07-257-91

OPERATIONS DEPARTMENT INSTRUCTION

N2-ODI-5.08
Rev. 4

OPERATOR GOOD PRACTICES

Approved: [signature]

1.0 PURPOSE

To provide guidance to the Operations Department staff on establishing good operator practices in the following areas:

a. Procedural Compliance

b. Annunciator Response

c. Verification of Actions

d. Pump and Valve Operation

e. Configuration Control of Lighted Indicating Devices

f. Interpretation of Instrument Readings

2.0 PROCEDURAL COMPLIANCE

2.1 Procedural adequacy and compliance policies are contained in Station General Order 89-03. All Operations Department personnel shall be familiar with these policies and use them to ensure the safe and proper operation of Nine Mile Point Unit 2.

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2.2 The purpose of Operations Procedures is to provide appropriate direction in the operation of plant equipment to ensure the plant is operated safely and reliably. All operations shall be conducted in accordance with approved procedures. The only exception to this is when action is taken which is needed to protect the public health and safety and which may depart from a license or technical specification condition. This action requires prior approval of a licensed senior reactor operator, and if time permits, prior SORC review and notification to the NRC in accordance with 10CFR50.72C.

2.3 Procedures may be used in the following ways as described below:

- step by step reference

- routine checks

- valve and electrical component lineups

2.3.1 Step by step reference is required when performing OSPs , or multistep actions directed by OPs . Whenever a procedural step cannot be performed the SSS shall be immediately notified to provide resolution.

It may be necessary during certain situations to perform immediate actions without reference to procedures. When time permits the appropriate procedure shall be reviewed to ensure no actions were omitted. Examples of these types of instances are:

a. reactor scram

b. feedwater system malfunctions

c. system isolations/initiations

2.3.2 Routine checks are those items described in an OP that are required to be checked periodically to ensure a system or component's standby readiness (ie, the standby diesel generator shift checks described in N2-OP-100A). These routine checks will be typically performed during operator rounds. The SSS shall be immediately informed of any checks found to be outside their norm. It is the responsibility to the operator making routine checks to periodically review the appropriate procedure to ensure the correct checks are being performed.

2.3.3 Valve and electrical component lineup shall be used to reestablish the position of components when preparing a system for normal operation. The following situations are examples that require the use of valve or electrical component lineups:

- prerequisite for system operation

2.3.3 (Cont)

- recovery from a major plant outage

- recovery from major system maintenance, modification or test performance

- as directed by the SSS

a. The Assistant SSS will distribute the appropriate number of valve or electrical lineup working copies to shift personnel to use. These working copies will be stamped as such, in red ink, on the procedure title page. The Assistant SSS will verify the working copy of the procedure is the most recent revision and that the copy is complete. He will stamp and initial the working copy as such, in red ink, on the procedure title page. A master working copy of the lineup will be maintained in the Control Room under the direction of the Assistant SSS. Valve and electrical component positions along with the Operator's initials shall be transferred from the working copy to the master working copy.

b. The CSO will assign the valve lineup to qualified operators.

c. The operator will compare component and/or valve position to the position required for operation as listed in the system valve lineup and/or the system electrical lineup.

d. Valve positions shall be verified in accordance with Section 5.0 of this instruction.

e. For safety-related and other systems important to safety, second independent position verification will be performed by a licensed operator. Section 4.0 of this ODI specifies the use of independent and self verification.

f. The operator shall note any discrepancies on the checklist, then sign and date the checklist. These discrepancies shall be reported to the CSO and the SSS.

g. If a component is marked up, its position shall remain as required by the markup, and the operator shall note the markup number in the INITIALS column of the lineup sheet.

3.3.3 (Cont)

h. When a lineup is completed, it will be returned to the Station Shift Supervisor for review. The SSS will check the lineup, resolve any discrepancies or update the Equipment status log as necessary to reflect system operability.

i. For extensive valve lineups such as the Service Water System, discrepancy may be reported to the CSO or SSS during the lineup and the evaluation made to reposition the valve at that time.

3.0 ANNUNCIATOR RESPONSE

3.1 Annunciators are warning devices provided to alert the operator of situations outside of normal parameters. Alarming annunciators are to be acted upon as such until review of the condition indicates otherwise. The actuation of Control Room annunciators requires the following Control Room operator prompt response:

3.1.1 Completely scan the annunciator panels for flashing windows. (The computer alarm CRT may be used to identify the specific alarm input)

3.1.2 If multiple windows are flashing, take special notice of the illuminated windows prior to acknowledging the alarm.

3.1.3 Acknowledge the alarm.

3.1.4 Evaluate relative plant parameters, including other alarming annunciators.

3.1.5 Perform the corrective action required by the annunciator response section of the appropriate procedure.

3.2 Control Room annunciators may be silenced, acknowledged or cleared by licensed operators other than the CSO. The CSO must be informed of any annunciator silenced, acknowledged or cleared that represents a change in plant conditions.

3.3 Alarming annunciators on in-plant local panels shall be responded to by in-plant operators. The operator shall take the actions described above and also notify the CSO of the alarm and the corrective action taken.

3.4 The use of the master annunciator silence pushbutton is allowed only to allow the Operator to complete an ongoing task and only with those annunciators which do NOT require immediate attention. The Operator must respond to the annunciator as soon as practical.

3.5 During transients or emergency conditions, such as EOP response, the master annunciator silence pushbutton may be used to silence the many alarms received. This action will help to reduce the noise and confusion level caused by alarms during such transients. The Operators involved shall prioritize and respond to the alarms as conditions allow.

4.0 VERIFICATION OF ACTIONS

4.1 If the the duty of every member of the Operations Department to perform tasks safely, efficiently and without error. To accomplish this we must continually verify that the actions taken are correct. Three methods of verification are used:

- Self Verification

- Verification

- Independent Verification

4.2 Self-verification is the process of ensuring that the methods to be employed to establish a condition are known to be correct in advance. It is a simple process that involves a second look at the task to be accomplished. This includes prior procedure review, equipment controls review and understanding directions.

Effective self verification shall include the following steps:

a. STOP - think about the task to be performed.

- Are your directions clearly understood? (If not, ask for clarification)

- Are you qualified to perform the task?

- Are you prepared to perform the task?

- Do you have the appropriate documentation?

- Have you reviewed the procedure?

- Do you have permission to perform the task?

- Are there any technical specifications or special plant considerations that you should address?

b. LOCATE - physically locate the device of intended action.

- All components will be checked to ensure that the component identification label is properly attached and in good condition. Take action to correct any labeling discrepancies.

4.2.1 (Cont)

c. TOUCH - place hand on the device, but DO NOT OPERATE.

d. VERIFY - compare the label to the work document.

- Pay attention to the specifics of the component or device. Does the device type match the documentation (i.e. If you are pulling a 10 amp fuse, is there a 10 amp fuse in the location).

e. ANTICIPATE - consider the expected result of the intended action

f. MANIPULATE - perform the action

- Refer to Section 6.0 for specific guidance on pump and valve operations.

g. OBSERVE - ensure the system responds as anticipate and be alert for any unexpected response.

- immediately notify the CSO and SSS of any irregularities.

4.3 Verification is the process of ensuring a condition conforms to the specified requirements. This includes checking that expected equipment parameters are achieved or checking that results meet acceptance criteria.

4.4 Independent verification is the process of checking a condition independently of the activities which established the condition. Independent verification shall be conducted in a manner such that each check constitutes an actual identification of the component and determination of both its required and actual position.

4.4.1 Instances that require operator independent verification are:

a. Application and clearing of markups placed on systems important to safety (AP-4.2, "Control of Equipment Markups")

b. When equipment important to safety is returned to the normal operable status following operations surveillance testing (AP-4.2, "Control of Equipment Markups")

c. When applying or restoring equipment temporary modifications (AP-6.1, "Control of Equipment Temporary Modifications")

4.4.1 (Cont)

d. Performance of valve lineups or electrical component lineups on systems important to safety

e. When directed by the Station Shift Supervisor

4.4.2 Independent verification may be waived by the SSS after consultation with Radiation Protection Supervision if excessive radiation exposures would result.

5.0 PUMP AND VALVE OPERATIONS

5.1 The importance of proper operation of pumps and valves can not be overemphasized. An error can have catastrophic results whereas proper actions seldom cause more than the expected results. The decision to manipulate a valve or change the condition(s) of a system (i.e. start/stop a pump must always be a conscientious decision to do so). One must be fully aware of the expected results prior to taking action even though the action might have been brought about by a step in a procedure. Never hesitate to ask before acting.

5.2 Pump Operations

Starting and stopping pumps is routinely addressed by the applicable operating procedure. In general when an operating procedure says "start pump.....", it intends to say:

- perform preoperational checks

- have positive control while parameters are changing (i.e. start-up)

NOTE: Positive control means that the operator should be in a position to take immediate corrective action during the pump startup or valve manipulation.

- check the components (system serviced) periodically (i.e. rounds)

The following three topics list specific actions. Although each action may not be individually referred to in the operating procedure, each should be evaluated and performed as applicable.

5.2.1 Preoperational Checks

Prior to the start-up of a pump, the following preoperational checks should be completed:

- Coordinate with the Control Room.	Control Room personnel must know what actions are taking place at all times.
- Identify the pump.	Is it the correct pump?

5.2.1 (Cont)

- Inspect the pump and driver.	Is maintenance being performed? Is the motor attached to the pump? Is there a markup installed?
- Inspect the lubrication system.	Do I need to add oil? Change the oil?
- Perform any valve manipulations (such as venting) or alignment required.	Depends on the particular system, pump, etc.
- Check instrumentation	Are all gages and meters in calibration? Are the parameters at the expected value?
- Coordinate with the Control Room	Ensure the Control Room knows what has been done...specifically.

5.2.2 Pump Start-up

The following should be performed each time a pump is started. Necessary steps should be taken to ensure positive control is maintained throughout the start-up.

- Coordinate with the Control Room.	Whenever possible, a person should be physically near a pump to be started.
- Maintain positive control and start the pump.	
- Observe all available parameters (pressure temperature, amperage etc.)	Is the system responding as it should?
- Observe for any unusual sounds, odors, vibration.	
- Check packing leakage	Is leakage excessive, inform SSS and consider shifting pumps

5.2.3 Periodic Operational Checks

The following should be performed at least once per shift to operating pumps:

- Observe all available parameters	Is pressure correct? Is temperature proper?
- Inspect pump and driver	Is anything coming loose?
- Observe for any unusual sounds, odors, vibration	
- Inspect lubrication system	Should I add oil?
- Inspect pump packing leak rate (if applicable)	If excessive, inform SSS

The procedure for the system being operated may also contain guidance on the periodic checks for the specific pump. It is the Operator's responsibility to be familiar with the checks and periodically review the appropriate procedure to ensure that the correct checks are being performed.

5.2.4 Pump Packing Adjustment

Pump seals are routinely serviced by the Maintenance Department however, in some cases it may be necessary for Operations Department personnel to make "adjustments" to a pump's packing gland. It is preferable to shift the pump lineup and then have the faulty seal serviced by the Maintenance Department. The decision to adjust the packing must be made by the Station Shift Supervisor after the consequences of improper adjustment are evaluated.

5.3 Valve Operations

Manual operation of valves, determining the position of valves and adjusting the packing gland of valves are the three areas addressed in this section.

5.3.1 Manual Operation

Personnel performing valve operations should be familiar with the system being operated to the extent that they know what is supposed to happen after the valve manipulation (am I starting flow?, am I throttling cooling water to change temperature?, is the temperature changing as I expected it to?).

5.3.1 (Cont)

The operator must have "positive control" of the valve being operated until conditions have stabilized. This allows the operator the opportunity to stop what was started quickly if required.

(Example; When starting flow, the valve should first be "cracked open", with the Operator's hands on the valve until it is determined that positive control is no longer required. Once the expected system response is verified, the valve can then be fully opened.)

The force exerted on handwheels should always be evenly applied to prevent shafts and stems from being damaged.

Valve operator devices (such as "cheaters" or crow bars) that could exert excessive force on a valve component shall never be used. Whenever difficulty is experienced in operating a valve, the Control Room should be notified and the SSS should be consulted.

Valves that are being shut should be "seated" snugly unless specific direction is given otherwise.

Whenever valves are opened (disc and gate type), the handwheel/operator should be "backed-off" the fully open position approximately 1/4 turn. This is intended to prevent binding of valve component internals and to increase the likelihood of correct position verification during position checks.

Valve backseats should only be used when specifically referred to in a procedure or as directed by the SSS.

All discrepancies found concerning a valve's condition or operability should be addressed by submitting a work request.

5.3.2 Position Verification

a. Position verification is required in three instances:

- Equipment markups
- Valve lineups
- Procedural steps

b. Equipment markups require the greatest amount of control in the verification process. For markup, valve positions shall be checked as follows:

5.3.2.b (Cont)

1. Identify the valve.

2. Visually inspect the valve to develop an initial determination of its position.

   - Use all your knowledge of valve construction, system operation, system parameters etc. to aid in determining the valves position.

   - Can you see the shiny part of the stem that the packing has rubbed against? (meaning the valve is probably NOT shut)

   - Are the stem threads fully inserted? (meaning the valve is probably not open)

   - Is there a differential pressure across the valve?

   - Is there a differential temperature across the valve?

   - Can you hear a flow?

   - Is there a position indicator installed?

3. Check the local and/or remote indicating light indication.

4. If specified by the markup, remove the control power fuses.

5. If a local stem position indicator is present, verify the position by using the local indicator. This step is sufficient to verify the valve position.

NOTE: The following step does not apply to throttled valves.

6. If no stem position indicator is available and with concurrence of the person directing the position check, rotate the valve operator in the shut direction, and observe the stem for movement.

* *

CAUTION

Never check a valve by moving it in the open direction unless directed by the SSS.

* *

5.3.2.b.6 (Cont)

- Exercise caution when moving the operators of 1/4 turn valves (such as ball and butterfly valves) to prevent stopping flow. Be aware that slight rotation can drastically effect flow.

7. Valves that are throttled <u>should not be checked</u> by physical rotation unless specifically directed to. These valves are checked by the stem position indicator and by using every other means except physical rotation. Inform the SSS and obtain guidance if a position indicator is not installed on a throttle valve.

c. Position verification for valve lineups and procedural steps should follow the same methodology as for markups except that remote indicating lights are sufficient to verify the value position.

- In those cases where a procedure specifically addresses an alternate method of valve position verification, "Hands On" position verification is not required.

d. The SSS shall resolve any discrepancies in valve position verification.

5.3.3 <u>Valve Packing Adjustment</u>

The SSS shall evaluate the impact of improper adjustment prior to authorizing any adjustment to valve packing glands. Adjustment of safety related values or nonmanual values should not be performed except in extreme circumstances due to potential alterations in stroke times and violation of Technical Specifications.

The following steps should be followed whenever the packing gland of a valve is adjusted.

- Inspect the valve to determine it's position. Tightening the packing gland of a shut valve could jam the disc against its seat which could damage the valve and/or render the valve inoperable. Valves should be open or "not shut" when adjustments are made.

- Ensure Control Room personnel are aware of the evolution.

- Tighten the gland nuts evenly, a maximum of <u>one flat</u> (1/6th of a turn) at a time.

5.3.3 (Cont)

- Cycle the valve (if possible) 2 or 3 times to fully seat the packing and to ensure the valve still operates.

- Repeat the tightening/cycling steps as required to stop the leakage.

- Ensure Control Room personnel are informed when adjustments are complete.

5.4 Motor Operated Valve Operations

5.4.1 Manually Seating Motor Operated Valves (in closed direction)

In accordance with AP-4.0, personnel shall not manually seat motor operated valves except:

- for maintenance purposes or

- as a temporary measure until the plant is placed in a condition which will allow maintenance on the valve

NOTE: 2FWS-MOV47 A,B,C, and 2CNM-MOV84 A,B,C are exceptions of this and are required to be manually seated in accordance with the applicable operating procedure.

5.4.2 Steps for Manually Seating a Motor Operated Valve

a. SSS evaluate the operability of the MOV when manually seated.

b. Initiate a Work Request to identify and correct the MOV problem and identify the appropriate post-maintenance requirements.

c. Determine the proper closing torque for the valve. The MOV should have a rim pull value stamped on the handwheel. EP410 and applicable Spec document can be used to obtain correct torque requirements if a rim pull value is not available. This value is the maximum value that should be used.

d. Obtain a calibrated torque wrench of the proper range if required.

e. If possible, close the valve with the motor in the normal fashion.

f. Open the MOV breaker.

5.4.2 (Cont)

g. Place a yellow holdout tag on the MOV breaker requiring the valve to be manually backed off the seat before reclosing the MOV breaker.

* *

CAUTION

Use the handwheel with great care. Forces which can be developed with the handwheel far exceed the safety design of the valves. It is recommended that a torque wrench be used.

* *

h. Override the motor (declutch) and close the valve until the wedge or disk comes in contact with the seat. Avoid slamming the valve disk into the seat.

* *

CAUTION

At this moment any excessive turn of the handwheel could cause damage to the valve mechanism, therefore, DO NOT exceed a 1/4 turn of the handwheel after disc and seat achieve contact or a maximum torque is reached.

* *

i. Torque the valve to the appropriate torque or rim pull.

5.4.3 Post-Maintenance testing shall include cycling MOVs at least two times using the motor (once during the EPM and once during the OSP) to verify proper operation prior to declaring the MOV operable.

5.4.4 Backseating Motor Operated Valves

a. In accordance with AP-4.0, personnel shall not manually seat motor operated valves except:

- for maintenance purposes or

- as a temporary measure until the plant is placed in a condition which will allow maintenance on the valve

b. Personnel should not electrically backseat motor operated valves.

5.4.4 (Cont)

c. Personnel shall not defeat electrical circuits to backseat a MOV unless evaluations of the following have been performed:

- the effects of backseating on the valve structural integrity

- valve operability in the backseat position

d. MOV backseats should not normally be used as the primary isolation boundary to replace packing.

e. If backseating is required, then manually backseating the MOV is the preferred method of backseating.

5.4.5 Steps for Manually Backseating a MOV

a. Obtain an evaluation on:

- the effects of backseating on the valve structural integrity and

- valve operability in the backseat position

- appropriate backseat torque valve

b. Determine the proper backseat torque for the valve.

c. Obtain a calibrated torque wrench of the proper range.

d. Initiate a Work Request to correct the MOV problem and appropriate post-maintenance requirements.

e. Open the MOV breaker.

f. Place a yellow holdout tag on the MOV breaker requiring the valve to be manually backed off the backseat before reclosing the MOV breaker.

* *

CAUTION

Use the handwheel with great care. Forces which can be developed with the handwheel far exceed the safety design of the valves. It is recommended that a torque wrench be used.

* *

5.4.5 (Cont)

g. Override the motor (declutch) and open the valve until the wedge or disk comes in contact with the backseat. Avoid slamming the valve disk into the backseat.

* *

CAUTION

At this moment any excessive turn of the handwheel could cause damage to the valve mechanism, therefore, DO NOT exceed a 1/4 turn of the handwheel after disc and seat achieve contact or a maximum torque is reached.

* *

h. Torque the valve to the appropriate torque.

5.4.6 Post-Maintenance testing shall include cycling MOVs at least two times using the motor (once during the EPM and once during the OSP) to verify proper operation prior to declaring the MOV operable.

6.0 CONFIGURATION CONTROL OF LIGHTED INDICATING DEVICES

6.1 In compliance with human factors commitments the following policy shall be followed when changing annunciator light bulbs, indicating light bulbs, or inop. status lights. The purpose is to exclude the possibility of inadvertently exchanging indicating devices related to the status of equipment.

a. Only one annunciator window is to be removed at any one time.

b. Only one inop status light is to be removed at any one time.

c. Only one indicating light lense cover (red, green, etc.) is to be removed while changing indicating light bulbs.

7.0 FILLING, VENTING, AND DRAINING

7.1 The purpose of this direction is to minimize the spread of contamination during filling, venting or draining operations, and to assure water is properly routed.

7.2 This direction applies to all such evolutions. These evolutions may be performed in accordance with approved procedures, or during the application or clearing of markups.

7.3 The following must be considered for any filling, venting or draining evolutions:

a. Proper hoses and fitting: Kwik as a Wink fittings, or mechanical fittings; hoses rated for the correct pressure and temperature.

b. Routing: The water must be routed based on quality; high quality water (e.g., condensate, demin water, CCS, CCP) to equipment drains. Low quality water (e.g., Service Water, Fire Protection Water) to floor drains.

c. Order: Hoses must be connected prior to any value manipulations. Valving order should be discussed with the CSO, if not governed by an approved procedure.

d. Monitoring: These evolutions must be closely monitored. Continuous monitoring is justified for filling, feed and bleed and those draining evolutions which may exceed sump capabilities.

e. Notification: Radwaste Operations must be notified prior to evolutions which will add significant amounts of water to sumps. Rad Protection must be notified prior to opening contaminated (or potentially contaminated) systems. Rad Protection must be notified immediately whenever contaminated (or potentially contaminated) water is spilled. Rad Protection must be notified prior to removing a hose from a drain.

f. Other Practices:

1. When disconnecting hoses, precautions must be taken not to spill. IF sections cannot be emptied, water must be contained (e.g., gloves, rags, buckets).

2. Hoses should be walked or rolled towards drains, to assure all water possible goes into the drain.

3. Hoses may have to be secured to prevent "whipping" (e.g., taped to floor or tied off).

4. Hose ends should be bagged or taped after each use.

5. Hoses should be immediately stored in an acceptable location (tagged if contaminated).

8.0 CONTROL OF SYSTEMS/COMPONENTS IN MANUAL

8.1 IF the control of any system or component is changed from automatic to manual other than in accordance with approved procedure (e.g., due to misoperation, as verified by multiple indications), the proper operation of that system or component must be continuously monitored until appropriate administrative controls are in place. Appropriate administrative controls must address configuration control (e.g., hold out with reference tags placed to alert the Control Room operator) and compensatory actions (e.g., a procedure change to provide additional guidance for operation in manual which may include increased monitoring and action levels).

9.0 INTERPOLATION OF INSTRUMENT READINGS

9.1 Interpolation of instrument readings must always be made in a conservative manner. This is particularly important in setting up pressures, flows, etc. for system performance testing. Assurance must be made that acceptance criteria are conservatively met.

9.2 GETARs, the process computer, or test gauges may be used where a higher degree of readability is required. In these cases procedures are to be TCN'd as appropriate.

9.3 Any questionable reading is to be immediately brought to the attention of the duty SSS for resolution.

9.4 As a matter of policy, readings taken during the performance of a system surveillance test should be interpolated no further than one half of the increments on the indicating device being utilized.