
- z. Tech. Spec. Review/Clarification SR 94-69; PM 1534 Rev. 1, File number TS/Memo
- aa. SER 9520, High Power Scram Setpoints Above Design Value During Power Ascension
- ab. GESIL-292, Inadvertent Control Rod Withdrawal
- ac. ER980448, Turbine Trip Due to High Moisture Separator Level During Planned Shutdown
- ad. EDCR 97-422, Cycle 20 Reload
- ae. LER 98-11, HPCI and RCIC System Low Steam Supply Pressure Isolation Function Bypassed During Startup Contrary to Tech Spec Requirements
- af. SER 95-13, Reactivity Excursion During Low Power Physics Testing

ag. BMO 97-03 Rev. 1, Technical Specification for Offsite Power  
 ah. SEN 185, Recurring Event, Inappropriate Continuous Control Rod Withdrawn  
 From Subcritical Condition. Review For Applicability to VY  
 ai. ER990094, Reactor Operating Pressure Control Boundaries  
 aj. Letter, R. Swanson to K. Bronson "Turbine Generator Turning Gear Operation"  
 SYSENG 99-0169 dated 10/14/99  
 ak. MM 99-034, Feedwater Pump Min-Flow Trip Logic Modifications  
 al. VY/LIC 02-08: Licensing Position on Starting-Up in RHRSW LCO  
 am. AP 0019, Control of Temporary and/or Portable Materials  
 an. AP 0052, Pre-Job Briefing  
 ao. OP 0109, Plant Restoration  
 ap. AP 0145, Equipment Cycle Record Keeping  
 aq. DP 0158, Electric Meter Readings, Control Room Recording Demand Meter  
 Tapes, and Seven Day Voltage Recorders  
 ar. AP 0167, Operability Determinations  
 as. OP 1411, Core Verification  
 at. OP 2001, Crossflow Ultrasonic Flow Meter Data Collection, Analysis and  
 Implementation  
 au. OP 2110, Reactor Recirculation System  
 av. OP 2111, Control Rod Drive System  
 aw. OP 2112, Reactor Water Cleanup System  
 ax. OP 2115, Primary Containment  
 ay. OP 2117, Standby Gas Treatment  
 az. OP 2119, Nitrogen Supply System  
 ba. OP 2120, High Pressure Coolant Injection System  
 bb. OP 2121, Reactor Core Isolation Cooling System  
 bc. OP 2124, Residual Heat Removal System  
 bd. OP 2126, Diesel Generators  
 be. OP 2134, Reactor Protection System  
 bf. OP 2142, 4 KV Electrical System  
 bg. OP 2143, 480 and Lower Voltage AC System  
 bh. OP 2144, 120/240 VAC Vital Bus  
 bi. OP 2150, Advanced Off Gas System and Air Evacuation Equipment  
 bj. OP 2160, Turbine Generator Support Systems Operation  
 bk. RP 2161, Generator Hydrogen/Seal Oil and Core Monitor Systems  
 bl. RP 2162, Stator Cooling Water System  
 bm. RP 2163, Lube Oil Purification  
 bn. RP 2171, Condensate Demineralizer System  
 bo. OP 2172, Feedwater System  
 bp. OP 2180, Circulating Water/Cooling Tower Operation  
 bq. OP 2182, Reactor Building Closed Cooling Water  
 br. RP 2183, Turbine Building Closed Cooling Water  
 bs. OP 2184, Normal Fuel Pool Cooling System  
 bt. OP 2191, Containment Air System  
 bu. RP 2193, Isolated Phase Bus Cooling Operation  
 bv. OP 2402, Limiting Control Rod Patterns  
 bw. OP 2404, Determination and Implementation of Rod Movement Sequences  
 bx. OP 2611, Stack Effluent Sampling and Analysis



- by. OT 3100, Scram Procedure
- bz. OT 3113, Reactor Low Level
- ca. OT 3114, Reactor High Level
- cb. OT 3117, Reactor Instability
- cc. OT 3118, Recirculation Pump Trip
- cd. OT 3120, Condenser High Back Pressure
- ce. OT 3122, Loss of Normal Power
- cf. ON 3144, Control Rod Uncoupled
- cg. ON 3156, Loss of Shutdown Cooling
- ch. OT 3166, Mispositioned Control Rod
- ci. OP 4030, Type B and C Primary Containment Leak-Rate Testing
- cj. OP 4102, Refuel Outage/Fuel Movement Periodic Tests
- ck. OP 4103, Fire Protection Equipment Surveillance
- cl. OP 4110, Reactor Recirc System Surveillance
- cm. OP 4111, Control Rod Drive System Surveillance
- cn. OP 4113, Main and Auxiliary Steam System Surveillance
- co. OP 4120, High Pressure Coolant Injection System Surveillance
- cp. OP 4121, Reactor Core Isolation Cooling System Surveillance
- cq. OP 4122, Auto Blowdown System Surveillance
- cr. OP 4124, Residual Heat Removal and RHR Service Water System Surveillance
- cs. OP 4160, Turbine Generator Surveillance
- ct. OP 4181, Service Water/Alternate Cooling System Surveillance
- cu. OP 4400, Calibration of the Average Power Range Monitoring System to Core Thermal Power
- cv. OP 4401, Core Thermal Hydraulic Limits Evaluation
- cw. OP 4424, Control Rod Scram Testing and Data Reduction
- cx. OP 4430, Reactivity Anomalies/In-Sequence Critical
- cy. OP 4450, Rod Worth Minimizer Surveillance
- cz. OP 4612, Sampling and Treatment of the Reactor Water System
- da. OP 4617, Calculation of Chemistry Controlled Setpoints
- db. OP 5399, I/C Calibration of Important Computer Analog Inputs
- dc. AP 6100, Infrequently Performed Tests or Evolutions
- dd. AP 6807, Collection, Temporary Storage and Retrieval of QA Records
- de. PP 7006, Primary Containment Leak Rate Testing Program

## PRECAUTIONS/LIMITATIONS

1. With reactor power below 20%, the RWM is required to be operable. However, it may be bypassed if all of the following conditions are satisfied:
  - a. Notification of the Superintendent, Reactor Engineering.
  - b. Authorization obtained from the Operations Manager or General Manager, Plant Operations.
  - c. At least 12 control rods are withdrawn.
  - d. A second licensed operator is monitoring and documenting further rod motion.
  - e. The rod select template is in place.
2. If the air lock is opened during periods when primary containment integrity is not required, the air lock must be leak-rate tested at the end of the period prior to primary containment integrity being required.
3. If the air lock is opened when primary containment integrity is required, the airlock must be leak-rate tested within 5 days from the time the outer airlock door is opened. If the airlock is opened more frequently than once every 5 days, then the airlock must be closed and leak-rate tested at least once every 5 days. (Tech. Spec. requires testing within 7 days per PP 7006.)
4. If the reactor startup or in-sequence critical is the first following a refueling outage AND will be used by Reactor Engineering (RE) to perform a shutdown margin calculation, the moderator temperature must be less than 210°F (OP 4430).
5. With the reactor pressure vessel head not installed:
  - a. The Control Room shall notify the CRS, or in his absence, the RP Technician on the refuel floor of any intended rod motion.
  - b. If core verification has not been completed or if performing the strongest control rod withdrawal subcritical check, then all personnel shall be out of line of sight of the open vessel when withdrawing a control rod from a cell with fuel installed.
  - c. All personnel shall be clear of the refuel floor when two (2) or more control rods are withdrawn from cells with fuel installed.

6. When opening a manual containment isolation valve that is within the primary containment boundary as defined by PP 7006, "Primary Containment Leak Rate Testing Program," when primary containment integrity is required, either enter the TS LCO (TS 3.7.A.8) or apply all of the following administrative controls:
- Station a dedicated operator with no concurrent duties in the immediate vicinity of the valve controls to rapidly close the valve when directed by the control room.
  - Establish communication with the control room that is immediately available using either Gaitronics, sound powered phones, radios, telephones or other means.

These administrative controls will ensure the manual containment isolation valve can be rapidly closed when primary containment isolation is required during accident conditions (NVY99004\_02).

7. The following temperature indications may be used when identifying the area to the right of the curves on Tech. Spec. Figures 3.6.2 and 3.6.3:

- For Bottom Fluid Temperature utilize Vessel Bottom Head Drain Temp on the PLC 2-166, RPV/SV/RV screen on CRP 9-21 or ERFIS pt. S026.
- For Bottom Head Surface Temperature utilize Vessel Bottom Head on the PLC 2-166, RPV/SV/RV screen on CRP 9-21 or ERFIS pt. S028.
- For Downcomer Region Fluid Temperature:
  - If recirculation loop(s) is in operation utilize Recirc Loop Temp on TR-2-165 CRP 9-4 or
  - If RCU is in service utilize RWCU Inlet Temperature (B023) or
  - If RCU is in service and RWCU inlet temperature is not available, utilize Vessel Bottom Drain Temp on the PLC 2-166, RPV/SV/RV screen on CRP 9-21 or ERFIS pt. S026.
- For Flange Region Outside Surface Temperature utilize Rx Vessel Temp Flange on TR-2-3-90 on CRP 9-4 or Vessel Head Flange Temperature on the PLC 2-166 RPV/SV/RV screen on CRP 9-21 or ERFIS pt. S024.

8. The following pressure indications may be used when identifying the area to the right of the curves on Tech. Spec. Figures 3.6.2 and 3.6.3.

- Reactor Pressure-Wide/Narrow Range on PR-6-96 on CRP 9-5
- Reactor Pressure (B025)
- Reactor Pressure 56B on LR/PR-2-3-68B on CRP 9-3 (B048)
- Reactor Pressure 56A on LR/PR-2-3-68A on CRP 9-4 (B049)

9. To prevent cold water stratification in the reactor vessel bottom head and the resultant thermal shock, neither core flow nor reactor power should be increased if the difference between the bottom vessel drain and steam dome saturation temperature is greater than 145°F. Refer to OP 2110 if this condition develops.

10. During the approach to critical, the potential for unexpectedly high notch worths exists. These high notch worths could result in short reactor periods and subsequent reactor scrams. The use of notch override magnifies this problem and its use shall be avoided when the SRMs have reached a fourth doubling. The use of notch override may not be resumed until the reactor reaches the point of adding heat. Anticipated high worth notches have been noted on the sequence by Reactor Engineering and single notch withdrawal is recommended where noted. However, high worth notches are not necessarily limited to those noted on the sequence, so judgment and caution must be exercised when applying notch override and while approaching critical. (SEN 185)
11. Potential increased sampling frequency must be evaluated by the Chemistry Department following each shutdown, startup or power level change exceeding 25% of rated thermal power in one hour (ODCM Table 4.3.1).
12. Avoid activities that can distract Control Room personnel involved with the reactor startup (e.g., shift turnover and surveillance testing) during the approach to criticality. (SOER 8802)

## PREREQUISITES

1. A nuclear instrument response test will be initiated when a control rod is withdrawn following each refueling outage or after maintenance (refer to OP 4111).
2. If operating with normal system configuration (both recirc loops and RWCU running), the RWCU inlet temperature and both recirculation loop temperatures are expected to be equal; therefore, using any of these three indications is acceptable to meet the requirements of Tech. Spec. 3.6.A.1 and 3.6.A.2.
3. Chemistry limits for reactor water, feedwater, condensate and control rod drive system will be within the applicable guidelines of OP 4612.
4. If startup follows a scram or a refueling outage, ensure that scram response times meet the requirements of T.S. Section 3.3.
5. If this reactor startup is the first following a refueling outage or other extended outage, a Management Designee, should be assigned by the General Manager, Plant Operations to be responsible for providing overall senior line management authority for the safe conduct of the startup as an Infrequently Performed Test or Evolution (IPTE) detailed in AP 6100. The Management Designee duties and responsibilities shall include the following in addition to those detailed specifically in AP 6100 (SOER9101OP1):
  - a. Briefing operating crew(s) and test personnel on management's expectations.
  - b. Establishing the appropriate level of oversight required for the activity.
  - c. Maintaining awareness of mid-evolution changes, problems, or other off-normal unexpected conditions.

- d. Ensuring proper operational staffing is maintained and organizational responsibilities are clear.
  - e. Ensuring sufficient training of operating crew(s) and test personnel is provided.
6. If this is a restart following any natural phenomena which causes the plant to shutdown, request Vermont Yankee Emergency Planning personnel to confirm that offsite emergency preparedness infrastructure can support the reactor restart.  
(ADMINLETTER9703)
7. Reactor and Generator Systems Heatup to Low Power Prerequisites (VYOPF 0105.04) must be completed prior to plant pressurization.

13. Start the idle recirc pump(s) per OP 2110 if applicable. \*

**NOTE**

Multiple rod blocks are indicative of RWM hardware/software failure.

14. Monitor the RWM for multiple rod blocks. \*
15. Perform RMCS "Emergency In" Functional Test as follows: \*
- a. Select and pull a control rod in Group 1 to position 48.
  - b. Perform a coupling check per the following:

**NOTE**

If the 48 disappears, the rod display window goes dark and the rod drift and over-travel alarms are received, the control rod is uncoupled.

- 1) Attempt to pull the rod beyond position 48 by going to NOTCH OVERRIDE and ROD OUT for 3 to 5 seconds.
  - 2) Verify the coupling check on the computer printout and observing a settle position of 48 on the rod position display.
  - 3) If the coupling check is unsatisfactory, insert the control rod and refer to ON 3144, Control Rod Uncoupled.
- c. Continuously insert the same control rod to position 00 with the Emergency In switch.
  - d. Note completion of this test on VYOPF 0105.02.
16. Limit reactor vessel pressure/temperature to the right of the curves on Figure 3.6.3 in Tech. Specs. See Administrative Limits. \*
17. If HPCI/RCIC overspeed testing will be performed, verify or request maintenance uncouple HPCI/RCIC for overspeed testing per OP 4120/4121.
18. If required, hold inter-department precriticality briefing. Attendees should include the following:
- Operations
  - Radiation Protection
  - Chemistry
  - Reactor Engineering

# REACTOR STARTUP TO CRITICALITY CHECK SHEET

Date \_\_\_\_\_

## NOTE

If a step on these sheets can not be completed at this time due to plant conditions, a variance will be initiated. On the initial line on the check off sheet a "V" will be placed indicating the step was not completed. A variance form will be filled out by the SM and the step that was bypassed will be tracked until it has been completed.

### Corresponding Procedure Step

### Initials

### Time/Date

#### Phase 1 Section A

|         |  |       |               |
|---------|--|-------|---------------|
| 1.      | Admin. Limits, Precautions reviewed and Prerequisites satisfied.                 | _____ | _____ / _____ |
| 3.      | Primary containment established per OP 2115.                                     | _____ | _____ / _____ |
| 4.      | Mode switch in STARTUP.  | _____ | _____ / _____ |
| 5.      | IRMs selected for recording and on Range 1.                                      | _____ | _____ / _____ |
| 6.      | Computer Suspended Alarm Summary and Alarm Summary demanded and reviewed.        | _____ | _____ / _____ |
| 7.a & b | "Reset" pushbuttons depressed and released.                                      | _____ | _____ / _____ |
| 7.c     | Any INBD or OUTB isolation signal reset.   | _____ | _____ / _____ |
| 9.      | Shutdown cooling secured per OP 2124.  | _____ | _____ / _____ |
| 10.     | Reactor water level being maintained between 155 and 165 inches.                 | _____ | _____ / _____ |
| 11.     | Reactor vessel water level reference leg back-fill system operating per OP 2111. | _____ | _____ / _____ |
| 13.     | Both recirc pumps operating satisfactorily.                                      | _____ | _____ / _____ |
| 14.     | RWM proper operation verified.   | _____ | _____ / _____ |
| 15.     | Reactor manual control switch "Emergency In" Functional Test satisfactory.       | _____ | _____ / _____ |

**VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET**

**Task Identification:**

Title: Preparation of Control Room Shift Turnover Checklist  
Failure Mode: HPCI Flow control setpoint tape not properly set  
Reference: AP-0152  
Task Number: 2990030301

**Task Performance:** AO/RO/SRO \_\_\_ RO/SRO Only \_\_\_ SE Only \_\_\_

Sequence Critical: Yes \_\_\_ No X

Time Critical: Yes \_\_\_ No X

Individual Performing Task: \_\_\_\_\_

Examiner: \_\_\_\_\_

Date of Evaluation: \_\_\_\_\_

Activity Code: \_\_\_\_\_

Method of Testing: Simulation \_\_\_ Performance X Discuss

Setting: Classroom \_\_\_ Simulator X Plant

Performance Expected Completion Time: 15 minutes

Evaluation Results:

Performance: PASS \_\_\_ FAIL \_\_\_ Time Required: \_\_\_\_\_

Prepared by: [Signature]  
Operations Training Instructor

8/19/03  
Date

Reviewed by: [Signature]  
SRO Licensed/Certified Reviewer

8/19/03  
Date

Approved by: [Signature] for MEG  
Operations Training Superintendent

8/24/03  
Date



**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** all actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

**Initial Conditions:** Full power operation, no equipment out of service

**Initiating Cues:** The CRS directs you to complete the control room shift turnover checklist VYAPF.01

**Task Standards: Checklist completed:** HPCI flow control setpoint identified as unsat and corrected

**Required Materials:** VYN Simulator

**Simulator Setup:** Any full power IC  
HPCI flow control setpoint tape dialed down to 3000 GPM

TIME START: \_\_\_\_\_

SAT/UNSAT      **Step 1:      Obtain AP 0152 and review procedure**

Standard:      AP 0152 obtained and reviewed

SAT/UNSAT      **\*Step 2:      Obtain VYAPF 0152.01**

Standard:      Operator copies form from forms draw or copies form from procedure

---

Interim Cue:      Provide the operator with the attached VYAPF 0152.01 when satisfied that he could find it

---

SAT/UNSAT      **Step 3:      Check mark box as each system/component is verified lined up correctly**

Standard:      Check mark in each box for each system or component on the check sheet except HPCI

SAT/UNSAT      **\*Step 4:      HPCI flow control identified as not properly set**

Standard:      HPCI flow control mark **NO** and explained in the remarks

SAT/UNSAT      **\*Step 5:      HPCI setpoint tape mispositioning reported to the CRS and permission to correctly position requested**

Standard:      Report and request made to CRS

---

Interim Cue:      If asked, as the CRS direct the HPCI setpoint tape reset to the proper position

---

SAT/UNSAT      **\*Step 6:      HPCI setpoint tape reset to correct position**

Standard:      HPCI setpoint tape set to 4250 GPM

---

SAT/UNSAT

**Step 7: Check mark placed over HPCI "NO" and remark entry**

Standard: NO written over the check mark and a new remark made documenting the resetting of the HPCI setpoint tape

---

Interim Cue: If asked the CRS will write the event report

---

TIME FINISH: \_\_\_\_\_

**Terminating Cue:** Check list completed, and turned into the CRS  
HPCI setpoint tape set to 4250 GPM

**Evaluator Comments:** \_\_\_\_\_

---

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---

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---

**System Generic K/A's:** 2.1.3 Knowledge of shift turnover practices.

(CFR: 41.10 / 45.13)

IMPORTANCE

RO 3.0

2.1.31 Ability to locate control room switches / controls and indications and to determine that they are correctly reflecting the desired plant lineup.

(CFR: 45.12)

IMPORTANCE

RO 4.2.9

Tear-Out Sheet

**Initial Conditions:** Full power operation, no equipment out of service

**Initiating Cues:** The CRS directs you to complete the control room shift turnover checklist VYAPF.01

VERMONT YANKEE NUCLEAR POWER STATION

**ADMINISTRATIVE PROCEDURE**

**AP 0152**

**REVISION 22**

**SHIFT TURNOVER**

USE CLASSIFICATION: **INFORMATION**

| LPC No. | Effective Date | Affected Pages   |
|---------|----------------|--|
| 1       | 03/03/03       | VYAPF 0152.05 Pg 1 of 1                                      |
| 2       | 04/09/03       | 4 & 8 of 9; VYAPF 0152.01 Pg 1 of 1; VYAPF 0152.03 Pg 1 of 1 |
| 3       | 04/25/03       | 6 of 9   |
| 4       | 05/22/03       | 5 of 9   |
| 5       | 07/21/03       | VYAPF 0152.01 Pg 1 of 1                                      |

**Implementation Statement:** N/A

Issue Date: 02/11/2003

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## **1.0 PURPOSE, SCOPE, AND DISCUSSION**

### **1.1. PURPOSE**

To provide a positive means of accomplishing the necessary transfer of knowledge concerning the status of systems essential to the prevention of operational transients and accidents between the offgoing and oncoming shifts.

### **1.2. SCOPE**

This procedure contains the Administrative Controls for performing the shift turnover and associated checklists.

### **1.3. DISCUSSION**

The Control Room Shift Turnover Checklist is available to the oncoming shift so that the status of the plant can be ascertained at one location in the Control Room on a concentrated form with the minimum set of parameters easily available to operators. The checklist provides confirmation of the proper configuration of all systems essential to the prevention and mitigation of operational transients and accidents by a detailed control board surveillance. Acceptance Criteria, which may be Tech. Specs., Admin. or operational limits, are specified. The checklist also documents the necessary reviews by shift personnel. The control room and auxiliary operator turnover sheets are available for the off-going operators to be able to capture and turn over all pertinent information about their watch station.

Any systems/components that are inoperable are so noted and listed with the applicable Tech. Spec. Technical Requirements Manual, or ODCM paragraph on the Tech. Spec./Technical Requirements Manual Systems/Components Inoperable form.

A shift briefing shall be conducted by the Control Room Supervisor for all shift Operations personnel, the shift Chemistry Technician and the shift Radiation Protection Technician using VYAPF 0152.03 as a guide. The briefing shall be conducted after assuming the watch but prior to the start of operator rounds. Items discussed shall include planned evolutions, pertinent night orders, unusual conditions and general shift routine.

## **2.0 DEFINITIONS**

### **2.1. None**

## **3.0 PRIMARY RESPONSIBILITIES**

### **3.1. None**

## 4.0 PROCEDURE

### 4.1. Conduct of Control Room Shift Turnover

- 4.1.1. Utilizing the Control Room Shift Turnover Checklist, the Control Room Turnover Sheet, VYAPF 0152.04 and the Tech. Spec. Systems/Components Inoperable sheet as a guide, the respective oncoming and offgoing Control Room personnel will review the overall plant status.
- 4.1.2. A Control Room panel walkthrough will be conducted for a general review of the panels by the offgoing Control Room personnel with their relief.
- 4.1.3. A review of significant items entered in the Operator's Log that are not recorded on the Shift Turnover Checklist or any other noteworthy conditions will be conducted by the oncoming Control Room personnel.
- 4.1.4. Offgoing Control Room personnel turn over keys to oncoming shift. (ER970035\_02)
- 4.1.5. The offgoing Control Room personnel may leave after completing these steps.
- 4.1.6. The Shift Manager, Control Room Supervisor, Shift Technical Advisor, Control Room Operator and Alternate Control Room Operator (if assigned to the Control Room), will complete their reviews of other Control Room documents listed on the Control Room Shift Turnover Checklist.
  - 4.1.6.1. Logs and logbooks will be reviewed back to their last working shift and then the checklist will be initialed in the spaces provided.
- 4.1.7. All Control Room duty shift personnel shall initial the checklist in the appropriate space to document that the minimum required Control Room shift complement is present.
- 4.1.8. The Control Room Turnover Sheet, VYAPF 0152.04, will normally be filled out by the offgoing BOP operator with input from all control room watchstanders. The Shift Manager may designate any Control Room watchstanders to fill out the form depending on plant conditions/evolutions in progress at the time.

### 4.2. Preparation of the Control Room Shift Turnover Checklist

#### 4.2.1. Control Panel Status Section of VYAPF 0152.01

- 4.2.1.1. This section should be completed prior to reactor startup and at the beginning of each shift, while operating, by the duty CRS or as designated by him.
- 4.2.1.2. A check mark in the appropriate space indicates that the parameter or component is within the allowable condition or specified limit.



**NOTE**

For any entries made in the REMARKS section, indicate the time of the entry and the appropriate information. Then sign the entry with your initials.

- 4.2.1.3. If the parameter or component is not within the allowable condition or limit,
  - 4.2.1.3.1. place a "NO" in the appropriate block and provide an explanation in the "REMARKS" section.
- 4.2.1.4. If the status changes during the shift:
  - 4.2.1.4.1. place a check mark or "NO" in the appropriate block on top of the previous entry and provide an explanation in the "REMARKS" section.
- 4.2.2. Document Review Requirements Section of VYAPF 0152.01
  - 4.2.2.1. Each Control Room shift individual is responsible for reviewing the information indicated at the beginning of each shift.
    - 4.2.2.1.1. The oncoming CRS shall review the Operations surveillance schedule to ensure required surveillances are scheduled and can be completed before the "DROP DEAD" date. (ER960669\_04)
      - 4.2.2.1.1.1. When plant conditions do not support the performance of a surveillance, notify the Operations Department Test Coordinator to implement the "98 DF Surveillance (Deferred)" per AP 4000.
    - 4.2.2.1.2. The oncoming CRS shall ensure that all necessary equipment needed to perform operations activities scheduled for the shift are identified, located and ready for use several hours (if possible) before the activity is scheduled. (ER 2003-0377\_01)
  - 4.2.2.2. When the reviews are completed, initial the appropriate block in the "REVIEWS COMPLETED" section.
  - 4.2.2.3. If there are more shift individuals available than separate blocks or in the case of midshift reliefs,
    - 4.2.2.3.1. divide the appropriate blocks so that each individual can document completion of the requirements.
  - 4.2.2.4. An ACRO not assigned to the Control Room will not initial the blocks.
- 4.2.3. Remarks Section of VYAPF 0152.01
  - 4.2.3.1. Place any information here that will amplify or clarify any information recorded in the other sections of this form.
  - 4.2.3.2. At midnight carry forward any appropriate information to the next day's checklist.

# CONTROL ROOM SHIFT TURNOVER CHECKLIST

| Parameter/<br>Component               | Allowable<br>Cond/Limit | Checks |    |
|---------------------------------------|-------------------------|--------|----|
|                                       |                         | 06     | 18 |
| Vernon Bus Tie                        | 3900-4500 v             |        |    |
| DG A/B                                | No Alarms/Opr           |        |    |
| DG Volt Req                           | 8 White Lights          |        |    |
| DG A/B ACB's                          | Operable                |        |    |
| DG A/B BKR CONT SELECT Switches       | In REMOTE               |        |    |
| Bus 8/9                               | 435-506 v               |        |    |
| Bus 3/4                               | 3700-4400 v             |        |    |
| Other 4KV ACB's                       | Opr                     |        |    |
| S/U Transformer                       | Energized               |        |    |
| Aux Transformer                       | Energized               |        |    |
| Cond Backpress                        | 1-5 in HgA              |        |    |
| SW PP's A/B/C/D                       | Operable                |        |    |
| Cond Sys                              | Operable                |        |    |
| Feed Sys                              | Operable                |        |    |
| CST Level (ER20001509 06)             | 20-90%                  |        |    |
| Inst. Air Press                       | 95-107 psig             |        |    |
| Rx Water Level                        | 155-165 inches          |        |    |
| Rx Press                              | 950-1030 psig           |        |    |
| Rx Power                              | ≤1593 MWt               |        |    |
| SLC Sys                               | No Alarms/Opr           |        |    |
| SLC Tk Level                          | 81-92%                  |        |    |
| SLC-18                                | Open                    |        |    |
| SLC Squib A/B                         | Energized               |        |    |
| SLC PP A/B                            | Operable                |        |    |
| SDV Level                             | ~0                      |        |    |
| APRM/IRM/SRM/RBM Byp Sw (ER960026 03) | Neutral Position        |        |    |
| Scram Air Press                       | 70-75 psig              |        |    |
| RCU Sys                               | No Alarms/Opr           |        |    |
| RCU Inlet Cond                        | <1 μmho/cm              |        |    |
| CU-15, 18, 68                         | Operable                |        |    |
| RCIC Sys                              | No Alarms/Opr           |        |    |
| RCIC-15,16,18,20                      | Open/Opr                |        |    |
| RCIC-131,27,30,21,41,39               | Closed                  |        |    |
| RCIC T/T and Gov                      | Open                    |        |    |
| RCIC Flow Cont/Tape/Flow              | AUTO/400/<10            |        |    |
| MSIVs, MS-74, 77                      | Operable                |        |    |
| Pri Cont Vent Iso Valves              | Operable                |        |    |
| SV-70A/B Ind                          | Closed                  |        |    |
| Relief Valves                         | No Alarms/Opr           |        |    |
| ADS Bypass Switch                     | NORMAL Pos.             |        |    |

| Parameter/<br>Component     | Allowable<br>Cond/Limit               | Checks |    |
|-----------------------------|---------------------------------------|--------|----|
|                             |                                       | 06     | 18 |
| CS A/B Sys                  | No Alarms/Opr                         |        |    |
| CS-7 A/B                    | Open                                  |        |    |
| CS PP A/B                   | AUTO/Opr                              |        |    |
| CS-5 A/B, 11 A/B            | Open                                  |        |    |
| CS-26 A/B, 12 A/B           | Closed                                |        |    |
| CS FI-14-50A/B              | ±500 gpm                              |        |    |
| RHR Sys                     | No Alarms/Opr                         |        |    |
| RHR PP A/B/C/D              | AUTO/Opr                              |        |    |
| RHR-13 A/B/C/D              | Open                                  |        |    |
| RHR-25 A/B                  | Open                                  |        |    |
| RHR-65 A/B                  | Open                                  |        |    |
| RHR-16A/B                   | Open                                  |        |    |
| Other RHR RHRSW Vlvs        | Closed                                |        |    |
| RHR FI-10-139A/B            | ±1500 gpm                             |        |    |
| Torus Water Temp            | ≥50 - <87.3°F                         |        |    |
| HPCI Sys                    | No Alarms/Opr                         |        |    |
| HPCI Turb Trip/Inhibit SW   | In AUTO                               |        |    |
| HPCI Sys Ready Light        | ON                                    |        |    |
| HPCI-15, 16, 17, 20         | Open                                  |        |    |
| HPCI-14, 25, 19, 21, 57, 58 | Closed                                |        |    |
| HPCI Flow Cont/Tape/Flow    | AUTO/4250/<100                        |        |    |
| RPS MG A/B Power            | NORM/Alt Pwr Avail.                   |        |    |
| Off-Gas Act                 | Norm Trend                            |        |    |
| Stack Gas Act               | Norm Trend                            |        |    |
| Ref-2 A/B                   | AUTO/Opr                              |        |    |
| SBGT 9KW Htrs EUH-2&4       | AUTO                                  |        |    |
| SGT-2A/3A                   | Open                                  |        |    |
| SGT-1A/B, 2B, 3B, 4A/B, 5   | Closed                                |        |    |
| Rx Bldg D/P                 | -0.25 to -2.0 inches H <sub>2</sub> O |        |    |
| TVS-86                      | Closed                                |        |    |
| Drywell/Torus D/P           | >1.8 psid                             |        |    |
| Torus Water Level           | OP 2115, Fig 1                        |        |    |
|                             |                                       |        |    |
|                             |                                       |        |    |
|                             |                                       |        |    |
|                             |                                       |        |    |

|                                   | SM   | CRS | STA  | CRO  | ACRO |
|-----------------------------------|------|-----|------|------|------|
| Operations Log                    |      |     |      |      |      |
| Switching/Tagging Log             |      |     |      |      |      |
| WOR Listing                       |      |     |      |      |      |
| CRP Walkthrough (Note 1 & Note 3) |      |     |      |      |      |
| Night Order Book                  |      |     |      |      |      |
| CR Shift Turnover Cklist          |      |     |      |      |      |
| Tech Spec Sys/Comp Inop Sht       |      |     |      |      |      |
| Surveillance Schedule             | ---- |     | ---- | ---- | ---- |
| Reviews Completed:                |      |     |      |      |      |
| 06-18 SHIFT                       |      |     |      |      |      |
| 18-06 SHIFT                       |      |     |      |      |      |

TIME REMARKS: INITIALS

NOTE 1: STA walkthrough to include status check of the Control Room Pyrotronics Panel.

NOTE 2: In the event minimum shift staffing levels cannot be met, actions to be initiated are specified in AP 0894.

NOTE 3: Control Room staff shall contact VELCO whenever abnormal yard conditions exist. (CAR91037OP1)

VYAPF 0152.01  
AP 0152 Rev. 22  
Page 1 of 1  
LPC #5

VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET

**Task Identification:**

Title: Control Room Emergency Communications Check  
Failure Mode: N/A  
Reference: OP 3506  
Task Number: 2857080101

**Task Performance:** AO/RO/SRO \_\_\_ RO/SRO Only X SE Only \_\_\_

Sequence Critical: Yes \_\_\_ No X

Time Critical: Yes \_\_\_ No X

Individual Performing Task: \_\_\_\_\_

Examiner: \_\_\_\_\_

Date of Evaluation: \_\_\_\_\_

Activity Code: N/A

Method of Testing: Simulation \_\_\_ Performance X Discuss \_\_\_

Setting: Classroom \_\_\_ Simulator X Plant \_\_\_

Performance Expected Completion Time: 15 minutes

Evaluation Results:

Performance: PASS \_\_\_ FAIL \_\_\_ Time Required: \_\_\_\_\_

Prepared by: [Signature]  
Operations Training Instructor

8/19/03  
Date

Reviewed by: [Signature]  
SRO Licensed/Certified Reviewer

8/19/03  
Date

Approved by: [Signature]  
Operations Training Superintendent

8/20/03  
Date

**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

**Initial Conditions:**

Power operation

**Initiating Cues:**

The Control Room Supervisor directs you to perform the emergency communications check in accordance with OP 3506 Section A. Tri-State Mutual Aid and Southwest Fire and Mutual Aid and Tri-State Fire and Mutual Aid testing was completed yesterday.

**Task Standards:**

Each required agency contacted, form completed

**Required Materials:**

Simulator  
E-Plan Procedures  
VYOPF 3506.01, Pages 1 & 2, Step C marked complete already

**Simulator Setup:**

Any IC  
Booth operator to respond for agencies called and AOs

**Evaluation**

**Performance Step**

TIME START: \_\_\_\_\_

SAT/UNSAT

**Step 1: OP 3506 obtained and reviews discussion section**

Standard: Discussion section reviewed.

SAT/UNSAT

**\* Step 2: Lift handset, dial 213. Inform the Vermont State Police who you are, and that you are testing the nuclear alert system. Request call back. Hang up.**

Standard: Vermont State Police notified, call back completed.

---

Interim Cue: All calls made on the orange phone in the simulator go to the instructor booth. Simulator operator call back as Vermont State, Mass or NH Police if asked to.

---

SAT/UNSAT

**Step 3: Record successful Vermont test on 3506.01.**

Standard: Vermont marked "yes" on 3506.01 (2)

SAT/UNSAT

**\* Step 4: Lift handset, dial 210. Inform the Massachusetts State Police who you are, and that you are testing the nuclear alert system. Request call back. Hang up.**

Standard: Massachusetts State Police notified, call back completed.

SAT/UNSAT

**Step 5: Record successful Massachusetts test on 3506.01.**

Standard: Massachusetts marked "yes" on 3506.01 (2)

SAT/UNSAT

**\* Step 6: Lift handset, dial 212. Inform the New Hampshire State Police who you are, and that you are testing the nuclear alert system. Request call back. Hang up.**

Standard: New Hampshire State Police notified, call back completed.

SAT/UNSAT

**Step 7: Record successful New Hampshire test on 3506.01.**

Standard: New Hampshire marked "yes" on 3506.01 (2)

SAT/UNSAT      **\* Step 8:      Lift handset, dial 111. Inform all three states of group call test.**

Standard:      All three states respond to group call.

---

Interim Cue:    Tell operator in simulator 111 = 11

---

SAT/UNSAT      **Step 9:      Record successful group call on 3506.01.**

Standard:      Group call marked "yes" on 3506.01

SAT/UNSAT      **Step 10:      NRC FTS phone handset lifted and dial tone listened for.**

Standard:      Handset lifted, dial tone heard.

SAT/UNSAT      **\* Step 11:      Dial NRC using all 11 digits.**

Standard:      NRC dialed.

---

Interim Cue:    Ensure number on the Simulator phone base is called and NOT the real NRC number (4050 simulator). Simulator booth operator VY Control to NRC button.

---

SAT/UNSAT      **Step 12:      State name, location, and fact of testing NRC ENS. Request call back at 4262.**

Standard:      NRC called and call back requested. NRC marked "yes" on 3506.01(2).

---

Interim Cue:    Ensure call back is simulator phone extension and NOT the real control room (4262 NRC button in booth)

---

(Step left for continuity)      **Step 13:      Contact the Keene dispatcher using the following message: "KCE-579, this is KCP-596, Remote 2".**

**After Keene responds, inform them that you are performing a radio check. After check is performed report "Thank you, KCP-596, Remote 2 clear".**

Standard:      Completed previously, unable to perform in the simulator.

(Step left for continuity)

**Step 14: Contact the Shelburne dispatcher using the following message: "Shelburne Control, this is KCP-596, Remote 2".**

**After Shelburne responds, inform them that you are performing a radio check. After check is performed report "Thank you, KCP-596, Remote 2 clear"**

Standard: Completed previously, unable to perform in the simulator.

SAT/UNSAT

**\* Step 15: Turn the Page Sys Volume and Alarm Tone Select switch to the ALERT position. Make the following announcement over the Gaitronics: "Attention all personnel, attention all personnel, the following is a test of the Emergency Alert and the Emergency Evacuation Alarms, please disregard." Repeat the announcement.**

Standard: Announcement made.

SAT/UNSAT

**\* Step 16: Turn the Alarm Tone Control switch to the ON position for three seconds, then return the switch to the OFF position.**

Standard: Alarm Tone Control turned ON for 3 seconds and then OFF.

SAT/UNSAT

**Step 17: Turn the Page Sys Volume and Alarm Tone Control Select switch to the OFF position.**

Standard: Page Sys Volume and Alarm Tone Control switch in OFF.

SAT/UNSAT

**\* Step 18: Turn the Page Sys Volume and Alarm Tone Control Select switch to the EVACUATION position.**

Standard: Page Sys Volume and Alarm Tone Control switch in EVACUATE.

SAT/UNSAT

**\* Step 19: Turn the Alarm Tone Control switch to the ON position for three seconds, then return the switch to the OFF position.**

Standard: Alarm Tone Control switch ON for 3 seconds and then OFF.

SAT/UNSAT

**\* Step 20: Make the following announcement over the page system: "Testing of the Emergency Alert and the Emergency Evacuation Alarms is complete. Regard all further alarms"**

Standard: Announcement made.

**SAT/UNSAT**      **Step 21:      Turn the Page Sys Volume and Alarm Tone Control switch to the OFF position.**

Standard:      Page Sys Volume and Alarm Tone Control Select switch in OFF.

**SAT/UNSAT**      **\* Step 22:      Contact the on shift Auxiliary Operators and verify that they heard both the alarm announcements and alarm signals.**

Standard:      AOs contacted.

---

Interim Cue:    When AOs are paged, the simulator operator will report both announcements heard.

---

**SAT/UNSAT**      **Step 23:      Route VYOPF 3506.01 to the Shift Manager for review.**

Standard:      Form completed and turned into the Shift Manager.

\* Critical Step

TIME FINISH: \_\_\_\_\_

**Terminating Cue:**    3506.01 completed and turned into the Shift Supervisor.

**Evaluator Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**System:**      **K/A's:**

**System Generic K/A's:**      **2.4.43 Knowledge of emergency communications systems and techniques**  
**(CFR: 45.13)**

**IMPORTANCE**

**RO 2.8**



Tear-Out Sheet

**Initial Conditions:**

Power operation

**Initiating Cues:**

The Control Room Supervisor directs you to perform the emergency communications check in accordance with OP 3506 Section A. Tri-State Mutual Aid and Southwest Fire and Mutual Aid and Tri-State Fire and Mutual Aid testing was completed yesterday.

VERMONT YANKEE NUCLEAR POWER STATION

**OPERATING PROCEDURE**

**OP 3506**

**REVISION 43**

**EMERGENCY EQUIPMENT READINESS CHECK**

USE CLASSIFICATION: **REFERENCE**

| LPC<br>No. | Effective<br>Date | Affected Pages |
|------------|-------------------|----------------|
|            |                   |                |
|            |                   |                |

**Implementation Statement:** N/A

Issue Date: 07/23/2003

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## PURPOSE

To ensure that emergency radiological and communication equipment is periodically inventoried and maintained in an operable condition by assigned plant personnel.

No required Tech. Spec. surveillances are covered in this procedure.

## DISCUSSION

The Operations Department shall conduct scheduled tests of emergency communications equipment as follows:

1. Test of the Nuclear Alert System (NAS) orange phone.
2. Test of the Unusual Event, Alert, Site Area Emergency and General Emergency Alarms.
3. Test of the Southwest Fire Mutual Aid and Tri-State Mutual Aid radio (Deskon II).
4. Test of the NRC Emergency Telecommunications System phones.

A Radiation Protection (RP) Technician shall be assigned to perform the following:

1. Physical inventory of Emergency Equipment Kits and Cabinets contents as listed on VYOPF 3506.02 and VYOPF 3506.06 on a scheduled basis and subsequent to each usage.
2. Physical inventory of Emergency Kit equipment contents at Brattleboro Memorial Hospital (BMH) as listed on VYOPF 3506.03.

A Chemistry Technician shall be assigned to perform the following:

1. Physical inventory of the Liquid PASS Sampling kit and the Plant Vent Stack PASS Sampling kit as listed on VYOPF 3506.05 on a scheduled basis and subsequent to each usage.

Quarterly, the Emergency Planning Manager (EPM) will ensure that Emergency Response phone numbers are updated via VYOPF 3506.13.

Monthly, the EPM will ensure the FTS phones in the Technical Support Center (TSC) and the Emergency Operations Facility (EOF), and the NAS phones in the EOF are tested via VYOPF 3506.08.

### NOTES

- The quantities listed in this procedure are to be considered the minimum required. Quantities above those listed are acceptable.
- Pens, pencils and scratch paper are readily available and therefore will not be maintained in the EOF and TSC kits.

Preventive maintenance and testing of the Public Notification System (PNS) utilized within the Vermont Yankee Emergency Planning Zone is conducted by Northeast Mountain Radio of Rutland, VT, as follows:

1. Monthly preventive maintenance on 21 sirens and 10 generators.
2. Annual siren receiver sensitivity and full decoder tests.
3. Preparation of annual maintenance testing program summary report.

Per Surveillance Test No. 4000, the power fail phone system in Vernon and Brattleboro is tested on a semi-annual basis.

In accordance with AP 6002, Preparing 50.59 Evaluations, the results of an Applicability Determination (AD) has determined that an AD is not required for future changes, provided the scope of the procedure or program is not revised to include a different type of activity. The basis for this conclusion is that this document is an Emergency Implementing Procedure and is subject to 10CFR50.54(q) to determine if the changes decrease the effectiveness of the Emergency Plan and if they have the potential to affect our ability to meet the standards of 10CFR50.47(b) and the requirements of 10CFR50 Appendix E.

### ATTACHMENTS

- |     |               |  |
|-----|---------------|--|
| 1.  | VYOPF 3506.01 | Control Room Monthly Emergency Communications Checklist                          |
| 2.  | VYOPF 3506.02 | Emergency Equipment Checklist  |
| 3.  | VYOPF 3506.03 | Brattleboro Memorial Hospital Emergency Equipment Checklist                      |
| 4.  | VYOPF 3506.04 | Deleted  |
| 5.  | VYOPF 3506.05 | Chemistry Emergency Equipment Readiness Check                                    |
| 6.  | VYOPF 3506.06 | Post Accident Sampling Kits (RP)   |
| 7.  | VYOPF 3506.07 | Procedure/Form Copy Update Worksheet   |
| 8.  | VYOPF 3506.08 | TSC/EOF FTS and NAS Phone Checklist  |
| 9.  | VYOPF 3506.09 | EOF Emergency Plan Implementing Procedures and Status Forms Book Update          |
| 10. | VYOPF 3506.10 | OSC Documentation Change Tracking Form   |
| 11. | VYOPF 3506.11 | Control Room Emergency Plan Implementing Procedures and Status Forms Book Update |

- |     |               |   |
|-----|---------------|---|
| 12. | VYOPF 3506.12 | TSC Emergency Plan Implementing Procedures and Status Forms Book Update |
| 13. | VYOPF 3506.13 | Emergency Response Telephone Number Check                               |

## REFERENCES AND COMMITMENTS

1. Technical Specifications and Site Documents
  - a. None
2. Codes, Standards, and Regulations
  - a. None
3. Commitments
  - a. ER981874\_02
4. Supplemental References
  - a. VYP:317, Purchasing Policy
  - b. Vermont Yankee EPZ Public Notification System Guide, JPS Communications, Inc.
  - c. YA-NOG-9101, Procedure for Operation of the Nuclear Alert System (NAS)
  - d. AP 0156, Notification of Significant Events
  - e. AP 0506, Personnel Monitoring
  - f. AP 0525, Dosimetry Processing
  - g. RP 0537, Contamination Events
  - h. AP 0546, Planned Special Exposures
  - i. DP 2521, Operation and Calibration of the Eberline Mobile Continuous Air Monitor
  - j. OP 2611, Stack Effluent Sampling and Analysis
  - k. AP 3125, Emergency Plan Classification and Action Level Scheme
  - l. OP 3504, Emergency Communications
  - m. OP 3507, Emergency Radiation Exposure Control
  - n. OP 3508, On-Site Medical Emergency Procedure
  - o. OP 3510, Off-Site and Site Boundary Monitoring
  - p. OP 3511, Off-Site Protective Action Recommendations
  - q. OP 3513, Evaluation of Off-Site Radiological Conditions
  - r. OP 3524, Emergency Actions to Ensure Initial Accountability and Security Response
  - s. OP 3525, Radiological Coordination
  - t. OP 3533, Post Accident Sampling of Reactor Coolant
  - u. OP 3534, Post Accident Sampling of Plant Stack Gaseous Releases
  - v. OP 3540, Control Room Actions During an Emergency
  - w. OP 3541, Activation of the Technical Support Center (TSC)
  - x. OP 3542, Operation of the Technical Support Center (TSC)
  - y. OP 3544, Operation of the Operations Support Center (OSC)

- z. OP 3545, Activation of the Emergency Operations Facility/Recovery Center (EOF/RC)
- aa. OP 3546, Operation of the Emergency Operations Facility/Recovery Center (EOF/RC)
- bb. OP 3547, Security Actions During an Emergency
- cc. OP 4533, Airborne Radioactivity Concentration Determination
- dd. DP 4562, Calibration and Operation of the SAM-2
- ee. DP 4579, Respiratory Protection Equipment Inspection and Maintenance
- ff. AP 6807, Collection, Temporary Storage and Retrieval of QA Records
- gg. PP 7019, Severe Accident Management Program

## PREREQUISITES

1. Apparatus required:
  - a. Fresh batteries for equipment as required.
  - b. Recently calibrated and operable survey meters.
  - c. New seals.
2. Obtain necessary copies of VYDPF 4579.01 and 4579.04 for use in VYOPF 3506.02.

## PROCEDURE

- A. Control Room Emergency Communications Check (Operations)  
(Use VYOPF 3506.01)
  1. Monthly, the Operations Department shall test the Nuclear Alert System by contacting, and requesting a callback from, each of the three states (Vermont, New Hampshire, Massachusetts) using the following procedure:

### NOTE

This number initiates a call to each of the three State Police agencies. However, no audible ringing is present at the transmit station. The station receiver will continue to ring until it is answered even if the transmit station is recradled.

- a. Lift handset and dial 213 for VT, 210 for MASS, 212 for NH.
- b. Advise each State Police agency that answers of the test of the Nuclear Alert System, and record the results on VYOPF 3506.01.
- c. Test the Group Call capability with the three State Police agencies by lifting handset and dialing 111.

- d. Notify the following if any part of the system fails to operate:
  - 1) Communications Department, National Grid, Westboro:  
508-389-2104
  - 2) ISO-New England: (Weekends and Off-hours in place of Westboro)  
1-413-535-4384
  - 3) Emergency Planning Manager (EPM):  
Ext. 4160
- e. Notify the affected state Emergency Management office if any part of the system fails to operate:
  - 1) Mass. Emergency Management:  
1-508-820-2000
  - 2) New Hampshire Emergency Management:  
1-603-271-2231
  - 3) Vermont Emergency Management:  
1-802-244-8721 or 1-800-347-0488
- 2. Monthly the Operations Department shall test the NRC FTS ENS phone in the Control Room as follows:
  - a. Lift the receiver and listen for the dial tone.
  - b. After receiving a dial tone, dial the first number listed below (or on the sticker located on the telephone base) using all 11 digits. If the first number is busy, proceed with the second number.  
  
1-301-816-5100  
1-301-951-0550
  - c. State your name, location, and the fact that you are testing the NRC ENS. Request that the NRC staff member call back at 700-661-4323.



3. Monthly, the Operations Department shall test the Southwest Fire Mutual Aid and Tri-State Fire Mutual Aid radio (Deskon II) by contacting the Keene and Shelburne dispatchers as follows:

**NOTES**

- The Deskon II phone unit is provided with both a handset and a speaker-microphone. With the handset "on hook", messages may be transmitted by holding the TRANSMIT bar depressed and speaking into the speaker-microphone. With the handset "off hook", messages may be sent by holding the transmit bar on the handset depressed while speaking into it. The red signal light on the control unit will illuminate each time either transmit function is selected.
- If unable to contact Keene by radio, call (603) 352-1291.

- a. Contact the Keene dispatcher using the following message:
- 1) "KCE-579, this is KCP-596, Remote 2".
  - 2) After Keene responds, inform them that you are performing a radio check.
  - 3) After check is performed report "Thank you. KCP-596, Remote 2 clear".

**NOTE**

If unable to contact Shelburne by radio, call (413) 625-8200.

- b. Contact the Shelburne dispatcher using the following message:
- 1) "Shelburne Control, this is KCP-596, Remote 2".
  - 2) After Shelburne responds, inform them that you are performing a radio check.
  - 3) After check is performed report "Thank you. KCP-596, Remote 2 clear".
- c. If either mutual aid radios communications systems malfunction, notify the I/C Department.

4. Monthly, the Operations Department shall test the Unusual Event/Alert, Site Area/General Emergency Alarms using the following procedure:

**NOTE**

Whenever the Evacuate-Off-Alert selector switch is activated, the page system volume is increased.

- a. To test the Alert Alarm (used for Unusual Event and Alert emergencies) and the Evacuation Alarm (used for Site Area and General Emergencies), perform the following:
  - 1) turn the Page Sys Volume and Alarm Tone Select switch to the ALERT position,
  - 2) make the following announcement over the Gaitronics:  
  
"Attention all personnel, attention all personnel, the following is a test of the Emergency Alert and the Emergency Evacuation Alarms, please disregard." Repeat the announcement.
  - 3) turn the Alarm Tone Control switch to the ON position for three seconds, then return the switch to the OFF position,
  - 4) turn the Page Sys Volume and Alarm Tone Control Select switch to the OFF position,
  - 5) turn the Page Sys Volume and Alarm Tone Control Select switch to the EVACUATION position,
  - 6) turn the Alarm Tone Control switch to the ON position for three seconds, then return the switch to the OFF position,
  - 7) make the following announcement over the page system:  
  
"Testing of the Emergency Alert and the Emergency Evacuation Alarms is complete. Regard all further alarms."
  - 8) turn the Page Sys Volume and Alarm Tone Control Select switch to the OFF position.
- b. Contact the on shift Auxiliary Operators and verify that they heard both the alarm announcements and alarm signals.
- c. If any alarm malfunctions, notify the I/C Department and initiate corrective action.

CONTROL ROOM MONTHLY EMERGENCY COMMUNICATIONS CHECKLIST

Date \_\_\_\_\_

Time \_\_\_\_\_

A. Nuclear Alert System

1. Successful Test with Vermont (213) ☐ Yes ☐ No  
    Callback from Vermont successful ☐ Yes ☐ No
2. Successful Test with New Hampshire (212) ☐ Yes ☐ No  
    Callback from New Hampshire successful ☐ Yes ☐ No
3. Successful Test with Massachusetts (210) ☐ Yes ☐ No  
    Callback from Massachusetts successful ☐ Yes ☐ No
4. Successful Group Call Test with VT/NH/MA(111) ☐ Yes ☐ No
5. If the test is unsuccessful, note the nature of the  
    discrepancy and the individuals, and agencies contacted.

---

---

---

B. NRC ENS Phone Test

1. Successful Test with the NRC ☐ Yes ☐ No
2. Callback from the NRC successful ☐ Yes ☐ No
3. If unsuccessful, report the loss as directed  
    per AP 0156.

C. Southwest Fire Mutual Aid and Tri-State Mutual Aid Radio Tests

1. Successful test with Keene Dispatcher ☐ Yes ☐ No
2. Successful test with Shelburne Dispatcher ☐ Yes ☐ No

I/C Department notified of the following discrepancies: \_\_\_\_\_

---

---

CONTROL ROOM MONTHLY EMERGENCY COMMUNICATIONS CHECKLIST (Continued)

D. Emergency Alert and Emergency Evacuation Alarms

1. Emergency Alert Alarm Test Heard by Auxiliary Operators ☐ Yes ☐ No
2. I/C Department notified of the following discrepancies:

---

---

---

Testing Performed By \_\_\_\_\_ / \_\_\_\_\_  
Operator (Print/Sign) Date

Reviewed By \_\_\_\_\_ / \_\_\_\_\_  
Shift Supervisor (Print/Sign) Date

Reviewed By \_\_\_\_\_ / \_\_\_\_\_  
EPC (Print/Sign) Date