Facility: Indian Point 2		**Date of Examination:** 3/17/2003	
Examination Level: SRO		**Operating Test Number:** 1	
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions	
A.1a	Conduct of Operations	2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. (3.7/4.4) JPM: Review a QPTR calculation and direct appropriate actions	
A.1b	Conduct of Operations	2.1.18 Ability to make accurate, clear, and concise logs, records, status boards, and reports. (2.9/3.0) JPM: Review Control Room Log Entries	
A.2	Equipment Control	2.2.17 Knowledge of the process for managing maintenance activities during power operations. (2.3/3.5) JPM: Review (for approval) a completed surveillance for Tech Spec required equipment	
A.3	Non-Emergency dose limits question	2.3.4 (3.1) Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized. QUESTION: Given the plant in a SAE and a personnel exposure history, determine the exposure limit for a Non-Emergency operation.	
	Emergency Exposure Limits Question	2.3.2 (2.9) Knowledge of facility ALARA program. QUESTION: Given a situation requiring valve alignment verification in a radiation area, determine the waiver requirements for independent or concurrent verification of a locked valve and identify an alternate process for verification.	
A.4	Emergency Plan	2.4.41 Knowledge of the emergency action level thresholds and classifications. (4.1) JPM: Classify the event	

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Perform A QPTR Calculation And Direct Appropriate Actions	JPM No.:	2003 NRC A1a SRO
K/A Reference:	039 A2.01 (3.2)		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:	The plant is at 100% power. NIS power range channel N-41 is out of service.
Task Standard:	Determines QPTR outside of TS limits and initiates corrective action IAW Technical Specifications
Required Materials:	SOP-15.3 Rev 16 DSR 4B Calculator
General References:	SOP-15.3 Rev 16 DSR-4B
Handouts:	Partially completed DSR-4B
Initiating Cue:	The Shift manager has directed you to calculate QPTR manually using the given detector currents in accordance with the appropriate procedure, determine if the calculated values meet Technical Specification limits, and any appropriate actions to take, if necessary
Time Critical Task:	NO
Validation Time:	20 Minutes

(Denote Critical Steps with an asterisk)

Note: The purpose of this JPM is to have the candidate calculate QPTR and to correctly apply the TS actions. The candidate will be provided a DSR-4B with upper and lower NIS detector currents already filled out.

	Performance Step: 1	Obtain SOP-15.3
	Standard:	Obtains procedure
	Comment:	**Cue: Hand candidate a copy of partially filled out DSR-4B**
	Performance Step: 2	Record top and bottom detector currents
	Standard:	Refers to DSR-4B for currents
	Comment:	
	Performance Step: 3	Record date, time, and average reactor power
	Standard:	Records on DSR-4B
	Comment:	
*	**Performance Step: 4**	Divide each detector current output by corresponding normalization factor
	Standard:	Locates normalization factors and divides. Will only use 3 detectors, so denominator will be 3
	Comment:	
*	**Performance Step: 5**	Calculate average normalized ratio for top and bottom detectors
	Standard:	Performs calculation
	Comment:	

* **Performance Step: 6** Calculate Quadrant Power Tilt for top and bottom detectors

Standard: Performs calculation

Comment:

Performance Step: 7 Record Highest Quadrant Power Tilt and appropriate signatures

Standard: Records and signs DSR-4B

Comment:

Performance Step: 8 Document results

Standard: Enters data on DSR-1

Comment: **Cue: DSR-1 entry made be made later**

* **Performance Step: 9** Determine requirements of TS 3.10.3 are NOT met

Standard: Refer to TS 3.10.3 and determine that QPTR exceeds 1.02 and determine that a power reduction is necessary

Comment:

Terminating Cue: When the candidate has determined appropriate action per TS, the evaluation for this JPM is complete

Job Performance Measure No.: IP2 2003 NRC A1a SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: The plant is at 100% power.

NIS power range channel N-41 is out of service

INITIATING CUE: The Shift manager has directed you to calculate QPTR manually using the given detector currents in accordance with the appropriate procedure, determine if the calculated values meet Technical Specification limits, and any appropriate actions to take, if necessary

HANDOUT

UNIT TWO QUADRANT POWER TILT CALCULATION SHEET
DSR-4B
Rev. 73
(QT-16-6)

Previous SNSC #2545 11/5/98
SNSC REVIEW DATE 1/13/03
APPROVED (RE) DATE 1-13-03
APPROVED DATE

DATE: TODAY
TIME: NOW
AVE REACTOR PWR: 100.0

USING DETECTOR OUTPUT CURRENT

* Current QT number and Normalization Factors provided by Reactor Engineer.

1. Determine normalized ratios by dividing indicated detector current by normalization factor as follows:

Channel	Det Current	Nor Ratio	Channel	Det Current	Nor Ratio
41 Top = 41T =	NA	/ 114.6 = NA	41 Bottom = 41B =	NA	/ 112.6 = NA
42 Top = 42T =	87.0	/ 88.3 =	42 Bottom = 42B =	111.1	/ 111.8 =
43 Top = 43T =	104.1	/ 108.9 =	43 Bottom = 43B =	118.1	/ 118.9 =
44 Top = 44T =	106.9	/ 105.9 =	44 Bottom = 44B =	117.0	/ 118.3 =

2. Determine the average normalized ratio for the top and bottom.

Average Normalized Ratio Top = ANRT = $\frac{41T + 42T + 43T + 44T}{4}$ = _____

Average Normalized Ratio Bottom = ANRB = $\frac{41B + 42B + 43B + 44B}{4}$ = _____

3. Determine The quadrant power tilt ratio for the top and bottom by dividing the highest normalized power ratio for the top and bottom respectively by their respective average normalized ratio.

Quadrant Power Tilt Top = QPTT = $\frac{\text{Highest value of 41T, 42T, 43T, or 44T}}{\text{ANRT}}$

QPTT = $\frac{\textbf{Value} = \_\_\_\_\_}{\textbf{ANRT} =}$ = _____

Quadrant Power Tilt Bottom = QPTB = $\frac{\text{Highest value of 41B, 42B, 43B, or 44B}}{\text{ANRB}}$

QPTB = $\frac{\textbf{Value} = \_\_\_\_\_}{\textbf{ANRB} =}$ = _____

4. The higher of the two quadrant power tilts should be less than or equal to the Technical Specification Limit of 1.0200.

Enter the Higher QPT(Top or Bottom) = _.___
Technical Specification Limit = 1.0200

NOTES:

1. If the quadrant power tilt exceeds the Tech. Spec. limits, the SM, OM, RE and GM-NPG shall be informed ASAP.
2. If one detector is out of service, the three in service detectors will be used to compute the average normalized ratios (ensure denominators in step 2 are changed from 4 to 3).

RO:_____ SM:_____

ANSWER KEY

UNIT TWO QUADRANT POWER TILT CALCULATION SHEET

DSR-4B Rev. 73 (QT-16-6)

Previous SNSC #2545 11/5/98

SNSC REVIEW DATE 1/13/03

APPROVED (RE) DATE 1-13-03

APPROVED DATE

DATE: Today

TIME: Now

AVE REACTOR PWR: 100.0

USING DETECTOR OUTPUT CURRENT

* Current QT number and Normalization Factors provided by Reactor Engineer.

1. Determine normalized ratios by dividing indicated detector current by normalization factor as follows:

Channel	Det Current		Nor Ratio	Channel	Det Current		Nor Ratio
41 Top = 41T =	NA	/ 114.6 =	NA	41 Bottom = 41B =	NA	/ 112.6 =	NA
42 Top = 42T =	87.0	/ 88.3 =	0.9853	42 Bottom = 42B =	111.1	/ 111.8 =	0.9937
43 Top = 43T =	104.1	/ 108.9 =	0.9559	43 Bottom = 43B =	118.1	/ 118.9 =	0.9933
44 Top = 44T =	106.9	/ 105.9 =	1.0094	44 Bottom = 44B =	119.0	/ 118.3 =	0.9890

2. Determine the average normalized ratio for the top and bottom.

Average Normalized Ratio Top = ANRT = $\frac{41T + 42T + 43T + 44T}{4 \text{ 3}}$ = 0.9835

Average Normalized Ratio Bottom = ANRB = $\frac{41B + 42B + 43B + 44B}{4 \text{ 3}}$ = 0.9920

3. Determine The quadrant power tilt ratio for the top and bottom by dividing the highest normalized power ratio for the top and bottom respectively by their respective average normalized ratio.

Quadrant Power Tilt Top = QPTT = $\frac{\text{Highest value of 41T, 42T, 43T, or 44T}}{\text{ANRT}}$

QPTT = $\frac{\textbf{Value}}{\textbf{ANRT}} = \frac{1.0094}{0.9835}$ = 1.0263

Quadrant Power Tilt Bottom = QPTB = $\frac{\text{Highest value of 41B, 42B, 43B, or 44B}}{\text{ANRB}}$

QPTB = $\frac{\textbf{Value}}{\textbf{ANRB}} = \frac{0.9937}{0.9920}$ = 1.0017

4. The higher of the two quadrant power tilts should be less than or equal to the Technical Specification Limit of 1.0200.

Enter the Higher QPT(Top or Bottom) = 1.0263

Technical Specification Limit = 1.0200

NOTES:

1. If the quadrant power tilt exceeds the Tech. Spec. limits, the SM, OM, RE and GM-NPG shall be informed ASAP.
2. If one detector is out of service, the three in service detectors will be used to compute the average normalized ratios (ensure denominators in step 2 are changed from 4 to 3).

RO:_____ SM:_____

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Review Control Room Log Entries	JPM No.:	2003 NRC A1b SRO
K/A Reference:	2.1.18 (3.0)		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:	The surveillances required by DSR-1 are complete for 0700
Task Standard:	All corrective actions taken or in progress in accordance with DSR-1
Required Materials:	DSR-1 Rev 91
General References:	DSR-1 Rev 91
Handouts:	Completed DSR-1 Rev 91
Initiating Cue:	Review the log entries taken on the 1900-0700 shift for approval
Time Critical Task:	NO
Validation Time:	15 minutes

(Denote Critical Steps with an asterisk)

NOTE: Candidate may identify deficiencies in any order.

*	**Performance Step: 1**	Determines CST level is out of spec low
	Standard:	Refer to TS 3.4.A.3. Determine TS minimum is met. Action to commence filling. Document by circling reading and informing SM (Any step of this JPM)
	Comment:	
*	**Performance Step: 2**	Determines Containment Average Air temperature is out of spec high
	Standard:	Refers to TS 3.6.C and commence action to restore Starts Containment FCU or raise service water flow
	Comment:	
*	**Performance Step: 3**	Determines 21 SI Accumulator pressure is out of spec low
	Standard:	Refers to TS 3.3.A and commences action to restore pressure Enters the action statement of TS 3.3.A
	Comment:	**NOTE: Containment Air Temperature and CST level are out of spec but not inoperable per TS. 21 Accumulator is inoperable per TS**
	Terminating Cue:	When log review is complete, the evaluation for this JPM is complete.

VERIFICATION OF COMPLETION

Job Performance Measure No.: IP2 2003 NRC A1b SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: The surveillances required by DSR-1 are complete for 0700

INITIATING CUE: Review the log entries taken on the 1900-0700 shift for approval

SNSC Review: ~~Prior SNSC Mtg. 2531~~ DATE: 9/17/98

Approved: _____ DATE: 11/16/02

Effective Date: 11/17/02

JAN 20 2003

END DATE

1900 - 0700 REMARKS (USE attached sheet for additional space.)

See attached

0700 - 1900 REMARKS (USE attached sheet for additional space.)

see attached list

RO SIGNATURE: P Mueller

2ND RO SIGNATURE: _____ (✦1)

CRS SIGNATURE: D Eccleston

OAD 3

Middle of watch Key Chart Recorder walkdown completed by at least two of the; SM, CRS, OR WE AND RO review checked on page 15.

SM: _____ WE: _____

CRS: _____

RO SIGNATURE: R Rowland

2ND RO SIGNATURE: _____ (✦1)

CRS SIGNATURE: Glenn Brady

OAD 3

Middle of watch Key Chart Recorder walkdown completed by at least two of the; SM, CRS, OR WE AND RO review checked on page 15.

SM: _____ WE: _____

CRS: _____

DSR 1 Rev 91.wpd

END DATE

ALARMS (at the end of 1900 - 0700 watch)

NOTE (denoted by ✦)

1. IF log readings are taken by an Operator other than the person assigned the watch, the 2nd Operator SHALL sign the additional signature block.
2. Readings SHALL be taken at specified intervals unless precluded by other duties, as per OAD 3 Plant Surveillance and Log Keeping. COMMENT on the reason for any missed reading. WHEN a reading is NOT applicable, MARK N/A in box. USE O/S AND COMMENT on the reason OR SEC WHEN applicable. Any readings outside of Normal range for a Non-Tech Spec item SHOULD be questioned, logged first, THEN corrected IF feasible.
3. Any readings which exceed a Min/Max value SHALL be logged first, red circled, corrected AND explained in the Remarks Section.
4. **Items that have the parameter section shaded with white typeset have Technical Specification OR SAO-700 Series (Fire Protection) controlled parameters within the shaded area. Any Tech Spec OR SAO-700 Series parameter out of Normal OR out of Min/Max SHALL be logged first, red circled AND SM notified IMMEDIATELY. The parameter SHALL be corrected AND explained in the Remarks section.**
5. This log is to be used whenever TAVE is greater than 200°F.
6. Recorder charts SHALL be updated each shift.
7. LIST all alarm windows that are indicating at the end of 1900-0700 watch in space provided above OR on an attached sheet. EXPLAIN the reason for the alarm occurring; CONTINUE explanations on back of sheet IF more space is needed.
8. IF either 12 hr. OR 24 hr. comparison indicates a count rate increase that can NOT be explained by planned changes in RCS conditions (eg. dilution, heatup etc.), THEN OBTAIN an RCS Boron sample ASAP. IF the calculated ratio is less than 0.8 OR greater than 1.2, THEN RESET the HIGH FLUX SHUTDOWN alarm per SOP 13.2, Setting of High Flux at Shutdown Alarm. IF the Reactor is shutdown AND either of the two HIGH FLUX AT SHUTDOWN alarms are blocked OR out of service THEN RCS Boron sampling frequency SHOULD be increased to at least twice per day.
9. IF river water inlet temperature as indicated in the CCR reaches 77°F, IMPLEMENT SOP 24.1.1, Service Water Hot Weather Operations. IF river water inlet temperature monitor in CCR is O/S, use back up monitoring per SOP 24.1.1. IF service water inlet temperature exceeds 94°F, COMMENCE Reactor Shutdown per T.S. 3.3.F.4.
10. Deleted
11. IF river water temperature recorder is NOT recording temperatures continuously, RECORD all operable inlet AND outlet temperatures on CCR display, at hourly intervals on supplemental log.
12. An increase in RCS leakage may be indicated by either an increased activity noted during the 12 hour log interval OR by receipt of the Warn Alarm. IF an unexplained, increasing trend is noted OR the Warn Alarm annunciates, AND the alarm is NOT due to a known evolution, PERFORM an RCS leakage rate calculation per SOP 1.7, Reactor Coolant System Leakage Surveillance.
13. Deleted.
14. The calculated average steam generator level is for normal, steady-state conditions. Only use 2 channels WHEN one is out of service and apply the 2 channel limit to the result.
15. The calculated average is for normal, steady-state conditions.
16. Pressurizer Level SHALL be maintained on program ± 4% (see Graph RCS 2).
17. MAINTAIN average TAVE on program. (See Graph RPC 4).
18. IF containment temperature exceeds 118°F, CONSULT SM for guidance. IF temperature exceeds 125°F, LOG VC Temps on hourly Supplemental Log AND CONSULT System Engineering to determine at what indicated temperature to begin a reactor shutdown per T.S. 3.3.F.4.
19. USE ARP SBF-1, window 3-2 alarm to verify less than 19'3". IF alarm is up, log >19'3" until indication can be used to give actual level. IF the indicated level reaches 20 ft. EL action should be taken to determine whether water is in the sump OR whether an instrument problem exists. IF indication is due to water in the sump, REFER to Tech Spec 3.1.F.2.d.(3)
20. USE ARP SBF-1, window 1-3 alarm to verify Recirc. Sump level less than 35 ft.
21. There are two MIN / MAX ranges for the S/G Wide Range level indicators:

    Range A) This range is used WHEN Reactor Power is less than OR equal to 2%.

    Range B) This range is used WHEN Reactor Power is greater than 2%.
22. Condensate Storage Tank Level, Tech. Spec. requirement applies to the Low Level. Tech Spec. 3.4.A.3.

JAN 2 0 2003

END DATE

23. a. IF CCW Hx outlet temperature exceeds 105°F, DIRECT Nuclear NPO to record charging pump fluid drive temperature reading every two hours on a Supplemental Log.

    b. IF CCW Heat Exchanger outlet temperature exceeds 105°F AND Plant Computer System is O/S, RECORD CCW temperature AND RCP bearing temperatures every two hours on Supplemental Log.

24. WCPS Surveillance SHALL be calculated on the 1900 - 0700 watch. Zero counters after readings.

    IF a WCPS zone is to be worked on or calibrated, average the other 3 channels, red circle the result and note the reason. Tech Spec 3.3.D contains the guidance for WCPS out of service.

25. Charcoal filter hours SHALL be calculated on the 1900 - 0700 watch at midnight. ENSURE start AND stop times are logged in the CCR Log. WHEN charcoal is replaced OR charcoal sample results are SAT, CHANGE total hours to zero. The 1900 - 0700 RO is responsible for completing the "Charcoal Filter Hours" Section of the previous day's log.

26. Testing of this Fire Alarm panel will illuminate only the trouble light, NOT the alarm light AND the panel buzzer should sound. Testing of this panel will also bring up an alarm on CCR panel SD, window 1-5.

27. WHEN filter reaches 600 hours, WRITE a Work Order to the Performance Monitoring Group to obtain sample per Technical Specification 4.5.E.3.

28. WHEN filter reaches 600 hours, WRITE a Work Order to the Performance Monitoring Group to obtain sample per Technical Specification 4.5.G.2.

29. WHEN filter reaches 600 hours, WRITE a Work Order to the Performance Monitoring Group to obtain sample per Technical Specification 4.5.F.3. RECORD Charcoal Filter Hours until 720 hours is reached. After 720 hours, log >720 on reading sheet. After filter sample is taken AND with concurrence from T&P, re-zero filter hour clock.

30. Radiation Monitor purges SHALL be done on the 1900 - 0700 watch. WHEN logging process Radiation Monitor data, VERIFY monitor is active (indication NOT locked onto a single value).

31. CHECK Alarm Panel Annunciator Lights AND Alarm Horns (IF equipped). Any Alarms that do NOT clear as a result of this test SHALL be explained in the Remarks section. IF any Alarm Cans require change out, REFER to OASL 15.81, Annunciator Can Change Out AND ENSURE appropriate attachment is completed.

32. Testing of this Fire Alarm Panel will illuminate only the Trouble Light, NOT the Alarm light AND the panel buzzer should sound. Testing of this panel will NOT bring up an alarm on CCR Panel SD OR SM.

33. During startup OR low temperature operation, it is possible for RCP Channel I Loop Flow to indicate >120%. In these cases RCP Motor Current should be used as the limiting value.

34. IF a Sequence of Events report is collected for other than planned testing, CIRCLE ✓ in red. MAKE a comment in the comment section AND NOTIFY the SM immediately. DOCUMENT the concern via a Corrective Action report.

35. Fire Water Storage Tank.

    a. IF the first segment of the bar graph is flashing, the instrument loop has an open circuit (1% below band).

    b. IF the digital display indicates (- - - -), the instrument is under ranged (10% below span).

    c. IF the bar graph AND digital display are blank THEN one of the following has occurred:

        1. The indicator OR transmitter has failed.

        2. Power has been lost. (Transmitter Ckt 13 / Indicator Ckt 11 both on L&P Panel PH)

36. Unit 1 Condensate Storage Tanks.

    a. The CST High Level Control Valve LCV-7816 will close on the following signals:

        1. Trip at 466 inches, increasing; Reset at 416 inches, decreasing.

        2. Local Alarm at 481 inches, increasing; Reset at 476 inches, decreasing.

        3. Conductivity Trip 0.8 µSiemens, increasing; local alarm at 0.7 µSiemens.

37. COMPARE with previous log readings for unexplained deviations.

38. COMPARE the Service Water Inlet Recorder reading to the local temperature indications for at least one condenser waterbox inlet as a qualitative check of the recorder.

39. WHEN Plant Computer System is inoperable PERFORM the following:

    1. CONNECT DVM to TP/P412A "Turbine Press" (Channel 412A) in Rack A1 AND RECORD Reading.

    2. CONNECT DVM to TP/P412B "Turbine Press" (Channel 412B) in Rack A9 AND RECORD Reading.

    3. COMPARE readings. Maximum allowable difference is 22.7 mV.

40. The discrete indicators ("sugar cube" lights) shall agree with their respective continuous level indicators to within approximately 1 Ft. Elevation.

41. In addition to qualitative checks, VERIFY monitor is active (indication NOT locked onto a single value).

JAN 2 0 2003

END DATE

42. VERIFY that reading is ABOVE "Min. Value". Readings of "0.00E+0" that are NOT accompanied by a "No CPM" condition OR periodic fluctuations below "Min Value" are acceptable.

43. RECORD Alarm setpoint, THEN COMPARE the recorded Alarm setpoint value to the value given in the Operator Aid "Monitor Backgrounds, Calibration Constants AND Setpoint Limits".

44. Data are to be compared to meteorological parameters obtained using IP-1016, Section 5.0 (Primary Tower). ENSURE comparison is made to data in the same time frame. In addition, the Wind Speed data (10m) from the Backup Tower is taken. The check of the B/U tower wind speed is a qualitative check ONLY. The 2 m/sec. does NOT apply.

    Note that the primary tower data, using 5.3.5a, are in miles/hr direction degrees, AND temperature differential in Deg F. Data SHALL be converted to meters/sec AND proper Pasquill category for comparison; MPH x 0.447 = m/s AND Table 5.2.2 converts the temp differential to Pasquill category. The Pasquill letter printed on the output (Addendum 5.2) under WD3 is NOT to be used for comparison.

    During light wind speed conditions (speed LESS THAN 4 miles/hr) the direction difference may EXCEED 150 Deg due to meander. Emergency Planning section is to be contacted for parameter verification.

45. OBTAIN Vent Flow from R-27 Monitor AND from magnahelic in alleyway AND COMPARE the two readings. NPO will give reading in SCFM as long as their hand held computer is functioning. Otherwise Convert in. H_2O Magnahelic reading as follows:
    $SCFM=7.12 \times 10{,}000 \sqrt{\text{in. } H_2O}$

46. Deleted

47. Record which FCU is currently being monitored. IF the WEIR level is high enough to indicate a flow rate on the display, USE graphs RCS 6-1, 6-2, 6-3, 6-4, OR 6-5 as appropriate to convert FCU condensate level to flow rate.

48. The Discrete, Redundant, AND Continuous levels SHALL be consistent with each other AND be within 1 ft EL difference.

49. The NR reading SHALL NOT be more than 1 psig above the highest reading WR channel OR more than 1 psig below the lowest reading WR channel.

50. PERFORM a qualitative check for these steps by OBSERVING channel behavior, including any other available indication such as alarm AND failure lights, etc., to determine acceptability.

51. IF the Plant Computer System is unavailable for QPTR calculations, PERFORM a manual QPRT calculation per DSR 4B, Unit 2 Quadrant Power Tilt (Det. Curr.). IF required to log detector output voltages, ATTACH printed report from plant computer system to this DSR.

52. IF the Plant Computer System is unavailable for Delta I calculations, USE DSR 1A, Central Control Room Log (Reactor Delta I Critical Ops Only) to record these values.

53. The normal and MIN/MAX limits assume both tanks are operable and reading in this range to satisfy Tech Spec level limits. IF one BAST is taken out of service, EVALUATE appropriate Tech Spec levels of the remaining tank using GRAPH TC-3, Boric Acid Storage Tank, and GRAPH TC-3A, Boric Acid Storage Tanks BAT21 and BAT22 Level Transmitters.

54. VERIFY that the Plant Computer System autologging comparison AND alarm functions of Analog RPIs and Rod Bank Step Counters is operable (Plant Computer System will actuate Panel SFF 2-7, CONTROL ROD OR POWER DISTRIBUTION TROUBLE, if the two indications do NOT agree within a programmed deadband). IF the Plant Computer System autologging OR IRPI Alarm Function is NOT operable, COMPLETE DSR 3, Unit 2 Rod Position Verification.

55 The Plant Computer System will generate a report displaying current Rod status, Position, etc. Attach this report to this DSR.

56 To verify the Plant Computer System alarm status is operating properly, OBSERVE alarm function screen using Turn-On Code ANNUN AND VERIFY there are no abnormal conditions.

57 IF less than three off site power supplies aligned to U1 L&P busses, REFER to U1 TS 2.5.1.1.

58 Reactor Power is determined by the Plant Computer System (PICS) On-line Heat Balance. NI upper limits and adjustments are controlled by SOP 15.1, Reactor Thermal Power Calculation.

59 VERIFY weekly PC Heat Balance results with PICS Heat balance. IF PC heat balance is Greater Than +/- 0.2 percent of PICS Heat Balance, CONTACT the IT PICS group. The PICS Heat Balance will continue to be used to calculate Reactor Power.

60 IF Station Auxillary Transformer (SAT) Tap Changer unable to operate in Automatic, GO TO SOP 27.1.4, 6900 Volt System.

61 Per TS 3.10.5.1, the following limits apply:

Above 85 Percent Power (TS Table 3.10-1)

Group Step Counter Demand Position (Steps)	Maximum Positive Deviation		Maximum Negative Deviation	
	Steps	Inches	Steps	Inches
≤ 209	12	7.5	-12	7.5
210 to 221	16	10	-12	7.5
222	16	10	-13	8.125
223	16	10	-14	8.75
224	16	10	-15	9.375
≥ 225	16	10	-16	10

At or Below 85 Percent Power. +/- 24 steps. This equates to +/- 15 inches.

These comparisons are between the analog RPI and their associated Rod Bank Step Counters.

LONG TERM CORRECTIVE ACTIONS:

Incorporated **TPC 01-0041** as a Long Term Corrective Action into Revision 83 of this DSR. This TPC changes the Normal and Min/Max limits for Instrument Bus Voltage as follows:

NORMAL 117-120V

MIN/MAX 117-122V

This TPC will be removed following completion of CR 200101134

JAN 20 2000

END DATE

PARAMETER		UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
N31 (✦ 8)	Counts Per Second	CPS	Variable	3 / 1E5	See	See
	Ten Minute Count	Counts		-	See	See
	Current Counts/ 6 HR Prev Counts	Calc	< 1.2	0.8 / 1.2	See	See
	Current Counts/ 24 HR Prev Counts				See	See
N32 (✦ 8)	Counts Per Second	CPS	Variable	3 / 1E5	See	See
	Ten Minute Count	Counts		-	See	See
	Current Counts/ 6 HR Prev Counts	Calc	< 1.2	0.8 / 1.2	See	See
	Current Counts/ 24 HR Prev Counts				See	See
INTERMEDIATE RANGE	N - 35	AMPS	Variable	Variable	1.6E-4	1.6E-4
	N - 36				1.9E-4	1.9E-4
POWER RANGE	N - 41	%	(✦ 58)	MAX DIFF 2% WHEN POWER >15% (✦ 58)	99.9	100.0
	N - 42				100	100.0
	N - 43				100	99.9
	N - 44				100	100.0
VERIFY U1 offsite feeders supplying U1 L&P busses	13W92	N/A	✓ (✦ 57)	✓	✓	✓
	13W93				✓	✓
	13W94				✓	✓
DC BUS VOLTAGE	21	Volts DC	130 - 131	125 / 136	130	130
	22				130	130
	23				130	131
	24				130	130
STATION AUX TRANSFORMER TAP CHANGER		✓	IN AUTO (✦ 60)	IN AUTO (✦ 60)	✓	✓
INSTRUMENT BUS VOLTAGE	21	Volts AC	117 - 120	117 / 122	118	119
	22				117	118
	23				118	118
	24				119	120
Unit 1 CST (✦ 36)	11	Inches (Feet)	416 - 466 (34.7 - 38.8)	300 / 481 (25 - 40)	34.5	37.7
	12				34.4	37.6
	13				34.5	37.7
SERVICE WATER TEMP (TR - 6281)	RIVER WATER TEMP RECORDER OPERABLE (✦ 11)	✓	Operable (✓)	Operable/ Inoperable	✓	✓
	Unit 1 Inlet (01)	°F	N/A	(✦ 38)	32.5	32.13
	Unit 2 Inlet (02) (✦ 9)		- / 77	- / 92	31.9	31.94
	Unit 3 Inlet (03)		N/A	(✦ 38)	29.3	29.09
	South Disch (04)				60.9	60.74
	Middle Disch (05)				61.1	60.74
	North Disch (06)				61.7	61.50
	Unit 1, 2 & 3 Ave Inlet Temp (26)		- / 77	- / 92	32.2	32.06
	Site Ave Outlet Temp (27)		April 15 to June 30 < 90 °F July 1 to April 14 < 107 °F		61.3	61.00

01-0141

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END DATE

PARAMETER			UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
GENERATOR TEMPERATURE	Cold Gas Cooler 21 {point 1}		°C	35 - 45	30 / 46	44.8	43.1
	Cold Gas Cooler 22 {point 3}					45.8	44.8
	Cold Gas Cooler Delta T			0 - 5	0 / 10	1.0	1.7
	Stator Cooling Water In {point 7}			41 - 45	38 / 46	44.9	45.0
	Stator Cooling Water Out {point 8}			41 - 73	38 / 75	63.9	63.6
FIREWATER STORAGE TANK (✦ 35)			**INCHES**	**380 - 389**	**365 / 395**	388.1	
R - 41 MONITOR (✦ 41)	VC Air Particulate (✦ 12)		µCi/cc	Variable	Variable	5.64E-10	5.77E-10
CONDENSER SALINITY			PPB	0 - 2	- / 4.9	0.2	0
HIGHEST S/G SODIUM			# PPB	0 - 1	0 / 5	24 | 0.4	24 | .39
MAIN STEAM LINE RADIATION MONITORS		R-28	CPM	(✦ 50)	N/A	16	17
		R-29				13	14
		R-30				43	22
		R-31				15	9
TOXIC GAS MONITOR	Channel 1	AIT-5092 NH_3	PPM	0 - 5	0 / 10	0	0
		AIT-5093 Cl_2		0 - 0.5	0 / 0.8	0	0
	Channel 2	AIT-5095 NH_3		0 - 5	0 / 10	2	2
		AIT-5096 Cl_2		0 - 0.5	0 / 0.8	0	0
CCR INTAKE VENT. RADIATION		R-38-1	mR / hr	(✦ 50)	N/A	0.2	
		R-38-2				0.06	
VC HIGH RANGE RADIATION MONITORS		R-25	R / hr	(✦ 50)	N/A	<1	<1
		R-26				<1	<1
WIDE RANGE PLANT VENT MONITOR		R-27 EFFLUENT	µCi/sec	(✦ 50)	N/A	104	115
U2 PLANT VENT FLOW MONITOR		MAGNAHELIC	SCFM	(✦ 50)	**MAX DIFF 24,000 (✦ 45)**	44,464	
		R-27, MI-29				47,000	
CONTAINMENT SUMP LEVEL REDUNDANT		LI - 3303	EL	N/A	(✦ 48)	40'9"	39'6"
		LI - 3304				39'	39'
QUADRANT POWER TILT RATIO PICS QPTR TILT REVIEW (TILT) (✦ 51)		**Top**	**N/A**	**≤1.02**	**≤1.02**	1.005	1.005
		Bottom		**≤1.02**	**≤1.02**	1.003	1.003
VERIFY PICS DELTA FLUX (DF) display is operable and updating properly. (Data is green) (✦ 52)			✓	✓	✓	✓	✓
GENERATOR	Stator Current Amps Meter	A	K-Amps	Variable	- / 29.6	28	27.9
		B				27.5	27.4
		C				27	27.3
	Stator Voltage		K-Volts	20 - 23	19.8 / 23.1	22.2	21.2
	Hydrogen Pressure		PSIG	60 - 75	30 / 79	64	63
	Field Amps		AMPS	< 6000	- / < 6000	4800	3900
MAIN UNIT LOAD			MW	Various	N/A	1005	1005
NET LOAD						984	985
GENERATOR MVARS			MVAR			310	70

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PARAMETER		UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
GOVERNOR CONTROL		PSIG	40 - 45	35 / 50	42.3	42.1
LOAD LIMIT # 1		PSIG	Governor Oil Pressure +1 psi	Governor Oil Pressure +5 psi	40.6	40.7
LOAD LIMIT # 2		PSIG	Governor Oil Pressure +1 psi	Governor Oil Pressure +5 psi	41.1	41.1
MAIN STEAM HDR PRESSURE		PSIG	625 - 995	0 / 1005	720	720
TURBINE 1ST STAGE PRESSURE (Plant Computer System)	412A	PSIG	Variable	MAX DIFF 34 PSIG (◆39)	490.3	490.5
	412B	PSIG	Variable	MAX DIFF 34 PSIG (◆39)	491.8	491.6
21 STEAM LINE PRESSURE	PI-419A	PSIG	N/A	MAX DIFF 112 PSIG	745	740
	PI-419B	PSIG	N/A	MAX DIFF 112 PSIG	740	730
	PI-419C	PSIG	N/A	MAX DIFF 112 PSIG	730	730
22 STEAM LINE PRESSURE	PI-429A	PSIG	N/A	MAX DIFF 112 PSIG	740	740
	PI-429B	PSIG	N/A	MAX DIFF 112 PSIG	725	720
	PI-429C	PSIG	N/A	MAX DIFF 112 PSIG	730	730
23 STEAM LINE PRESSURE	PI-439A	PSIG	N/A	MAX DIFF 112 PSIG	730	730
	PI-439B	PSIG	N/A	MAX DIFF 112 PSIG	745	740
	PI-439C	PSIG	N/A	MAX DIFF 112 PSIG	725	720
24 STEAM LINE PRESSURE	PI-449A	PSIG	N/A	MAX DIFF 112 PSIG	730	730
	PI-449B	PSIG	N/A	MAX DIFF 112 PSIG	730	730
	PI-449C	PSIG	N/A	MAX DIFF 112 PSIG	725	730
FLIGHT PANEL ANNUNCIATOR POWER LIGHTS		✓	LIT ✓	LIT ✓	✓	✓
21 STEAM GENERATOR LEVEL (◆14)	LI-417A	%	46 / 52	MAX DIFF 8% 46 / 52	50	50
	LI-417B	%	46 / 52	MAX DIFF 8% 46 / 52	46	46
	LI-417C	%	46 / 52	MAX DIFF 8% 46 / 52	51	51
	Average of Operable channels	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	49	49
22 STEAM GENERATOR LEVEL (◆14)	LI-427A	%	46 / 52	MAX DIFF 8% 46 / 52	51	51
	LI-427B	%	46 / 52	MAX DIFF 8% 46 / 52	46	47
	LI-427C	%	46 / 52	MAX DIFF 8% 46 / 52	49	49
	Average of Operable channels	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	48.1	49
23 STEAM GENERATOR LEVEL (◆14)	LI-437A	%	46 / 52	MAX DIFF 8% 46 / 52	51	50
	LI-437B	%	46 / 52	MAX DIFF 8% 46 / 52	47	47
	LI-437C	%	46 / 52	MAX DIFF 8% 46 / 52	47	47
	Average of Operable channels	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	48.3	48
24 STEAM GENERATOR LEVEL (◆14)	LI-447A	%	46 / 52	MAX DIFF 8% 46 / 52	48	48
	LI-447B	%	46 / 52	MAX DIFF 8% 46 / 52	47	48
	LI-447C	%	46 / 52	MAX DIFF 8% 46 / 52	46	46
	Average of Operable channels	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	47	47
PRESSURIZER PRESSURE (◆15)	PI-455	PSIG	2208 - 2258	2208 / 2258 MAX DIFF 60 PSIG	2250	2245
	PI-456	PSIG	2208 - 2258	2208 / 2258 MAX DIFF 60 PSIG	2230	2235
	PI-457	PSIG	2208 - 2258	2208 / 2258 MAX DIFF 60 PSIG	2235	2238
	PI-474	PSIG	2208 - 2258	2208 / 2258 MAX DIFF 60 PSIG	2235	2239
	Average of Operable channels	PSIG	4: 2208/2258 3: 2212/2255	4: 2208/2258 3: 2212/2255	2237.5	2239
PRESSURIZER LEVEL (◆16)	LI-459	%	33 / 49	MAX DIFF 8 % 33 / 49	43	43
	LI-460	%	33 / 49	MAX DIFF 8 % 33 / 49	46	46
	LI-461	%	33 / 49	MAX DIFF 8 % 33 / 49	42	42
	Average of Operable channels	%	3: 37.9/45.9 2: 37.1/45.1	3: 37.9/45.9 2: 37.1/45.1	43.0	44

JAN 2 0 2005

END DATE

PARAMETER		UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
Attach the Plant Computer System Control Rod Auto Log Report (✦ 55)		N/A	✓	✓	✓	✓
VERIFY Plant Computer System Alarm Functions Operable (✦ 56)		N/A	✓	✓	✓	✓
PERFORM PC Heat Balance on Sunday		N/A	N/A	(✦ 59)	NA	
PICS 8 Hour Reactor Power rolling ave (VERIFY S/G Blowdown Flow updated prior to taking reading)	U1118HR8	Mw	≤ 3071.4	- / ≤ 3071.4	3070.7	3071.15
Analog RPI: Shutdown Bank A	High	Inches	N/A	(✦ 61)	144	144
	Low				139	138
Analog RPI: Shutdown Bank B	High				144	144
	Low				140	140
Analog RPI: Shutdown Bank C	High				>144	>144
	Low				144	144
Analog RPI: Shutdown Bank D	High				144	144
	Low				140	141
Analog RPI: Control Bank A	High				144	144
	Low				141	141
Analog RPI: Control Bank B	High				144	144
	Low				144	144
Analog RPI: Control Bank C	High				144	144
	Low				139	138
Analog RPI: Control Bank D	High				135	135
	Low				132	132
Rod Pos Step Counters Shutdown Bank A, Group 1	U0053	Steps	N/A	(✦ 54)	223	223
	FLT Pnl				223	223
Rod Pos Step Counters Shutdown Bank A, Group 2	U0053				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Shutdown Bank B, Group 1	U0054				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Shutdown Bank B, Group 2	U0054				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Shutdown Bank C	U0055				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Shutdown Bank D	U0056				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Control Bank A, Group 1	U0049				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Control Bank A, Group 2	U0049				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Control Bank B, Group 1	U0050				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Control Bank B, Group 2	U0050				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Control Bank C, Group 1	U0051				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Control Bank C, Group 2	U0051				223	223
	FLT Pnl				223	223

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END DATE

PARAMETER			UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
Rod Pos Step Counters Control Bank D, Group 1		U0052	Steps	N/A	(✦ 64)	207	207
		FLT Pnl				207	207
Rod Pos Step Counters Control Bank D, Group 2		U0052				207	207
		FLT Pnl				207	207
RCS TEMP ΔT INDICATORS		TI - 411A	°F	N/A	MAX DIFF 13°F	52	51
		TI - 421A				62	62
		TI - 431A				55.5	55.5
		TI - 441A				54.5	54.5
T - AVERAGE (✦ 17)		TI-412C	°F	Variable	MAX DIFF 8°F	557.5	557.0
		TI-422C				563	562.5
		TI-432C				560	560.0
		TI-442C			Variable	559	559.0
		Avg - T Avg				559.9	559.6
REACTOR COOLANT PUMP No. 1 SEAL RETURN		21 RCP	GPM	1.0 - 3.0	0.2 / 5	1.7	1.71
		22 RCP				2.3	2.41
		23 RCP				1.8	2.27
		24 RCP				2.0	2.15
REACTOR COOLANT PUMP LOOP FLOW (✦ 33)	LOOP 21	FI - 414	%	95 - 102	93 / 120	99	99
		FI - 415	%	N/A	MAX DIFF of all three 9%	102	102
		FI - 416				102	101
	LOOP 22	FI - 424	%	95 - 102	93 / 120	101	100
		FI - 425	%	N/A	MAX DIFF of all three 9%	101	101
		FI - 426				101	101
	LOOP 23	FI - 434	%	95 - 102	93 / 120	99	99
		FI - 435	%	N/A	MAX DIFF of all three 9%	101	100
		FI - 436				102	101
	LOOP 24	FI - 444	%	95 - 102	93 / 120	99	99
		FI - 445	%	N/A	MAX DIFF of all three 9%	99	99
		FI - 446				100	100
REACTOR COOLANT PUMP MOTOR CURRENT		21 RCP	AMPS	380 - 410	350 / 450	390	390
		22 RCP				380	380
		23 RCP				390	395
		24 RCP				390	390
REACTOR COOLANT PUMP THERMAL BARRIER DELTA P		21 RCP	INCHES WATER	30 - 100	5 / -	42	44
		22 RCP				30	31
		23 RCP				49	49
		24 RCP				37	36
REACTOR COOLANT PUMP No.1 SEAL DELTA P		21 RCP	PSID	> 400	326 / -	>400	>400
		22 RCP				>400	>400
		23 RCP				>400	>400
		24 RCP				>400	>400
REACTOR COOLANT PUMP SEAL OUTLET TEMP.		21 RCP	°F	80 - 150	70 / 159	140	140
		22 RCP				132	132
		23 RCP				142	140
		24 RCP				142	140
VESSEL FLANGE LEAKOFF			°F	60 - 130	50 / 140	76	76

TOMMY

END DATE

PARAMETER			UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
REACTOR COOLANT PUMP SEAL INJECTION FLOW	21 RCP		GPM	6 - 12	2 / 20	7.5	7.5
	22 RCP					7.2	7.2
	23 RCP					7.5	7.5
	24 RCP					7.2	7.2
CONTAINMENT	VC Pressure (NR)			-1 / +1	-2 / +2	0.3	0.3
	HIGHEST VC Pressure (WR)	#	PSIG	N/A	MAX DIFF 6.5 PSIG (◆49)	A2 1	A2 1
	LOWEST VC Pressure (WR)	#				C2 0	C2 0
	Temperature (◆18)		°F	87 - 118	85 / 130	126	131
PRESSURIZER RELIEF TANK	LEVEL		%	69 - 75	67 / 77	71	72
	PRESSURE		PSI	1 - 5	0.5 / 7	2	2
	TEMP.		°F	90 - 120	- / 130	72	72
RX CAVITY SUMP (◆19)			EL	Variable	-/ < 19' 3"	< 19' 3"	< 19' 3"
CONTAINMENT SUMP LEVEL CONTINUOUS	LI - 3300				-/ < 44' 4"	41' 3"	41' 3"
CONTAINMENT SUMP LEVEL DISCRETE	LI - 940		EL	N/A	(◆48)	< 41' 3"	< 41' 3"
	LI - 941					40' 9"	< 40' 9"
RECIRCULATION SUMP (◆20)			EL	Variable	-/ < 35'	< 35'	< 35'
RECIRCULATION SUMP CONTINUOUS	LR - 3301		EL	N/A	(◆40)	35.2	
RECIRCULATION SUMP DISCRETE	LI - 938					< 39' 9"	
	LI - 939					< 35'	
RWST	TEMP.		°F	50 - 90	44 / 95	89	88
	LEVEL	LI - 920 (CCR)	FEET	37.2 - 37.4	37.0 / 37.5 MAX DIFF 1	37.4	37.4
		LR - 5751 (CCR)		N/A	N/A	37	
		LI - 921 (LOCAL)				37	
21 ACCUMULATOR LEVEL	LI - 934A		%	40 - 60	MAX DIFF 8 %	54	55
	LI - 935A				35 / 65	54	55
22 ACCUMULATOR LEVEL	LI - 934B		%	40 - 60	MAX DIFF 8 %	56	56
	LI - 935B				35 / 65	56	56
23 ACCUMULATOR LEVEL	LI - 934C		%	40 - 60	MAX DIFF 8 %	55	55
	LI - 935C				35 / 65	55	55
24 ACCUMULATOR LEVEL	LI - 934D		%	40 - 60	MAX DIFF 8 %	56	55
	LI - 935D				35 / 65	56	56
21 ACCUMULATOR PRESSURE	PI - 936A		PSIG	635 - 680	MAX DIFF 42 PSIG	640	590
	PI - 937A				630 - 680	640	590
22 ACCUMULATOR PRESSURE	PI - 936B		PSIG	635 - 680	MAX DIFF 42 PSIG	635	640
	PI - 937B				630 - 680	640	640
23 ACCUMULATOR PRESSURE	PI - 936C		PSIG	635 - 680	MAX DIFF 42 PSIG	650	650
	PI - 937C				630 - 680	650	650
24 ACCUMULATOR PRESSURE	PI - 936D		PSIG	635 - 680	MAX DIFF 42 PSIG	650	650
	PI - 937D				630 - 680	660	660

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PARAMETER		UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
FAN COOLER UNIT SERVICE WATER OUTLET FLOWS	21	GPM	1200 - 1600	1000 / 1800	1060	1060
	22				1160	1160
	23				1100	1150
	24				1100	1150
	25				1050	1100
WIDE RANGE STEAM GENERATOR LEVELS (✦ 21)	21	%	Variable	A) 60 / 100 B) 45 / 80	52	51
	22				55	55
	23				56	55
	24				53	54
HOTWELL LEVEL		FEET	2.5 - 3.5	2.5 / 3.9	3.3	3.0
PRIMARY WATER TANK LEVEL	LI-1131-1 (CCR)		12 - 28	11.25 / 30 MAX DIFF 2	27.5	28
	LIC-1101-S (Local)		N/A	N/A	26.8	
CONDENSATE STORAGE TANK LEVEL (✦ 22)			**21 - 29**	**20 / 29**	28.5	19
CHARGING LINE FLOW		GPM	30 - 45	- / -	62	60
CVCS LETDOWN	TEMP.	°F	122 - 127	100 / 145	123	123
	FLOW	GPM	82 - 88	40 / 122	87	87
	PRESSURE	PSI	225 - 275	225 / 400	280	275
VOLUME CONTROL TANK	PRESSURE	PSI	15 - 25	15 / 65	28	20
	LEVEL	%	21.4 - 35	21 / 91	40	28
BORIC ACID STORAGE TANK **21** **LEVEL (✦ 37)**		**%**	**42 - 80 (✦ 53)**	**39 / 80**	58	58
22					64	64
21 **TEMP.**		**°F**	**160 - 174**	**155 / 200**	171	171
22					167	168
COMPONENT COOLING SYSTEM (✦ 23)	Heat Exchanger Outlet Temp	°F	72 - 100	70 / 110 120 / 2 HRS	92	92
	Flow	GPM	3000 - 4000	1500 / 7000	3000	3000
	Surge Tank Level	%	47 - 53	46 / 54	51	50
CONTAINMENT SUMP FLOW	FI - 3401	GPM	N/A	(✦ 50)	0	0
SUPERVISORY PANEL ANNUNCIATOR POWER LIGHTS		✓	LIT ✓	LIT ✓	✓	✓
UNIT AUX TRANSFORMER VOLTAGE		VOLTS	7050 - 7150	7000 / 7200	7050	7050
STATION AUX TRANSFORMER VOLTAGE					7100	7100
TOTAL AUX TRANSFORMER LOAD		MW	Various	N/A	34.5	34.5
STATION SERVICE TRANSFORMER 480 V BUS AMPERAGE	BUS 5A	AMPS	40 - 150	0 / 200	60	60
	BUS 2A				132	132
	BUS 3A				120	120
	BUS 6A				75	75
LOWEST 480 BUS VOLTAGE		**# Volts**	**475** 490	**460** 495	2A 480	2A 480
SERVICE WATER PRESSURE	21-22-23 HDR	PSI	60 - 80	58 / 125	99	99
	24-25-26 HDR				94	95
CONTAINMENT DEW POINT	HIGH	°F	65 - 80	- / 95	44	44
	LOW				37	37

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PARAMETER			UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
FAN COOLER UNIT WEIR LEVEL		21	INCHES	-6 / +1.8	-6 / +2	-6	-6.0
		22				-0.1	0.1
		23				-5.9	-0.4
		24				-0.1	0.1
		25				0.9	0.6
FAN COOLER UNIT WEIR FLOW	21	Ind.	GPM	N/A	MAX DIFF 6 GPM (◆47)	0	0
		RCS-6-1				0	0
	22	Ind.				0	0
		RCS-6-2				0	0
	23	Ind.				0	0
		RCS-6-3				0	0
	24	Ind.				0	0
		RCS-6-4				0	0
	25	Ind.				0	0
		RCS-6-5				0	0

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PARAMETER	MAX DIFF	MIN VALUE	UNITS	CHANNEL	ALARM SETPOINT	1900 - 0700	
98' PAB Area Radiation	N/A	N/A	mR/hr	R-5987	100	0.2	SAT / UNSAT
CCR Area Radiation	N/A	N/A	mR/hr	R-1	0.15	0	SAT / UNSAT
80' VC Area Radiation	N/A	N/A	mR/hr	R-2	50	4	SAT / UNSAT
Charging Pumps Area Radiation	N/A	N/A	mR/hr	R-4	50	0.1	SAT / UNSAT
FSB Area Radiation Radiation	N/A	N/A	mR/hr	R-5	10	6.5	SAT / UNSAT
Sampling Room Area Radiation	N/A	N/A	mR/hr	R-6	50	1	SAT / UNSAT
Incore Inst Room Area Radiation	N/A	N/A	mR/hr	R-7	100	>	SAT / UNSAT
CCW Hx 21 SW Outlet Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-39	1.00E-6 (✦ 43)	7.28E-8	SAT / UNSAT
CCW Hx 22 SW Outlet Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-40	6.00E-6 (✦ 43)	O/S	SAT / UNSAT
Containment Air Particulate Activity	N/A (✦ 41)	1.00E-14 (✦ 42)	uCi/cc	R-41	9.40E-10 (✦ 43)	5.75E-10	SAT / UNSAT
Containment Air Radio gas Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-42	1.20E-2 (✦ 43)	1.16E-4	SAT / UNSAT
Plant Vent Particulate Activity	N/A (✦ 41)	1.00E-14 (✦ 42)	uCi/cc	R-43 (Part.)	2.00E-7 (✦ 43)	8.10E-11	SAT / UNSAT
Plant Vent Iodine Activity	N/A (✦ 41)	1.00E-14 (✦ 42)	uCi/cc	R-43 (Iodine)	1.36E-8 (✦ 43)	2.27E-11	SAT / UNSAT
Plant Vent Gaseous Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-44	3.25E-4 (✦ 43)	4.32E-6	SAT / UNSAT
Discharge Condenser SJAE Gaseous Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-45	3.00E-3 (✦ 43)	1.29E-5	SAT / UNSAT
FCU Service Water Outlet Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-46	3.00E-6 (✦ 43)	1.04E-8	SAT / UNSAT
CCW Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-47	1.00E-4 (✦ 43)	2.18E-5	SAT / UNSAT
WDS Liquid Effluent Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-48	(✦ 43)	O/S	SAT / UNSAT
SG Blowdown Effluent Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-49	1.00E-4 (✦ 43)	1.30E-6	SAT / UNSAT
Large Gas Decay Tank Activity	N/A (✦ 41)	1.00E-04 (✦ 42)	Ci	R-50	6.00E-2 (✦ 43)	1.01	SAT / UNSAT
SBBPS Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-51	1.00E-4 (✦ 43)	Sec	SAT / UNSAT
SBBPS Cooling Water Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-52	3.00E-6 (✦ 43)	Sec	SAT / UNSAT
FCU Service Water Outlet Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-53	3.00E-6 (✦ 43)	8.40E-8	SAT / UNSAT
Liquid Waste Distillate Activity	N/A (✦ 41)	1.00E-10 (✦ 42)	uCi/cc	R-54	4.00E-4 (✦ 43)	2.45E-4	SAT / UNSAT
SG 21 Blowdown Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-55A	1.00E-4 (✦ 43)	O/S	SAT / UNSAT
SG 22 Blowdown Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-55B	1.00E-4 (✦ 43)	O/S	SAT / UNSAT
SG 23 Blowdown Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-55C	1.00E-4 (✦ 43)	O/S	SAT / UNSAT
SG 24 Blowdown Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-55D	1.00E-4 (✦ 43)	O/S	SAT / UNSAT
Sewage Effluent Activity (Incl NSB)	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-57	3.00E-5 (✦ 43)	5.95E-10	SAT / UNSAT

JAN 20 2003

END DATE

PARAMETER	MAX DIFF	MIN VALUE	UNITS	CHANNEL	ALARM SETPOINT	1900 - 0700	
House Service Boiler Condensate Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-59	3.00E-6 (✦ 43)	O/S	SAT / UNSAT
Stack Vent Particulate Activity	N/A (✦ 41)	1.00E-13 (✦ 42)	uCi/cc	R-60 (Part.)	1.60E-8 (✦ 43)	9.81E-10	SAT / UNSAT
Stack Vent Iodine Activity	N/A (✦ 41)	1.00E-14 (✦ 42)	uCi/cc	R-60 (Iodine)	1.50E-8 (✦ 43)	1.41E-11 ~~1.50E-8~~	SAT / UNSAT
Stack Vent Noble Gas Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-60 (Gas)	6.00E-5 (✦ 43)	6.85E-8	SAT / UNSAT
Sphere Foundation Sump Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-62	1.00E-5 (✦ 43)	2.12E-6	SAT / UNSAT
M & O Building Vent Particulate Activity	N/A (✦ 41)	1.00E-14 (✦ 42)	uCi/cc	R-5976 (Part.)	6.00E-9 (✦ 43)	4.00E-10	SAT / UNSAT
M & O Building Vent Gaseous Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-5976 (Gas)	1.00E-5 (✦ 43)	1.72E-6	SAT / UNSAT

PARAMETER	MAX DIFF	UNITS	CHANNEL	1900 - 0700		RESULTS
Wind Speed	2 (✦ 44)	M/sec	122m	1016	5.7	SAT / UNSAT
			122m	CCR	5.1	
			60m	1016	4.9	SAT / UNSAT
			60m	CCR	4.9	
			10m (pri)	1016	2.4	SAT / UNSAT
			10m (pri)	CCR	2.4	
			10m (B/U)	B/U Tower	1.8	SAT / UNSAT
Wind Direction	90 (✦ 44)	Deg	122m	1016	195	SAT / UNSAT
			122m	CCR	195	
			60m	1016	213	SAT / UNSAT
			60m	CCR	213	
			10m	1016	193	SAT / UNSAT
			10m	CCR	192	
Delta T Pasquill	1 letter (✦ 44)	Category	10-122m	1016	D	SAT / UNSAT
			10-122m	CCR	D	
			10-60m	1016	E	SAT / UNSAT
			10-60m	CCR	E	

JAN 2 0 2009

END DATE

PARAMETER		UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900
OAD 3 KEY CHART RECORDERS	CHART WORKING	N/A	✓	✓	✓	✓
	INKING	N/A	✓	✓	✓	✓
	PEN(S) ALIGNED	N/A	✓	✓	✓	✓
	TIME STAMPED	N/A	✓	✓	✓	✓
	DATED	N/A	✓	✓	✓	✓

WCPS SURVEILLANCE (✦ 24)

CURRENT TIME :	0000	ZONE I	752
PREVIOUS READING TIME :	0200	ZONE II	3842
DELTA HOURS:	22	ZONE III	2741
		ZONE IV	584
		TOTAL	7919

AVERAGE LEAK RATE = TOTAL / DIFFERENCE TIME x 60 = 6 CFM (MAXIMUM = 15.2 CFM)

RECORDER LEAK RATE = 6 CFM

CHARCOAL FILTER HOURS (✦ 25)

FILTERS	UNITS	NORMAL	MIN/MAX	TOTAL HOURS RUN TODAY		TOTAL HOURS AS OF 0000 THE PREVIOUS DAY		TOTAL HOURS
CCR (✦ 27)	Hours	0 - 600	- / 720	0.03	+	208.59	=	208.62
PACV(✦ 28)	Hours	0 - 600	- / 720	0	+	0	=	0
FSB (✦ 29)	Hours	- / -	- / -	24	+	>720	=	>720
TSC	Hours	0 - 600	- / 720	0	+	0	=	0

RADIATION MONITOR PURGE (✦ 30)

MONITOR	LOCATION	UNITS	MINIMUM PURGE TIME (MINS)	1900 - 0700
R54	WASTE DISTILLATE DISCHARGE	YES (✓) / NO	2	L

JAN 20 2003

END DATE

EQUIPMENT	STATUS / UNITS	NUMBER	SHIFT 1900 - 0700	SHIFT 0700 - 1900
MAIN BOILER FEED PUMP SPEED	RPM ,SEC, O/S	21	4745	4753
		22	4720	4720
CHARGING PUMP SPEED	% SPEED, SEC, O/S	21	Sec	Sec
		22	45	40
		23	Sec	Sec
PRIMARY WATER PUMPS	I/S(✓) , STBY, SEC, O/S	21	✓	✓
		22	STBY	STBY
FAN COOLER UNITS	I/S (✓) , STBY, SEC, O/S	21	STBY	STBY
		22	✓	✓
		23	STBY	STBY
		24	STBY	STBY
		25	✓	✓
HEATER DRAIN TANK PUMPS	AMPS, SEC, O/S	21	60	60
		22	67	67
CONDENSATE PUMPS	AMPS, STBY, SEC, O/S	21	175	175
		22	220	220
		23	208	208
CONTAINMENT SUMP PUMPS	STBY, AUTO, ON, OFF, HAND	29	AUTO	AUTO
		210	STBY	STBY
COMPONENT COOLING WATER PUMPS	I/S (✓) , STBY, SEC, O/S	21	STBY	STBY
		22	✓	✓
		23	STBY	STBY
ESSENTIAL S.W. HEADER	✓	-	1,2,3 [ ] 4,5,6 [✓]	1,2,3 [ ] 4,5,6 [✓]
SERVICE WATER PUMPS	I/S (✓) , STBY, SEC, O/S	21	✓	✓
		22	✓	✓
		23	Sec	Sec
		24	STBY	STBY
		25	✓	✓
		26	✓	✓
LOW PRESSURE RIVER WATER PUMPS	AMPS, STBY, SEC, O/S	11	520	515
		12	STBY	STBY
CIRCULATING WATER PUMPS	AMPS, SEC, O/S	21	54	54
		22	51	51
		23	52	51
		24	50	50
		25	51	51
		26	51	50
COMPONENT COOLING WATER HEAT EXCHANGER	I/S (✓) , SEC, O/S	21	✓	
		22	Sec	Sec
PURIFICATION LINE UP	SFP / RWST	SFP / RWST	SFP	SFP
LIFTING JETS	DEGAS PUMP / AUX STM	-	DEGAS PUMP	Degas Pump
HOUSE SERVICE BOILER	I/S(✓) , SEC, O/S	21	✓	✓
		22	O/S	O/S
STATION AIR COMPRESSORS	I/S (✓) , STBY, SEC, O/S	21	STBY	STBY
		11	✓	✓
		12	Sec	Sec
INSTRUMENT AIR COMPRESSORS	I/S (✓) , STBY, SEC, O/S	21	STBY	STBY
		22	STBY	STBY

JAN 20 2013

END DATE

ALARM PANEL TEST (✦ 31)			
ALARM PANEL	UNITS	TIME	
		1900 - 0700	0700-1900
TA EDISON MONITOR FOR UNIT 1 RIVER WATER PUMPS	Alarm Panel Tested (✓)	✓	✓
UNIT 1 SUPERVISORY PANEL		✓	✓
HP & LP TURBINE SOFT SIDE VIBRATION MONITOR (Bentley Nevada)		✓	✓
HP & LP TURBINE GENERATOR (Bentley Nevada)		✓	✓
21 & 22 MBFP VIBRATION MONITOR (Bentley Nevada)		✓	✓
HP & LP TURBINE HARD SIDE VIBRATION (Bentley Nevada) (Upper Panel)		✓	✓
HP & LP TURBINE HARD SIDE VIBRATION (Bentley Nevada) (Lower Panel)		✓	✓
G.E. GENERATOR PANEL		✓	✓
ACCIDENT ASSESSMENT PANEL 1 (AS-1)		✓	✓
FLIGHT PANEL - UNIT 1 (1 FAF)		✓	✓
DIESEL FIRE PUMP		✓	✓
AREA RADIATION MONITORS		✓	✓
CONTAINMENT BUILDING FIRE PANEL (✦ 32)		✓	✓
CENTRAL CONTROL ROOM FIRE ALARM PANEL PA-1 (✦ 26)		✓	✓
AUXILIARY BOILER FEED PUMP BUILDING FIRE PANEL (✦ 32)		✓	✓
PAB BUILDING FIRE PANEL (✦ 32)		✓	✓
M.O. BUILDING FIRE PANEL (✦ 32)		✓	✓
RCP VIBRATION MONITOR		✓	✓
TURBINE FIRST OUT (FAF)		✓	✓
PRESSURIZER, STEAM GENERATOR, AND G.E. MAIN GENERATOR PANEL (FBF)		✓	✓
REACTOR CONTROL PANEL (FCF)		✓	✓
REACTOR FIRST OUT PANEL (FDF)		✓	✓
PROCESS RADIATION MONITORS (SAF-1)		✓	✓
REACTOR COOLANT SYSTEM (SAF)		✓	✓
CCR SAFEGUARDS (SBF-1)		✓	✓
CCR SAFEGUARDS (SBF-2)		✓	✓
CONDENSATE AND BOILER FEED (SCF)		✓	✓
TURBINE RECORDER (SDF)		✓	✓
TURBINE AND G.E. GENERATOR START-UP (SEF)		✓	✓
CHEMICAL AND VOLUME CONTROL (SFF)		✓	✓
AUXILIARY COOLANT SYSTEM (SGF)		✓	✓
CCR ELECTRICAL (SHF)		✓	✓
COOLING WATER AND AIR (SJF)		✓	✓
BEARING MONITOR (SKF)		✓	✓
WELD CHANNEL (SLF)		✓	✓
CCR SAFETY INJECTION (SMF)		✓	✓
ELECTRIC HEAT TRACING AND DELUGE (SOF)		✓	✓
CCR SEQUENCE OF EVENTS REVIEWED (✦ 34)	(✓)	✓	✓

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Review (For Approval) A Completed Surveillance	JPM No.:	2003 NRC A2 SRO
K/A Reference:	2.2.12 (3.4)		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:	The Plant is at 100% power. All equipment in service. PT-Q26A, 21 Service Water Pump Train Operational Test, was performed on your shift.
Task Standard:	Deficiency identified and TS action
Required Materials:	PT-Q26A Rev 9
General References:	PT-Q26A Rev 9
Handouts:	Partially completed PT-Q26A Rev 9
Initiating Cue:	You have been directed by the Shift Manager to perform calculations per section 7.4 and acceptance criteria review and approval per section 10.0 of PT-Q26A
Time Critical Task:	No
Validation Time:	15 minutes

(Denote Critical Steps with an asterisk)

Performance Step: 1 Calculates total pump head

Standard: Determines head is approximately 275 feet by adding discharge pressure in feet with calculated value of suction pressure in feet

Comment:

* **Performance Step: 2** Determines acceptance criteria for total head is not met

Standard: Section 10.3; 300.5 – 355.4 is acceptable surveillance value. Greater than 307 for alert range criteria

Comment:

* **Performance Step: 3** Determines action required

Standard: Step 10.6 requires action for surveillance failure = 21 SWP

- Notify SM
- Initiate a CR

Comment: CUE: **Inform the candidate of the following; You are the CRS. Are there any additional concerns or requirements associated with the failed surveillance?**

* **Performance Step: 4** Determines additional action required

Standard: Candidate determines that Essential Service Water header requires 3 pumps operable IAW TS 3.3.F.1

Non-Essential Service Water header requires 2 pumps operable IAW TS 3.3.F.2

Comment:

Terminating Cue: When the candidate has completed the acceptance criteria determination and Technical Specification impact, the evaluation for this JPM is complete

VERIFICATION OF COMPLETION

Job Performance Measure No.: IP2 2003 NRC A2 SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: The Plant is at 100% power. All equipment in service.

PT-Q26A, 21 Service Water Pump Train Operational Test, was performed on your shift.

INITIATING CUE: You have been directed by the Shift Manager to perform calculations per section 7.4 and acceptance criteria review and approval per section 10.0 of PT-Q26A

Entergy

PT-Q26A
Revision 9

HANDOUT

NUCLEAR NORTHEAST
INDIAN POINT STATION 1 and 2

21 SERVICE WATER PUMP

Prepared by: Thomas N. Mac

Reviewer:

Reviewer: V. J. Sacco

Reviewer: Paul R. Jacobs

SNSC Review: Not Required
Meeting No. / Date

Technical Reviewer:

Reviewer:

Reviewer:

Reviewer:

Reviewer:

Approval: _____ BOP SYS ENG SUPV 5/21/02
Signature / Title / Effective Date

BIENNIAL REVIEW

Reviewer / Date

Reviewer / Date

Temporary Procedure Changes:

Change No. / Date

Entergy

NUCLEAR NORTHEAST
INDIAN POINT STATION 1 and 2

21 SERVICE WATER PUMP

TEST EQUIPMENT & MATERIALS

Required Equipment	Serial No. OR M&TE No.	Next Cal. Due Date
Discharge Pressure Test Gauge (0-300 psig)	PE-300-36	5/3/03
Strainer Inlet Test Gauge (0-300 psig)	PE-300-65	3/4/03
Strainer Outlet Test Gauge (0-300 psig)	PE-300-67	2/6/03
Vibrometer OR Microlog	PE-ENTEK-3	10/29/03
FI-5002	FI-5002 (ICPM-1579)	2/12/04 T.M.
Tethered Ruler	N/A	N/A

Suggested Equipment	Serial No. OR M&TE No.	Next Cal. Due Date
Stepladder	N/A	N/A

IF necessary, equipment may be added to the Suggested Equipment table WHEN in the field.

21 SERVICE WATER PUMP

1.0 PURPOSE

1.1 To demonstrate the operability of 21 Service Water Pump in accordance with Technical Specification 4.2 [Test Results Table I].

1.2 To demonstrate that pump performance is not in the Alert Range in accordance with Technical Specification 4.2 [Test Results Table II].

1.3 To demonstrate the operability of Check Valve SWN-1 by cycling the check valve closed [SC-C] and partially cycling the valve open [PS] in accordance with Technical Specification 4.2 [Test Results Table III].

2.0 GENERAL INFORMATION

2.1 This test may be performed regardless of plant operating status.

2.2 Test Instruments may be installed OR removed out of the sequence specified in the test AND in parallel with other preparation OR completion steps.

2.3 This test may be performed on less than the total number of components as per the Test Engineer.

2.4 Reference Drawings 9321-F-2722 and 9321-F-209762.

2.5 When setting flow with analog gauges it is possible that the needle will fluctuate slightly above and below the required flow. Center the flow to obtain an equal deflection above and below the required flow. The result is the required flow.

2.6 Service water header pressure or Zurn strainer differential pressure MAY alarm depending on system conditions.

2.7 IF a service pump control switch is placed in "Pullout", THEN the "Safeguards Equipment Locked Open" will alarm.

2.8 21 Service Water Pump testing is conducted to meet the requirements stated in the Purpose as part of the Inservice Testing (IST) Program for Pumps and Valves. The following are major factors in procedure development and use.

a. Pump testing is conducted in accordance with OM-6 (Operation and Maintenance of Nuclear Power Plants, Part 6, Inservice Testing of Pumps in Light-Water Reactor Power Plants). This test requires various instruments to be used in the test. OM-6 requires a certain accuracy for instruments (+/- 2% analog full scale for pressure, flow rate, speed and differential pressure; +/- 5 % for vibration). The instruments shall be calibrated in accordance with the Owner's quality assurance program. This test ensures this calibration frequency requirement is met by having the test planner or performer check and record the calibration due dates prior to the test.

b. The full-scale range of each analog instrument shall be not greater than three times the reference value. Digital instruments shall be selected such that the reference value shall not exceed 70% of the calibrated range of the instrument. The preceding two range requirements do not apply to vibration instruments.

c. For a pump in a system declared inoperable or not required to be operable, the test schedule need not be followed. Within three months prior to placing the system in an operable status, the pump shall be tested and the schedule resumed.

d. If the recorded values do not meet the Operability Criteria in Test Results Table I, the pump shall be declared inoperable until the cause of the deviation has been determined and the condition corrected. If the recorded values do not meet the Alert Range Criteria in Test Results Table II, the frequency of testing shall be doubled until the cause of the deviation is determined and the condition corrected. If the test demonstrates that the pump is inoperable or in alert, the instruments involved may be recalibrated and the test rerun.

e. This test is designed to be able to meet both Surveillance and Post Maintenance Testing (PMT) requirements. PMT's may be required for routine servicing as stated in OM-6. This term includes performance of planned preventive maintenance (e.g., replacing or adjusting valves in reciprocating pumps changing oil, flushing the cooling system, adjusting packing, adding packing rings or mechanical seal maintenance or replacement).

f. Service Water pump specifics:

   1. OM-6 Tables 3a and 3b provide range formulas for vibration and differential pressure for vertical line shaft pumps where pump speed is greater than 600 rpm.

   2. The adjustment of Service Water pump packing does not require the establishment of new reference values as stated in TP-SQ-11.017.

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   1. OM-6 Tables 3a and 3b provide range formulas for vibration and differential pressure for vertical line shaft pumps where pump speed is greater than 600 rpm.

   2. The adjustment of Service Water pump packing does not require the establishment of new reference values as stated in TP-SQ-11.017.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Use ONLY Test Equipment calibrated in accordance with approved calibration procedures.

3.2 Ensure pump starting limitations are adhered to during testing.

3.3 Ensure at least ONE other pump on the header is operating for Check Valve testing.

3.4 The Service Water Intake Bay is a FME area that requires enhanced controls as per SAO-150, "FOREIGN MATERIAL EXCLUSION AND CONTROL." The Cognizant Supervisor shall conduct a pre-job brief regarding FME controls. As per SAO-150, WHEN personnel are entering enhanced control areas for equipment performance monitoring AND IF enhanced controls are NOT required by other work in progress, THEN enhanced controls may be relaxed.

3.5 The Service Water Intake Bay is a confined space. Follow applicable guidance.

4.0 PREREQUISITES

None

5.0 PERMISSION TO COMMENCE

5.1 OBTAIN permission from the Shift Manager/Field Support Supervisor (SM/FSS) to commence the test. The SM/FSS shall sign below indicating that permission has been granted.

	PRINT NAME	SIGNATURE	DATE
SM/FSS	N REMY		TODAY
SM/FSS			

5.2 INFORM the Control Room Supervisor (CRS) that the test is going to be performed. Request CRS to sign below indicating notification.

	PRINT NAME	SIGNATURE	DATE
CRS	D EGGLETON		TODAY
CRS			

5.3 RECORD the date that the field work actually began.

DATE

6.0 INITIAL CONDITIONS

6.1 Required equipment has been obtained AND has been verified to be within calibration. Initials ___

6.2 Enhanced area FME controls pre-job brief has been conducted.

Cognizant Supervisor ___ Date ___

7.0 INSTRUCTIONS

7.1 21SWP Test Setup:

NOTE

Ensure at least ONE other pump on the header is operating for Check Valve testing.

REFER to Technical Specification 3.3.F for applicable action statement based on current plant conditions.

7.1.1 REQUEST CCR Operator to PLACE 21SWP in PULL-OUT. Initials ___

7.1.2 RECORD time.

Pump in PULL-OUT: Now Initials ___

7.1.3 ENSURE valve SWN-2, 21SWP Outlet Stop is OPEN. Initials ___

NOTE

21SWP pump shaft remaining stationary indicates Check Valve SWN-1 Cycle Closed (SC-C).

7.1.4 VERIFY 21SWP pump shaft remains stationary. Initials ___

7.1.5 INSTALL Discharge Pressure Test Gauge as follows:

a. CLOSE SWN-58, PI-1193 Root Stop. Initials ___

b. REMOVE PI-1193 installed at SWN-58, PI-1193 Root Stop. Initials ___

c. INSTALL 0-300 psig Discharge Pressure Test Gauge downstream of SWN-58, PI-1193 Root Stop. Initials ___

7.1.6 MEASURE from the center line of discharge pipe to water surface using a tethered ruler AND RECORD Tide Level for suction pressure to the nearest inch.

Level 7 Ft. 0 Inches Initials

7.1.7 RECORD "As Found" positions AND PERFORM the following valve line-up:

VALVE	DESCRIPTION	AS FOUND	TEST POSITION	INITIALS
SWN-851-X1	FI-5002 Low Side Stop	open	OPEN	
SWN-850-X1	FI-5002 High Side Stop	open	OPEN	
SWN-850-X3	FI-5002 Equalizing Stop	Open	OPEN	
SWN-851	FI-5002 Low Side Root Stop	closed	CLOSED	
SWN-850	FI-5002 High Side Root Stop	closed	CLOSED	
SWN-501	26SWP Pump Test Header Inlet	Lock closed	LOCKED CLOSED	
SWN-502	25SWP Test Header Stop	Lock closed	LOCKED CLOSED	
SWN-503	24SWP Test Hdr Inlet Stop	Lock closed	LOCKED CLOSED	
SWN-504	23SWP Test Hdr Stop	Lock closed	LOCKED CLOSED	
SWN-505	22SWP Test Hdr Stop	Lock closed	LOCKED CLOSED	
SWN-507	Overboard Drain Stop	Open	OPEN	
SWN-506	21SWP Test Hdr Inlet Stop	open	OPEN	
SWN-2	21SWP Outlet Stop	open	CLOSED	
SWN-600	21SWP Strainer Blowdown Stop	closed	CLOSED	

7.2 21SWP Test:

7.2.1 ENSURE oil level in 21SWP is satisfactory. Initials

7.2.2 IF oil level is UNSAT, THEN NOTIFY SM PRIOR to starting pump. Initials

7.2.3 REQUEST CCR Operator START 21SWP. Initials

7.2.4 RECORD Start Time:

Pump Started: Now Initials

7.2.5 PERFORM the following steps to provide indication to test gauge AND flow to FI-5002:

a. OPEN SWN-58, PI-1193 Root Stop. Initials _____

b. OPEN SWN-851, FI-5002 Low Side Root Stop. Initials _____

c. OPEN SWN-850, FI-5002 High Side Root Stop. Initials _____

CAUTION

USE caution WHEN throttling SWN-850-X3 so as NOT to "Peg" the flowmeter high.

NOTE

Set flow as near as possible to exactly 1500 GPM.

7.2.6 THROTTLE valves SWN-507, Overboard Drain Stop AND SWN-850-X3, FI-5002 Equalizing Stop simultaneously UNTIL 1500 +/- 30 GPM flow rate is obtained with SWN-850-X3 fully closed. Initials _____

7.2.7 IF 1500 +/- 30 GPM cannot be obtained WHEN SWN-507 is throttled, THEN leave SWN-507 throttled AND THROTTLE flow to 1500 +/- 30 GPM using SWN-506. Initials HA

7.2.8 VERIFY piping OR excessive packing leakage is NOT present. Initials _____

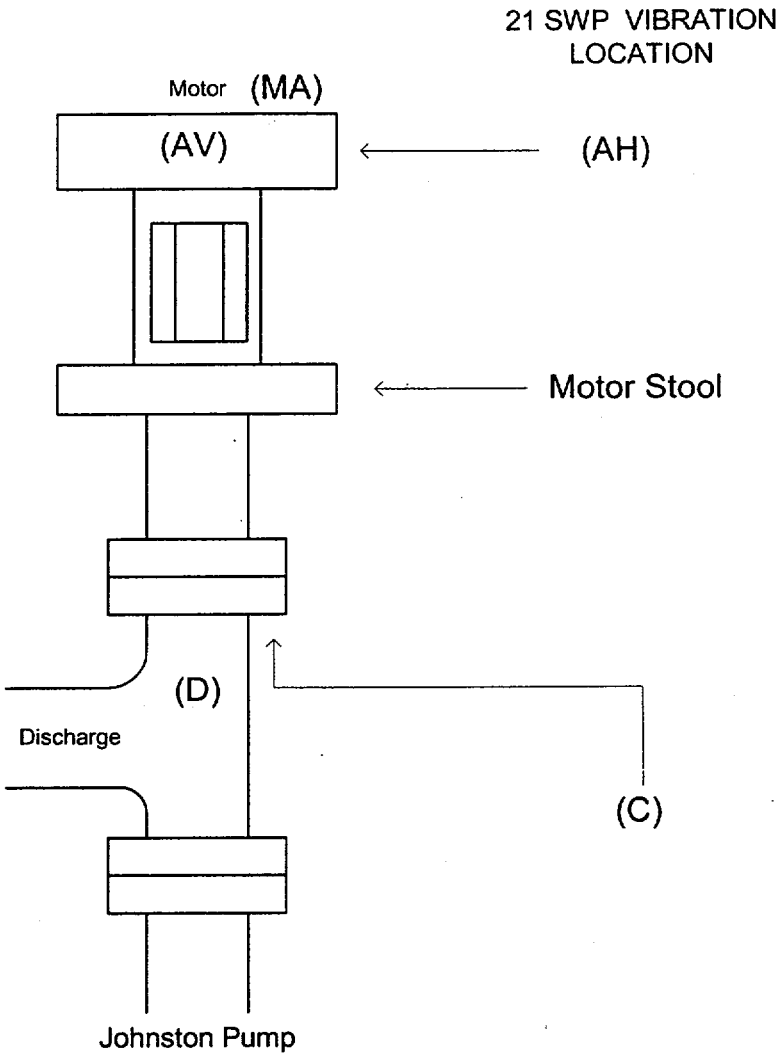
7.2.9 WHEN 21SWP has run for a MINIMUM of 5 minutes, THEN RECORD the following:

CODE	DESCRIPTION	INSTRUMENT	VALUE
21SWPO	21SWP Discharge Pressure	0-300 psig Test Gauge	116 psig
21SWFLO	21SWP Flow	FI-5002	1530 GPM

Initials _____

7.2.10 PERFORM the following to RECORD vibration data:

- ENSURE vibration measurements are broad band (unfiltered).
- SET vibrometer to measure velocity in inches per second (IPS).
- RECORD readings to the second decimal place (hundreths).
- IF vibration points are NOT physically marked on the pump AND motor, THEN INITIATE a Condition Report (CR).



NOTE

AH AND AV are on the upper motor bearing housing area. Figure 1 shows elevation. AH is parallel to discharge.

MA shall NOT be measured on the motor top hat. MA shall be measured from the top of the motor.

TREND CODE	VIB (IPS)
AV (Upper Motor Bearing)	(*) 0.19
AH (Upper Motor Bearing)	(*) 0.16
MA (Motor Axial)	(*) 0.11
C (Pump Suction Flange Parallel Flow)	0.22
D(Pump Suction Flange Cross Flow)	0.20

* SECTION XI ACCEPTANCE POINTS

Initials _____

7.3 21SWP Test Restoration:

7.3.1 INFORM CRS that the tested Service Water Pump is about to placed on the header. Initials _____

7.3.2 OPEN Valve SWN-2, 21SWP Outlet Stop. Initials _____ Verifier _____

7.3.3 PERFORM the following restoration lineup OR ALIGN valves as per the CRS:

Valve	Description	Position	Initials	Verifier
SWN-506	21SWP Test Hdr Inlet Stop	LOCKED CLOSED		
SWN-850-X3	FI-5002 Equalizing Stop	OPEN		
SWN-850-X1	FI-5002 High Side Stop	CLOSED		
SWN-851-X1	FI-5002 Low Side Stop	CLOSED		
SWN-850	FI-5002 High Side Root Stop	CLOSED		
SWN-851	FI-5002 Low Side Root Stop	CLOSED		
SWN-600	21SWP Strainer Blowdown Stop	OPEN		
SWN-507	Overboard Drain Stop	OPEN		

7.3.4 PERFORM the following steps to remove the test gauge:

a. CLOSE valve SWN-58, PI-1193 Root Stop. Initials ____

b. REMOVE test gauge at SWN-58, PI-1193 Root Stop. Initials ____

c. INSTALL PI-1193 at SWN-58, PI-1193 Root Stop. Initials ____ Verifier ____

d. OPEN SWN-58, PI-1193 Root Stop. Initials ____ Verifier ____

7.3.5 PERFORM the following steps to measure the Strainer DP:

a. CLOSE Valve SWN-623-X1, PI-5680 Root Stop. Initials ____

b. REMOVE PI-5680. Initials ____

c. INSTALL 0-300 psig test gauge. Initials ____

d. OPEN Valve SWN-623-X1, PI-5680 Root Stop to test gauge. Initials ____

e. CLOSE Valve SWN-624-X1, PI-5679 Root Stop. Initials ____

f. REMOVE PI-5679. Initials ____

g. INSTALL 0-300 psig test gauge. Initials ____

h. OPEN Valve SWN-624-X1, PI-5679 Root Stop to test gauge. Initials ____

i. RECORD Strainer Inlet pressure from the test gauge at valve SWN-623-X1.

Inlet Pressure: 106 psig Initials ____

j. RECORD Strainer Outlet pressure from the test gauge at valve SWN-624-X1.

Outlet Pressure: 106 psig Initials ____

NOTE

Strainer DP ≥ 0 psid indicates Check Valve SWN-1 Partial Cycle Open (PS).

k. CALCULATE the Strainer DP by subtracting the value in Step 7.3.5j from the value in Step 7.3.5i.

DP = 106 psig (Step 7.3.5i) - 106 psig (Step 7.3.5j) = 0 psid

Initials _____

l. CLOSE Valve SWN-624-X1, PI-5679 Root Stop. Initials _____

m. REMOVE test gauge. Initials _____

n. INSTALL PI-5679. Initials _____ Verifier _____

o. OPEN Valve SWN-624-X1, PI-5679 Root Stop. Initials _____ Verifier _____

p. CLOSE Valve SWN-623-X1, PI-5680 Root Stop. Initials _____

q. REMOVE test gauge Initials _____

r. INSTALL PI-5680. Initials _____ Verifier _____

s. OPEN Valve SWN-623-X1, PI-5680 Root Stop. Initials _____ Verifier _____

7.3.6 NOTIFY CCR operator that 21SWP may be operated as directed by the CRS. Initials _____

7.4 21SWP Test DP Calculation

NOTE

Calculation results should be recorded to the second decimal place (hundredths).

7.4.1 CALCULATE 21SWP suction pressure:

Tide Level (Step 7.1.6): (A) _____ Feet (B) _____inches

(B) _____inches x .083 = _____ (C)

(C) _____ + (A) = _____ PI_{ft}

Initials _____

7.4.2 CALCULATE 21SWP discharge pressure:

21SWPO _____ Psig X 2.31 = _____ PO^{ft}
(Step 7.2.9)

Initials _____

7.4.3 CALCULATE 21SWP DP:

PO_{ft} _____ + PI_{ft} _____ = _____ $21DP_{ft}$

Initials _____

7.4.4 TRANSFER information to the Test Results Section 10 as follows:

a. IF the test is stopped PRIOR TO recording ANY of the Operability Criteria in Section 10, THEN MARK Sections 10.3, 10.4, AND 10.5 Not Applicable AND RESTORE the system as per the SM OR CRS.

b. INDICATE in the Test Results whether this test was performed as surveillance OR PMT. IF test is performed for BOTH surveillance AND PMT requirements, THEN INDICATE PMT as the reason for test.

c. ENTER data in ALL Tables.

Initials _____

8.0 DATA (TABLES)

8.1 None.

9.0 COMMENTS:

10.0 TEST RESULTS

10.1 The Test Results "Surveillance Acceptance Criteria" are valid WHEN the signatures of the Test Engineer AND Verifier appear below.

Test Engineer / Date

Verifier / Date

10.2 Circle the appropriate reason for performing this test below.

PMT SURVEILLANCE

10.3 RECORD the As Found values AND CIRCLE the appropriate response in the table below.

TABLE I
21SWP OPERABILITY CRITERIA

Step	Parameter	Test Values	PMT Acceptance Criteria	Surveillance Acceptance Criteria	Result
7.2.10	Vibration Point AV (IPS)		≤ 0.7	≤ 0.6	SAT UNSAT
7.2.10	Vibration Point AH (IPS)		≤ 0.7	≤ 0.6	SAT UNSAT
7.2.10	Vibration Point MA (IPS)		≤ 0.7	≤ 0.7	SAT UNSAT
7.4.3	21SWP DP_{ft}		≥ 290	≥ 300.5 ≤ 355.4	SAT UNSAT

10.4 RECORD the As Found values AND CIRCLE the appropriate response in the Alert Range Table below.

TABLE II
21SWP ALERT RANGE CRITERIA

Step	Parameter	Test Values	PMT Acceptance Criteria	Surveillance Acceptance Criteria	Result
7.2.10	Vibration Point AV (IPS)		≤ 0.32	≤ 0.25	SAT UNSAT
7.2.10	Vibration Point AH (IPS)		≤ 0.32	≤ 0.25	SAT UNSAT
7.2.10	Vibration Point MA (IPS)		≤ 0.32	≤ 0.32	SAT UNSAT
7.4.3	21SWP DP_{ft}		Not Applicable to PMT	≥ 307	SAT UNSAT N/A (if pmt)

10.5 CIRCLE the appropriate response in the Valve Criteria Table below.

TABLE III VALVE CRITERIA			
Step	**Valve**	**Acceptance Criteria**	**Result**
7.1.4	SWN-1	Cycle Closed (SC-C) [Idle pump does not rotate]	SAT UNSAT
7.3.5k	SWN-1	Partial Cycle Open (PS) [Strainer DP ≥ 0 psid]	SAT UNSAT

10.6 IF ANY results above are UNSAT, immediately inform the SM of the UNSAT conditions.

Name of SM Informed _____ Date _____

10.7 Inform the CRS that field work is complete:

CRS Initials _____ Date _____

10.8 IF ANY other unsatisfactory results are obtained OR abnormal indications observed during this test, record ALL explanations AND corrective action initiated (including any Condition Report numbers) in the Comments Section.

10.9 All individuals involved in test performance should print their name and sign below.

_____ Print Name/Signature _____ Print Name/Signature

_____ Print Name/Signature _____ Print Name/Signature

10.10 Forward procedure to the Cognizant Supervisor for review.

11.0 SUPERVISOR REVIEW

11.1 Ensure the test is complete AND the Test Results Section is completed accurately.

11.2 IF ANY error is found in the recorded data that changes a SAT response to an UNSAT response in the Test Results Section, notify the SM IMMEDIATELY.

11.3 Initiate a Condition Report for ANY Test Results in Section 10.0 that are UNSAT or any unexplained test anomalies.

Condition Report number:_____ _____ _____

11.4 COMMENTS:

_____

_____

_____

_____

_____

_____

_____

_____

Supervisor _____ _____ _____
Print Name Signature Date

11.5 Forward procedure to the SM for review.

12.0 SM REVIEW

12.1 IF ANY Test Results Response was UNSAT, verify that a Condition Report has been written to correct the outstanding deficiency.

12.2 Ensure ALL applicable actions are taken in accordance with Technical Specifications OR other applicable documents.

12.3 Verify that all comments in steps 9.0 and 11.4 were reviewed and dispositioned.

12.4 COMMENTS:

_____

_____

_____

_____

_____

SM _____ _____ _____
Print Name Signature Date

12.5 Forward procedure to Test and Performance for review.

13.0 TEST ENGINEER REVIEW

13.1 TEST ACCEPTANCE

13.1.1 Ensure required data AND initials are entered in the test.

13.1.2 Ensure the Test Results AND subsequent sections are completed.

13.1.3 Ensure ALL deficiencies AND abnormal conditions noted have adequate corrective action identified AND ANY applicable Condition Report numbers are noted.

13.1.4 IF ANY discrepancy is found during the test review, correct the discrepancy or initiate a Condition Report.

Condition Report number:_____ _____ _____

13.2 COMMENTS:

_____

_____

_____

_____

_____

13.3 ADDITIONAL TEST ENGINEER REQUIREMENTS

13.3.1 UPDATE valve trending computer program.

Test Engineer _____ _____ _____
Print Name Signature Date

KEY

Entergy

PT-Q26A
Revision 9

NUCLEAR NORTHEAST
INDIAN POINT STATION 1 and 2

21 SERVICE WATER PUMP

Prepared by: Thomas N. Mac

Reviewer: [signature]

Reviewer: V. J. Sacco

Reviewer: Paul R. Jacobs

SNSC Review: Not Required
Meeting No. / Date

Technical Reviewer: _____

Reviewer: _____

Reviewer: _____

Reviewer: _____

Reviewer: _____

Approval: [signature] BOP SYS ENG SUPV
Signature / Title

5/2/02
/ Effective Date

BIENNIAL REVIEW

_____
Reviewer / Date

_____
Reviewer / Date

Temporary Procedure Changes:

Change No. _____ / Date _____

Entergy

NUCLEAR NORTHEAST
INDIAN POINT STATION 1 and 2

21 SERVICE WATER PUMP

TEST EQUIPMENT & MATERIALS

Required Equipment	Serial No. OR M&TE No.	Next Cal. Due Date
Discharge Pressure Test Gauge (0-300 psig)	PE-300-36	5/3/03
Strainer Inlet Test Gauge (0-300 psig)	PE-300-65	3/4/03
Strainer Outlet Test Gauge (0-300 psig)	PE-300-67	2/6/03
Vibrometer OR Microlog	PE-ENTEK-3	10/29/03
FI-5002	FI-5002 (ICPM-1579)	2/12/04 T.M.
Tethered Ruler	N/A	N/A

Suggested Equipment	Serial No. OR M&TE No.	Next Cal. Due Date
Stepladder	N/A	N/A

IF necessary, equipment may be added to the Suggested Equipment table WHEN in the field.

21 SERVICE WATER PUMP

1.0 PURPOSE

1.1 To demonstrate the operability of 21 Service Water Pump in accordance with Technical Specification 4.2 [Test Results Table I].

1.2 To demonstrate that pump performance is not in the Alert Range in accordance with Technical Specification 4.2 [Test Results Table II].

1.3 To demonstrate the operability of Check Valve SWN-1 by cycling the check valve closed [SC-C] and partially cycling the valve open [PS] in accordance with Technical Specification 4.2 [Test Results Table III].

2.0 GENERAL INFORMATION

2.1 This test may be performed regardless of plant operating status.

2.2 Test Instruments may be installed OR removed out of the sequence specified in the test AND in parallel with other preparation OR completion steps.

2.3 This test may be performed on less than the total number of components as per the Test Engineer.

2.4 Reference Drawings 9321-F-2722 and 9321-F-209762.

2.5 When setting flow with analog gauges it is possible that the needle will fluctuate slightly above and below the required flow. Center the flow to obtain an equal deflection above and below the required flow. The result is the required flow.

2.6 Service water header pressure or Zurn strainer differential pressure MAY alarm depending on system conditions.

2.7 IF a service pump control switch is placed in "Pullout", THEN the "Safeguards Equipment Locked Open" will alarm.

2.8 21 Service Water Pump testing is conducted to meet the requirements stated in the Purpose as part of the Inservice Testing (IST) Program for Pumps and Valves. The following are major factors in procedure development and use.

a. Pump testing is conducted in accordance with OM-6 (Operation and Maintenance of Nuclear Power Plants, Part 6, Inservice Testing of Pumps in Light-Water Reactor Power Plants). This test requires various instruments to be used in the test. OM-6 requires a certain accuracy for instruments (+/- 2% analog full scale for pressure, flow rate, speed and differential pressure; +/- 5 % for vibration). The instruments shall be calibrated in accordance with the Owner's quality assurance program. This test ensures this calibration frequency requirement is met by having the test planner or performer check and record the calibration due dates prior to the test.

b. The full-scale range of each analog instrument shall be not greater than three times the reference value. Digital instruments shall be selected such that the reference value shall not exceed 70% of the calibrated range of the instrument. The preceding two range requirements do not apply to vibration instruments.

c. For a pump in a system declared inoperable or not required to be operable, the test schedule need not be followed. Within three months prior to placing the system in an operable status, the pump shall be tested and the schedule resumed.

d. If the recorded values do not meet the Operability Criteria in Test Results Table I, the pump shall be declared inoperable until the cause of the deviation has been determined and the condition corrected. If the recorded values do not meet the Alert Range Criteria in Test Results Table II, the frequency of testing shall be doubled until the cause of the deviation is determined and the condition corrected. If the test demonstrates that the pump is inoperable or in alert, the instruments involved may be recalibrated and the test rerun.

e. This test is designed to be able to meet both Surveillance and Post Maintenance Testing (PMT) requirements. PMT's may be required for routine servicing as stated in OM-6. This term includes performance of planned preventive maintenance (e.g., replacing or adjusting valves in reciprocating pumps changing oil, flushing the cooling system, adjusting packing, adding packing rings or mechanical seal maintenance or replacement).

f. Service Water pump specifics:

1. OM-6 Tables 3a and 3b provide range formulas for vibration and differential pressure for vertical line shaft pumps where pump speed is greater than 600 rpm.

2. The adjustment of Service Water pump packing does not require the establishment of new reference values as stated in TP-SQ-11.017.

21 SERVICE WATER PUMP

1.0 PURPOSE

1.1 To demonstrate the operability of 21 Service Water Pump in accordance with Technical Specification 4.2 [Test Results Table I].

1.2 To demonstrate that pump performance is not in the Alert Range in accordance with Technical Specification 4.2 [Test Results Table II].

1.3 To demonstrate the operability of Check Valve SWN-1 by cycling the check valve closed [SC-C] and partially cycling the valve open [PS] in accordance with Technical Specification 4.2 [Test Results Table III].

2.0 GENERAL INFORMATION

2.1 This test may be performed regardless of plant operating status.

2.2 Test Instruments may be installed OR removed out of the sequence specified in the test AND in parallel with other preparation OR completion steps.

2.3 This test may be performed on less than the total number of components as per the Test Engineer.

2.4 Reference Drawings 9321-F-2722 and 9321-F-209762.

2.5 When setting flow with analog gauges it is possible that the needle will fluctuate slightly above and below the required flow. Center the flow to obtain an equal deflection above and below the required flow. The result is the required flow.

2.6 Service water header pressure or Zurn strainer differential pressure MAY alarm depending on system conditions.

2.7 IF a service pump control switch is placed in "Pullout", THEN the "Safeguards Equipment Locked Open" will alarm.

2.8 21 Service Water Pump testing is conducted to meet the requirements stated in the Purpose as part of the Inservice Testing (IST) Program for Pumps and Valves. The following are major factors in procedure development and use.

a. Pump testing is conducted in accordance with OM-6 (Operation and Maintenance of Nuclear Power Plants, Part 6, Inservice Testing of Pumps in Light-Water Reactor Power Plants). This test requires various instruments to be used in the test. OM-6 requires a certain accuracy for instruments (+/- 2% analog full scale for pressure, flow rate, speed and differential pressure; +/- 5 % for vibration). The instruments shall be calibrated in accordance with the Owner's quality assurance program. This test ensures this calibration frequency requirement is met by having the test planner or performer check and record the calibration due dates prior to the test.

b. The full-scale range of each analog instrument shall be not greater than three times the reference value. Digital instruments shall be selected such that the reference value shall not exceed 70% of the calibrated range of the instrument. The preceding two range requirements do not apply to vibration instruments.

c. For a pump in a system declared inoperable or not required to be operable, the test schedule need not be followed. Within three months prior to placing the system in an operable status, the pump shall be tested and the schedule resumed.

d. If the recorded values do not meet the Operability Criteria in Test Results Table I, the pump shall be declared inoperable until the cause of the deviation has been determined and the condition corrected. If the recorded values do not meet the Alert Range Criteria in Test Results Table II, the frequency of testing shall be doubled until the cause of the deviation is determined and the condition corrected. If the test demonstrates that the pump is inoperable or in alert, the instruments involved may be recalibrated and the test rerun.

e. This test is designed to be able to meet both Surveillance and Post Maintenance Testing (PMT) requirements. PMT's may be required for routine servicing as stated in OM-6. This term includes performance of planned preventive maintenance (e.g., replacing or adjusting valves in reciprocating pumps changing oil, flushing the cooling system, adjusting packing, adding packing rings or mechanical seal maintenance or replacement).

f. Service Water pump specifics:

1. OM-6 Tables 3a and 3b provide range formulas for vibration and differential pressure for vertical line shaft pumps where pump speed is greater than 600 rpm.

2. The adjustment of Service Water pump packing does not require the establishment of new reference values as stated in TP-SQ-11.017.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Use ONLY Test Equipment calibrated in accordance with approved calibration procedures.

3.2 Ensure pump starting limitations are adhered to during testing.

3.3 Ensure at least ONE other pump on the header is operating for Check Valve testing.

3.4 The Service Water Intake Bay is a FME area that requires enhanced controls as per SAO-150, "FOREIGN MATERIAL EXCLUSION AND CONTROL." The Cognizant Supervisor shall conduct a pre-job brief regarding FME controls. As per SAO-150, WHEN personnel are entering enhanced control areas for equipment performance monitoring AND IF enhanced controls are NOT required by other work in progress, THEN enhanced controls may be relaxed.

3.5 The Service Water Intake Bay is a confined space. Follow applicable guidance.

4.0 PREREQUISITES

None

5.0 PERMISSION TO COMMENCE

5.1 OBTAIN permission from the Shift Manager/Field Support Supervisor (SM/FSS) to commence the test. The SM/FSS shall sign below indicating that permission has been granted.

	PRINT NAME	SIGNATURE	DATE
SM/FSS	N REMY		TODAY
SM/FSS			

5.2 INFORM the Control Room Supervisor (CRS) that the test is going to be performed. Request CRS to sign below indicating notification.

	PRINT NAME	SIGNATURE	DATE
CRS	D EGGLETON		TODAY
CRS			

5.3 RECORD the date that the field work actually began.

DATE

6.0 INITIAL CONDITIONS

6.1 Required equipment has been obtained AND has been verified to be within calibration. Initials ____

6.2 Enhanced area FME controls pre-job brief has been conducted.

Cognizant Supervisor ____ Date ____

7.0 INSTRUCTIONS

7.1 21SWP Test Setup:

NOTE

Ensure at least ONE other pump on the header is operating for Check Valve testing.

REFER to Technical Specification 3.3.F for applicable action statement based on current plant conditions.

7.1.1 REQUEST CCR Operator to PLACE 21SWP in PULL-OUT. Initials ____

7.1.2 RECORD time.

Pump in PULL-OUT: Now Initials ____

7.1.3 ENSURE valve SWN-2, 21SWP Outlet Stop is OPEN. Initials ____

NOTE

21SWP pump shaft remaining stationary indicates Check Valve SWN-1 Cycle Closed (SC-C).

7.1.4 VERIFY 21SWP pump shaft remains stationary. Initials ____

7.1.5 INSTALL Discharge Pressure Test Gauge as follows:

a. CLOSE SWN-58, PI-1193 Root Stop. Initials ____

b. REMOVE PI-1193 installed at SWN-58, PI-1193 Root Stop. Initials ____

c. INSTALL 0-300 psig Discharge Pressure Test Gauge downstream of SWN-58, PI-1193 Root Stop. Initials ____

7.1.6 MEASURE from the center line of discharge pipe to water surface using a tethered ruler AND RECORD Tide Level for suction pressure to the nearest inch.

Level 7 Ft. 0 Inches Initials

7.1.7 RECORD "As Found" positions AND PERFORM the following valve line-up:

VALVE	DESCRIPTION	AS FOUND	TEST POSITION	INITIALS
SWN-851-X1	FI-5002 Low Side Stop	open	OPEN	
SWN-850-X1	FI-5002 High Side Stop	open	OPEN	
SWN-850-X3	FI-5002 Equalizing Stop	open	OPEN	
SWN-851	FI-5002 Low Side Root Stop	closed	CLOSED	
SWN-850	FI-5002 High Side Root Stop	closed	CLOSED	
SWN-501	26SWP Pump Test Header Inlet	Lock closed	LOCKED CLOSED	
SWN-502	25SWP Test Header Stop	Lock closed	LOCKED CLOSED	
SWN-503	24SWP Test Hdr Inlet Stop	Lock closed	LOCKED CLOSED	
SWN-504	23SWP Test Hdr Stop	Lock closed	LOCKED CLOSED	
SWN-505	22SWP Test Hdr Stop	Lock closed	LOCKED CLOSED	
SWN-507	Overboard Drain Stop	open	OPEN	
SWN-506	21SWP Test Hdr Inlet Stop	open	OPEN	
SWN-2	21SWP Outlet Stop	open	CLOSED	
SWN-600	21SWP Strainer Blowdown Stop	closed	CLOSED	

7.2 21SWP Test:

7.2.1 ENSURE oil level in 21SWP is satisfactory. Initials

7.2.2 IF oil level is UNSAT, THEN NOTIFY SM PRIOR to starting pump. Initials

7.2.3 REQUEST CCR Operator START 21SWP. Initials

7.2.4 RECORD Start Time:

Pump Started: Now Initials

7.2.5 PERFORM the following steps to provide indication to test gauge AND flow to FI-5002:

a. OPEN SWN-58, PI-1193 Root Stop. Initials [signature]

b. OPEN SWN-851, FI-5002 Low Side Root Stop. Initials [signature]

c. OPEN SWN-850, FI-5002 High Side Root Stop. Initials [signature]

CAUTION

USE caution WHEN throttling SWN-850-X3 so as NOT to "Peg" the flowmeter high.

NOTE

Set flow as near as possible to exactly 1500 GPM.

7.2.6 THROTTLE valves SWN-507, Overboard Drain Stop AND SWN-850-X3, FI-5002 Equalizing Stop simultaneously UNTIL 1500 +/- 30 GPM flow rate is obtained with SWN-850-X3 fully closed. Initials [signature]

7.2.7 IF 1500 +/- 30 GPM cannot be obtained WHEN SWN-507 is throttled, THEN leave SWN-507 throttled AND THROTTLE flow to 1500 +/- 30 GPM using SWN-506. Initials HA

7.2.8 VERIFY piping OR excessive packing leakage is NOT present. Initials [signature]

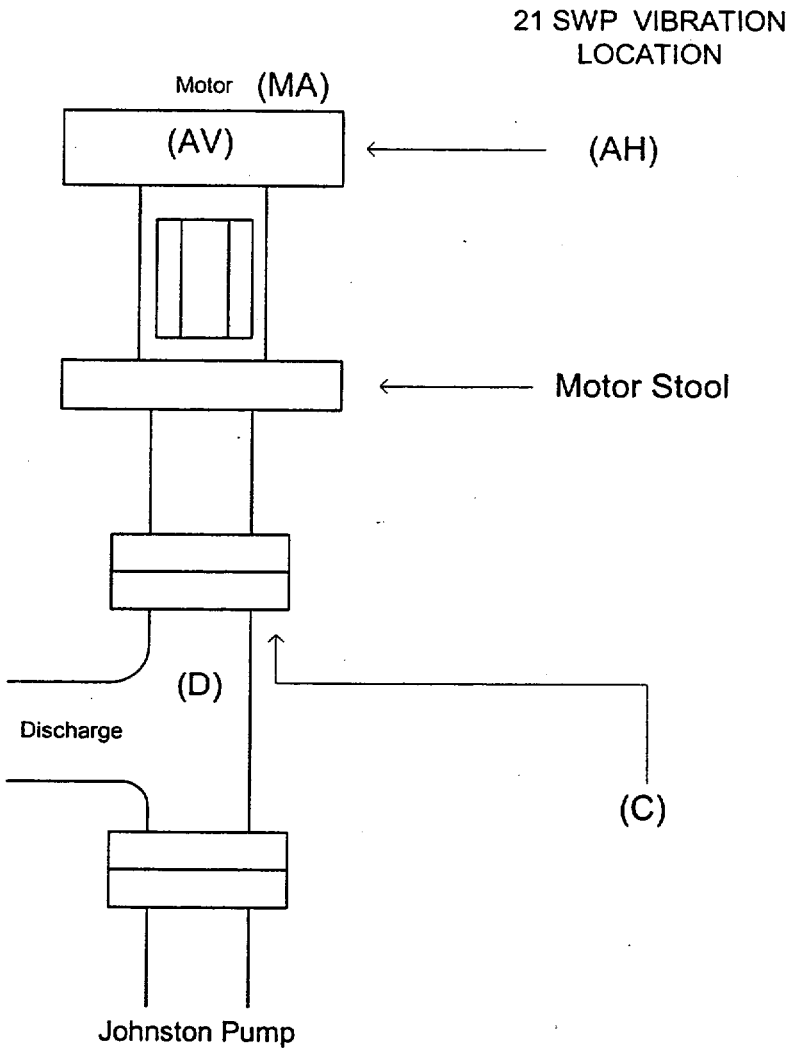
7.2.9 WHEN 21SWP has run for a MINIMUM of 5 minutes, THEN RECORD the following:

CODE	DESCRIPTION	INSTRUMENT	VALUE
21SWPO	21SWP Discharge Pressure	0-300 psig Test Gauge	116 psig
21SWFLO	21SWP Flow	FI-5002	1530 GPM

Initials [signature]

7.2.10 PERFORM the following to RECORD vibration data:

- ENSURE vibration measurements are broad band (unfiltered).
- SET vibrometer to measure velocity in inches per second (IPS).
- RECORD readings to the second decimal place (hundreths).
- IF vibration points are NOT physically marked on the pump AND motor, THEN INITIATE a Condition Report (CR).



NOTE

AH AND AV are on the upper motor bearing housing area. Figure 1 shows elevation. AH is parallel to discharge.

MA shall NOT be measured on the motor top hat. MA shall be measured from the top of the motor.

TREND CODE	VIB (IPS)
AV (Upper Motor Bearing)	(*) 0.19
AH (Upper Motor Bearing)	(*) 0.16
MA (Motor Axial)	(*) 0.11
C (Pump Suction Flange Parallel Flow)	0.22
D(Pump Suction Flange Cross Flow)	0.20

* SECTION XI ACCEPTANCE POINTS

Initials _____

7.3 21SWP Test Restoration:

7.3.1 INFORM CRS that the tested Service Water Pump is about to placed on the header. Initials _____

7.3.2 OPEN Valve SWN-2, 21SWP Outlet Stop. Initials _____ Verifier _____

7.3.3 PERFORM the following restoration lineup OR ALIGN valves as per the CRS:

Valve	Description	Position	Initials	Verifier
SWN-506	21SWP Test Hdr Inlet Stop	LOCKED CLOSED		
SWN-850-X3	FI-5002 Equalizing Stop	OPEN		
SWN-850-X1	FI-5002 High Side Stop	CLOSED		
SWN-851-X1	FI-5002 Low Side Stop	CLOSED		
SWN-850	FI-5002 High Side Root Stop	CLOSED		
SWN-851	FI-5002 Low Side Root Stop	CLOSED		
SWN-600	21SWP Strainer Blowdown Stop	OPEN		
SWN-507	Overboard Drain Stop	OPEN		

7.3.4 PERFORM the following steps to remove the test gauge:

a. CLOSE valve SWN-58, PI-1193 Root Stop. Initials _____

b. REMOVE test gauge at SWN-58, PI-1193 Root Stop. Initials _____

c. INSTALL PI-1193 at SWN-58, PI-1193 Root Stop. Initials _____ Verifier _____

d. OPEN SWN-58, PI-1193 Root Stop. Initials _____ Verifier _____

7.3.5 PERFORM the following steps to measure the Strainer DP:

a. CLOSE Valve SWN-623-X1, PI-5680 Root Stop. Initials _____

b. REMOVE PI-5680. Initials _____

c. INSTALL 0-300 psig test gauge. Initials _____

d. OPEN Valve SWN-623-X1, PI-5680 Root Stop to test gauge. Initials _____

e. CLOSE Valve SWN-624-X1, PI-5679 Root Stop. Initials _____

f. REMOVE PI-5679. Initials _____

g. INSTALL 0-300 psig test gauge. Initials _____

h. OPEN Valve SWN-624-X1, PI-5679 Root Stop to test gauge. Initials _____

i. RECORD Strainer Inlet pressure from the test gauge at valve SWN-623-X1.

Inlet Pressure: 106 psig Initials _____

j. RECORD Strainer Outlet pressure from the test gauge at valve SWN-624-X1.

Outlet Pressure: 106 psig Initials _____

NOTE

Strainer DP ≥ 0 psid indicates Check Valve SWN-1 Partial Cycle Open (PS).

k. CALCULATE the Strainer DP by subtracting the value in Step 7.3.5j from the value in Step 7.3.5i.

DP = 106 psig (Step 7.3.5i) - 106 psig (Step 7.3.5j) = 0 psid

Initials ____

l. CLOSE Valve SWN-624-X1, PI-5679 Root Stop. Initials ____

m. REMOVE test gauge. Initials ____

n. INSTALL PI-5679. Initials ____ Verifier ____

o. OPEN Valve SWN-624-X1, PI-5679 Root Stop. Initials ____ Verifier ____

p. CLOSE Valve SWN-623-X1, PI-5680 Root Stop. Initials ____

q. REMOVE test gauge Initials ____

r. INSTALL PI-5680. Initials ____ Verifier ____

s. OPEN Valve SWN-623-X1, PI-5680 Root Stop. Initials ____ Verifier ____

7.3.6 NOTIFY CCR operator that 21SWP may be operated as directed by the CRS. Initials ____

7.4 21SWP Test DP Calculation

NOTE

Calculation results should be recorded to the second decimal place (hundredths).

7.4.1 CALCULATE 21SWP suction pressure:

Tide Level (Step 7.1.6): (A) 7 Feet (B) 0 inches

(B) 0 inches x .083 = 0 (C)

(C) 0 + (A) = 7 PI_{ft}

Initials l

7.4.2 CALCULATE 21SWP discharge pressure:

21SWPO 115.7 Psig X 2.31 = 267.3 PO^{ft}
(Step 7.2.9)

Initials l

7.4.3 CALCULATE 21SWP DP:

PO_{ft} 267.3 + PI_{ft} 7 = 274.3 $21DP_{ft}$

Initials l

7.4.4 TRANSFER information to the Test Results Section 10 as follows:

a. IF the test is stopped PRIOR TO recording ANY of the Operability Criteria in Section 10, THEN MARK Sections 10.3, 10.4, AND 10.5 Not Applicable AND RESTORE the system as per the SM OR CRS.

b. INDICATE in the Test Results whether this test was performed as surveillance OR PMT. IF test is performed for BOTH surveillance AND PMT requirements, THEN INDICATE PMT as the reason for test.

c. ENTER data in ALL Tables.

Initials l

8.0 DATA (TABLES)

8.1 None.

9.0 COMMENTS:

10.0 TEST RESULTS

10.1 The Test Results "Surveillance Acceptance Criteria" are valid WHEN the signatures of the Test Engineer AND Verifier appear below.

_____
Test Engineer / Date

_____
Verifier / Date

10.2 Circle the appropriate reason for performing this test below.

PMT SURVEILLANCE

10.3 RECORD the As Found values AND CIRCLE the appropriate response in the table below.

TABLE I
21SWP OPERABILITY CRITERIA

Step	Parameter	Test Values	PMT Acceptance Criteria	Surveillance Acceptance Criteria	Result
7.2.10	Vibration Point AV (IPS)		≤ 0.7	≤ 0.6	SAT UNSAT
7.2.10	Vibration Point AH (IPS)		≤ 0.7	≤ 0.6	SAT UNSAT
7.2.10	Vibration Point MA (IPS)		≤ 0.7	≤ 0.7	SAT UNSAT
7.4.3	21SWP DP_{ft}		≥ 290	≥ 300.5 ≤ 355.4	SAT UNSAT

10.4 RECORD the As Found values AND CIRCLE the appropriate response in the Alert Range Table below.

TABLE II
21SWP ALERT RANGE CRITERIA

Step	Parameter	Test Values	PMT Acceptance Criteria	Surveillance Acceptance Criteria	Result
7.2.10	Vibration Point AV (IPS)		≤ 0.32	≤ 0.25	SAT UNSAT
7.2.10	Vibration Point AH (IPS)		≤ 0.32	≤ 0.25	SAT UNSAT
7.2.10	Vibration Point MA (IPS)		≤ 0.32	≤ 0.32	SAT UNSAT
7.4.3	21SWP DP_{ft}		Not Applicable to PMT	≥ 307	SAT UNSAT N/A (if pmt)

10.5 CIRCLE the appropriate response in the Valve Criteria Table below.

TABLE III VALVE CRITERIA			
Step	**Valve**	**Acceptance Criteria**	**Result**
7.1.4	SWN-1	Cycle Closed (SC-C) [Idle pump does not rotate]	SAT UNSAT
7.3.5k	SWN-1	Partial Cycle Open (PS) [Strainer DP ≥ 0 psid]	SAT UNSAT

10.6 IF ANY results above are UNSAT, immediately inform the SM of the UNSAT conditions.

_____ _____
Name of SM Informed Date

10.7 Inform the CRS that field work is complete:

_____ _____
CRS Initials Date

10.8 IF ANY other unsatisfactory results are obtained OR abnormal indications observed during this test, record ALL explanations AND corrective action initiated (including any Condition Report numbers) in the Comments Section.

10.9 All individuals involved in test performance should print their name and sign below.

_____ _____
Print Name/Signature Print Name/Signature

_____ _____
Print Name/Signature Print Name/Signature

10.10 Forward procedure to the Cognizant Supervisor for review.

11.0 SUPERVISOR REVIEW

11.1 Ensure the test is complete AND the Test Results Section is completed accurately.

11.2 IF ANY error is found in the recorded data that changes a SAT response to an UNSAT response in the Test Results Section, notify the SM IMMEDIATELY.

11.3 Initiate a Condition Report for ANY Test Results in Section 10.0 that are UNSAT or any unexplained test anomalies.

Condition Report number:_____ _____ _____

11.4 COMMENTS:

_____

_____

_____

_____

_____

_____

_____

_____

Supervisor _____ _____ _____
Print Name Signature Date

11.5 Forward procedure to the SM for review.

12.0 SM REVIEW

12.1 IF ANY Test Results Response was UNSAT, verify that a Condition Report has been written to correct the outstanding deficiency.

12.2 Ensure ALL applicable actions are taken in accordance with Technical Specifications OR other applicable documents.

12.3 Verify that all comments in steps 9.0 and 11.4 were reviewed and dispositioned.

12.4 COMMENTS:

_____

_____

_____

_____

_____

SM _____ _____ _____
Print Name Signature Date

12.5 Forward procedure to Test and Performance for review.

13.0 TEST ENGINEER REVIEW

13.1 TEST ACCEPTANCE

13.1.1 Ensure required data AND initials are entered in the test.

13.1.2 Ensure the Test Results AND subsequent sections are completed.

13.1.3 Ensure ALL deficiencies AND abnormal conditions noted have adequate corrective action identified AND ANY applicable Condition Report numbers are noted.

13.1.4 IF ANY discrepancy is found during the test review, correct the discrepancy or initiate a Condition Report.

Condition Report number:_____ _____ _____

13.2 COMMENTS:

_____

_____

_____

_____

_____

13.3 ADDITIONAL TEST ENGINEER REQUIREMENTS

13.3.1 UPDATE valve trending computer program.

Test Engineer _____ _____ _____
Print Name Signature Date

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	SRO Questions Task A3	JPM No.:	2003 NRC A3 SRO
K/A Reference:	2.3.2 (2.9) 2.3.4 (3.1)		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: _____

Classroom __X__ Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:	N/A
Task Standard:	Two Questions answered at least 80% Correctly
Required Materials:	E-Plan
General References:	E-Plan OASL 15.26
Handouts:	NONE
Initiating Cue:	N/A
Time Critical Task:	NO
Validation Time:	10 Minutes

ANSWER KEY

NRC SRO ADMIN A.3 QUESTION 1 (Reference allowed)

You are the Shift Manager.

An Alert has been declared at Indian Point due to a Steam Generator Tube Rupture.

Elevated radiation levels exist throughout the secondary plant.

An EOP attachment will be performed by an NPO to minimize secondary system contamination.

What are the restrictions on his allowable dose to perform this task?

ANSWER:

≤ 5 Rem TEDE if possible, (50%) with an extension to 10 Rem possible to protect property (50%)

REFERENCE:

E-Plan Part 2 section K

ANSWER KEY

NRC SRO ADMIN A.3 QUESTION 2 (CLOSED Reference)

You are the Shift Manager.

A normally locked manual isolation valve in the Excess Letdown Heat Exchanger discharge line in a High Radiation Area was repositioned by an operator that received 65 millirem. The valve requires independent verification of position.

What are the requirements for independently verifying the position of this valve? Explain your answer.

ANSWER:

The Shift Manager may waive requirements for Independent Verification of this valve. (40%)

Alternate verification techniques may be used. (40%)

- Remote position indicators (5%)
- Use of process parameters (flow, pressure) (5%)
- Valve stem observation (5%)
- Functional mechanical position indicators (5%)

REFERENCE:

OASL 15.26 Attachment 1

NRC SRO ADMIN QUESTION 1

(Open Reference)

You are the Shift Manager.

An Alert has been declared at Indian Point due to a Steam Generator Tube Rupture.

Elevated radiation levels exist throughout the secondary plant.

An EOP attachment will be performed by an NPO to minimize secondary system contamination.

What are the restrictions on his allowable dose to perform this task?

NRC SRO ADMIN QUESTION 2

(Closed Reference)

You are the Shift Manager.

A normally locked manual isolation valve in the Excess Letdown Heat Exchanger discharge line in a High Radiation Area was repositioned by an operator that received 65 millirem. The valve requires independent verification of position.

What are the requirements for independently verifying the position of this valve? Explain your answer.

Job Performance Measure No.: IP2 SRO ADMIN A3 QUESTIONS

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Perform Event Classification	JPM No.:	2003 NRC A4 SRO
K/A Reference:	2.4.41 (4.1)		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: A LOCA has occurred.

- Automatic reactor trip did NOT occur. The reactor was tripped from the Flight Panel
- Safety Injection and RHR pumps are operating as required
- RCS pressure has decreased to approximately 100 psig and has stabilized.
- Containment pressure has increased to 2.8 psig and has stabilized
- Upon completion of E-0, Reactor Trip or Safety Injection, the team entered the following procedures in sequence:
  - FR-C.2, due to an Orange Path on Core Cooling.
  - FR-P.1, due to an Orange Path on Integrity
  - E-1, due to the LOCA in progress.

Task Standard: Classification is correctly made for the event given

Required Materials: Event Classification Guide

General References: Event Classification Guide

Handouts: Event Classification Guide

Initiating Cue: Perform Emergency Classification of the event in progress

Time Critical Task: **YES**

Validation Time: 15 Minutes

(Denote Critical Steps with an asterisk)

Time started: _____

* **Performance Step: 1** Classify the Event in accordance with the event classification guide

Standard: Classification is a GENERAL EMERGENCY, Criteria 4.1.5, or criteria 9.1.8

Comment: **Evaluator Note:**

4.1.5 General Emergency due to a Loss of RCS pressure without a corresponding rise in Containment pressure, coincident with a potential loss of fuel cladding (Orange Core Cooling)

9.1.8 General Emergency due to Loss of RCS and Containment Barriers, and Potential Loss of Fuel Cladding

Time Completed: _____

Terminating Cue: When event classification has been made, the evaluation for this JPM is complete

VERIFICATION OF COMPLETION

Job Performance Measure No.: IP-2 2003 NRC A4 SRO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: A LOCA has occurred.

- Automatic reactor trip did NOT occur. The reactor was tripped from the Flight Panel
- Safety Injection and RHR pumps are operating as required
- RCS pressure has decreased to approximately 100 psig and has stabilized.
- Containment pressure has increased to 2.8 psig and has stabilized
- Upon completion of E-0, Reactor Trip or Safety Injection, the team entered the following procedures in sequence:
  - FR-C.2, due to an Orange Path on Core Cooling.
  - FR-P.1, due to an Orange Path on Integrity
  - E-1, due to the LOCA in progress.

INITIATING CUE: Perform Emergency Classification of the event in progress

Facility: Indian Point 2		**Date of Examination:** 3/10/2003	
Examination Level: RO		**Operating Test Number:** 1	
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions	
A.1a	Conduct of Operations	2.1.7	Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. (3.7/4.4)
		JPM:	Perform QPTR Calculation
A.1b	Conduct of Operations	2.1.18	Ability to make accurate, clear, and concise logs, records, status boards, and reports. (2.9/3.0)
		JPM:	Perform a set of Control Room logs
A.2	Equipment Control	2.2.12	Knowledge of surveillance procedures. (3.0/3.4)
		JPM:	Perform the RCS Leak Rate surveillance
A.3	Radiation Exposure Control	2.3.2	Knowledge of facility ALARA program. (2.5/2.9)
		JPM:	Determine appropriate RWP and take action for High Area Radiation alarm
A.4	Emergency Plan	2.4.43	Knowledge of RO responsibilities in E-Plan implementation. (3.3/3.1)
		Question:	Duties of operations department personnel when site accountability is required
		2.4.29	Knowledge of the Emergency Plan. (2.6/4.0)
		Question:	Emergency Response Facilities activated in a Site Area Emergency

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Perform A QPTR Calculation	JPM No.:	2003 NRC A1a RO
K/A Reference:	039 A2.01 (3.2)		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:	The plant is at 100% power. NIS power range channel N-41 is out of service.
Task Standard:	Determines QPTR outside of TS limits and inform CRS/SM
Required Materials:	SOP-15.3 Rev 16 DSR 4B Calculator
General References:	SOP-15.3 Rev 16 DSR-4B
Handouts:	Partially completed DSR-4B
Initiating Cue:	The Shift Manager has directed you to calculate QPTR manually using the given detector currents in accordance with the appropriate procedure
Time Critical Task:	NO
Validation Time:	20 Minutes

(Denote Critical Steps with an asterisk)

Note: The purpose of this JPM is to have the candidate calculate QPTR and to correctly initiate action. The candidate will be provided a DSR-4B with upper and lower NIS detector currents already filled out.

	Performance Step: 1	Obtain SOP-15.3
	Standard:	Obtains procedure
	Comment:	**Cue: Hand candidate a copy of partially filled out DSR-4B**
	Performance Step: 2	Record top and bottom detector currents
	Standard:	Refers to DSR-4B for currents
	Comment:	
	Performance Step: 3	Record date, time, and average reactor power
	Standard:	Records on DSR-4B
	Comment:	
*	**Performance Step: 4**	Divide each detector current output by corresponding normalization factor
	Standard:	Locates normalization factors and divides. Will only use 3 detectors, so denominator will be 3
	Comment:	
*	**Performance Step: 5**	Calculate average normalized ratio for top and bottom detectors
	Standard:	Performs calculation
	Comment:	

*	**Performance Step: 6**	Calculate Quadrant Power Tilt for top and bottom detectors
	Standard:	Performs calculation
	Comment:	
	Performance Step: 7	Record Highest Quadrant Power Tilt and appropriate signatures
	Standard:	Records and signs DSR-4B
	Comment:	
	Performance Step: 8	Document results
	Standard:	Enters data on DSR-1
	Comment:	**Cue: DSR-1 entry will be made later**
*	**Performance Step: 9**	Determine QPTR is greater than 1.02. Inform CRS/SM
	Standard:	Refer to procedure and determine that QPTR >1.02. Inform supervision
	Comment:	
	Terminating Cue:	When the candidate has determined QPTR and notified CRS/SM, the evaluation for this JPM is complete

Job Performance Measure No.: IP2 2003 NRC A1a RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: The plant is at 100% power.

NIS power range channel N-41 is out of service

INITIATING CUE: The Shift manager has directed you to calculate QPTR manually using the given detector currents in accordance with the appropriate procedure

HANDOUT

UNIT TWO QUADRANT POWER TILT CALCULATION SHEET

DSR-4B Rev. 73 (QT-16-6)

Previous SNSC #2545 11/5/98

SNSC REVIEW DATE 11/13/03

APPROVED (RE) DATE 11-13-03

APPROVED DATE

DATE: TODAY

TIME: NOW

AVE REACTOR PWR: 100.0

USING DETECTOR OUTPUT CURRENT

* Current QT number and Normalization Factors provided by Reactor Engineer.

1. Determine normalized ratios by dividing indicated detector current by normalization factor as follows:

Channel	Det Current	Nor Ratio	Channel	Det Current	Nor Ratio
41 Top = 41T =	NA	/* 114.6 = NA	41 Bottom = 41B =	NA	/* 112.6 = NA
42 Top = 42T =	87.0	/* 88.3 =	42 Bottom = 42B =	111.1	/* 111.8 =
43 Top = 43T =	104.1	/* 108.9 =	43 Bottom = 43B =	118.1	/* 118.9 =
44 Top = 44T =	166.9	/* 105.9 =	44 Bottom = 44B =	117.0	/* 118.3 =

2. Determine the average normalized ratio for the top and bottom.

Average Normalized Ratio Top = ANRT = $\frac{41T + 42T + 43T + 44T}{4}$ = _____

Average Normalized Ratio Bottom = ANRB = $\frac{41B + 42B + 43B + 44B}{4}$ = _____

3. Determine The quadrant power tilt ratio for the top and bottom by dividing the highest normalized power ratio for the top and bottom respectively by their respective average normalized ratio.

Quadrant Power Tilt Top = QPTT = $\frac{\text{Highest value of 41T, 42T, 43T, or 44T}}{\text{ANRT}}$

QPTT = $\frac{\textbf{Value} = \_\_\_\_}{\textbf{ANRT} =}$ = _____

Quadrant Power Tilt Bottom = QPTB = $\frac{\text{Highest value of 41B, 42B, 43B, or 44B}}{\text{ANRB}}$

QPTB = $\frac{\textbf{Value} = \_\_\_\_}{\textbf{ANRB} =}$ = _____

4. The higher of the two quadrant power tilts should be less than or equal to the Technical Specification Limit of 1.0200.

Enter the Higher QPT(Top or Bottom) = _____

Technical Specification Limit = 1.0200

NOTES:

1. If the quadrant power tilt exceeds the Tech. Spec. limits, the SM, OM, RE and GM-NPG shall be informed ASAP.
2. If one detector is out of service, the three in service detectors will be used to compute the average normalized ratios (ensure denominators in step 2 are changed from 4 to 3).

RO:_____ SM:_____

ANSWER KEY

UNIT TWO QUADRANT POWER TILT CALCULATION SHEET
DSR-4B Rev. 73
(QT-16-6)

Previous SNSC #2545 11/5/98
SNSC REVIEW DATE 11/13/03
APPROVED (RE) DATE 11-13-03
APPROVED DATE

DATE: TODAY
TIME: NOW
AVE REACTOR PWR: 100.0

USING DETECTOR OUTPUT CURRENT

* Current QT number and Normalization Factors provided by Reactor Engineer.

1. Determine normalized ratios by dividing indicated detector current by normalization factor as follows:

Channel	Det Current		Nor Ratio	Channel	Det Current		Nor Ratio
41 Top = 41T =	NA	/ 114.6 =	NA	41 Bottom = 41B =	NA	/ 112.6 =	NA
42 Top = 42T =	87.0	/ 88.3 =	0.9853	42 Bottom = 42B =	111.1	/ 111.8 =	0.9937
43 Top = 43T =	104.1	/ 108.9 =	0.9559	43 Bottom = 43B =	118.1	/ 118.9 =	0.9933
44 Top = 44T =	106.9	/ 105.9 =	1.0094	44 Bottom = 44B =	117.0	/ 118.3 =	0.9890

2. Determine the average normalized ratio for the top and bottom.

Average Normalized Ratio Top = ANRT = $\frac{41T + 42T + 43T + 44T}{/ 3}$ = 0.9835

Average Normalized Ratio Bottom = ANRB = $\frac{41B + 42B + 43B + 44B}{/ 3}$ = 0.9920

3. Determine The quadrant power tilt ratio for the top and bottom by dividing the highest normalized power ratio for the top and bottom respectively by their respective average normalized ratio.

Quadrant Power Tilt Top = QPTT = $\frac{\text{Highest value of 41T, 42T, 43T, or 44T}}{\text{ANRT}}$

QPTT = $\frac{\text{Value}}{\text{ANRT}} = \frac{1.0094}{0.9835}$ = 1.0263

Quadrant Power Tilt Bottom = QPTB = $\frac{\text{Highest value of 41B, 42B, 43B, or 44B}}{\text{ANRB}}$

QPTB = $\frac{\text{Value}}{\text{ANRB}} = \frac{0.9937}{0.9920}$ = 1.0017

4. The higher of the two quadrant power tilts should be less than or equal to the Technical Specification Limit of 1.0200.

Enter the Higher QPT(Top or Bottom) = 1.0263
Technical Specification Limit = 1.0200

NOTES:

1. If the quadrant power tilt exceeds the Tech. Spec. limits, the SM, OM, RE and GM-NPG shall be informed ASAP.

2. If one detector is out of service, the three in service detectors will be used to compute the average normalized ratios (ensure denominators in step 2 are changed from 4 to 3).

RO:_____ SM:_____

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Perform Control Room Log Entries	JPM No.:	2003 NRC A1b RO
K/A Reference:	2.1.18 (3.0)		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:	You are on shift prior to 0700. DSR-1 log entries are partially completed.
Task Standard:	All corrective actions taken or in progress in accordance with DSR-1
Required Materials:	DSR-1 Rev 91
General References:	DSR-1 Rev 91
Handouts:	Partially completed DSR-1 Rev 91
Initiating Cue:	Perform the remainder of the log entries taken on the 1900-0700 shift for DSR-1
Time Critical Task:	NO
Validation Time:	15 minutes

(Denote Critical Steps with an asterisk)

NOTE: Candidate may identify deficiencies in any order.

* **Performance Step: 1** Determines CST level is out of spec low

Standard: Circle reading and enter comment

Document by circling reading and informing SM

Comment:

* **Performance Step: 2** Determines Containment Average Air temperature is out of spec high

Standard: Circles reading and enters comment. Inform CRS/SM

Comment:

* **Performance Step: 3** Determines 21 SI Accumulator pressure is out of spec low

Standard: Circles reading and enters comment. Informs CRS/SM

Comment: **NOTE: Containment Air Temperature and CST level are out of spec but not inoperable per TS. 21 Accumulator is inoperable per TS**

Terminating Cue: When logs are complete, the evaluation for this JPM is complete.

VERIFICATION OF COMPLETION

Job Performance Measure No.: IP2 2003 NRC A1b RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: You are on shift prior to 0700. DSR-1 log entries are partially completed

INITIATING CUE: Perform the remainder of the log entries taken on the 1900-0700 shift for DSR-1

SNSC Review: Prior SNSC Mtg. 2531 DATE: 9/17/98

Approved: [signature] DATE: 11/16/02

Effective Date: 11/17/02

END DATE

1900 - 0700 REMARKS (USE attached sheet for additional space.)		0700 - 1900 REMARKS (USE attached sheet for additional space.)	
See Attached			
RO SIGNATURE: [signature]	OAD 3 Middle of watch Key Chart Recorder walkdown completed by at least two of the; SM, CRS, OR WE AND RO review checked on page 15.	RO SIGNATURE:	OAD 3 Middle of watch Key Chart Recorder walkdown completed by at least two of the; SM, CRS, OR WE AND RO review checked on page 15.
2ND RO SIGNATURE: (✦1)	SM: [signature] WE:	2ND RO SIGNATURE: (✦1)	SM: WE:
CRS SIGNATURE: [signature]	CRS: [signature]	CRS SIGNATURE:	CRS:

DSR 1 Rev 91.wpd

END DATE

ALARMS (at the end of 1900 - 0700 watch)

NOTE (denoted by ✦)

1. IF log readings are taken by an Operator other than the person assigned the watch, the 2nd Operator SHALL sign the additional signature block.
2. Readings SHALL be taken at specified intervals unless precluded by other duties, as per OAD 3 Plant Surveillance and Log Keeping. COMMENT on the reason for any missed reading. WHEN a reading is NOT applicable, MARK N/A in box. USE O/S AND COMMENT on the reason OR SEC WHEN applicable. Any readings outside of Normal range for a Non-Tech Spec item SHOULD be questioned, logged first, THEN corrected IF feasible.
3. Any readings which exceed a Min/Max value SHALL be logged first, red circled, corrected AND explained in the Remarks Section.
4. **Items that have the parameter section shaded with white typeset have Technical Specification OR SAO-700 Series (Fire Protection) controlled parameters within the shaded area. Any Tech Spec OR SAO-700 Series parameter out of Normal OR out of Min/Max SHALL be logged first, red circled AND SM notified IMMEDIATELY. The parameter SHALL be corrected AND explained in the Remarks section.**
5. This log is to be used whenever TAVE is greater than 200°F.
6. Recorder charts SHALL be updated each shift.
7. LIST all alarm windows that are indicating at the end of 1900-0700 watch in space provided above OR on an attached sheet. EXPLAIN the reason for the alarm occurring; CONTINUE explanations on back of sheet IF more space is needed.
8. IF either 12 hr. OR 24 hr. comparison indicates a count rate increase that can NOT be explained by planned changes in RCS conditions (eg. dilution, heatup etc.), THEN OBTAIN an RCS Boron sample ASAP. IF the calculated ratio is less than 0.8 OR greater than 1.2, THEN RESET the HIGH FLUX SHUTDOWN alarm per SOP 13.2, Setting of High Flux at Shutdown Alarm. IF the Reactor is shutdown AND either of the two HIGH FLUX AT SHUTDOWN alarms are blocked OR out of service THEN RCS Boron sampling frequency SHOULD be increased to at least twice per day.
9. IF river water inlet temperature as indicated in the CCR reaches 77°F, IMPLEMENT SOP 24.1.1, Service Water Hot Weather Operations. IF river water inlet temperature monitor in CCR is O/S, use back up monitoring per SOP 24.1.1. IF service water inlet temperature exceeds 94°F, COMMENCE Reactor Shutdown per T.S. 3.3.F.4.
10. Deleted
11. IF river water temperature recorder is NOT recording temperatures continuously, RECORD all operable inlet AND outlet temperatures on CCR display, at hourly intervals on supplemental log.
12. An increase in RCS leakage may be indicated by either an increased activity noted during the 12 hour log interval OR by receipt of the Warn Alarm. IF an unexplained, increasing trend is noted OR the Warn Alarm annunciates, AND the alarm is NOT due to a known evolution, PERFORM an RCS leakage rate calculation per SOP 1.7, Reactor Coolant System Leakage Surveillance.
13. Deleted.
14. The calculated average steam generator level is for normal, steady-state conditions. Only use 2 channels WHEN one is out of service and apply the 2 channel limit to the result.
15. The calculated average is for normal, steady-state conditions.
16. Pressurizer Level SHALL be maintained on program ± 4% (see Graph RCS 2).
17. MAINTAIN average TAVE on program. (See Graph RPC 4).
18. IF containment temperature exceeds 118°F, CONSULT SM for guidance. IF temperature exceeds 125°F, LOG VC Temps on hourly Supplemental Log AND CONSULT System Engineering to determine at what indicated temperature to begin a reactor shutdown per T.S. 3.3.F.4.
19. USE ARP SBF-1, window 3-2 alarm to verify less than 19'3". IF alarm is up, log >19'3" until indication can be used to give actual level. IF the indicated level reaches 20 ft. EL action should be taken to determine whether water is in the sump OR whether an instrument problem exists. IF indication is due to water in the sump, REFER to Tech Spec 3.1.F.2.d.(3)
20. USE ARP SBF-1, window 1-3 alarm to verify Recirc. Sump level less than 35 ft.
21. There are two MIN / MAX ranges for the S/G Wide Range level indicators:

    Range A) This range is used WHEN Reactor Power is less than OR equal to 2%.

    Range B) This range is used WHEN Reactor Power is greater than 2%.
22. Condensate Storage Tank Level, Tech. Spec. requirement applies to the Low Level. Tech Spec. 3.4.A.3.

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23. a. IF CCW Hx outlet temperature exceeds 105°F, DIRECT Nuclear NPO to record charging pump fluid drive temperature reading every two hours on a Supplemental Log.

    b. IF CCW Heat Exchanger outlet temperature exceeds 105°F AND Plant Computer System is O/S, RECORD CCW temperature AND RCP bearing temperatures every two hours on Supplemental Log.

24. WCPS Surveillance SHALL be calculated on the 1900 - 0700 watch. Zero counters after readings.

    IF a WCPS zone is to be worked on or calibrated, average the other 3 channels, red circle the result and note the reason. Tech Spec 3.3.D contains the guidance for WCPS out of service.

25. Charcoal filter hours SHALL be calculated on the 1900 - 0700 watch at midnight. ENSURE start AND stop times are logged in the CCR Log. WHEN charcoal is replaced OR charcoal sample results are SAT, CHANGE total hours to zero. The 1900 - 0700 RO is responsible for completing the "Charcoal Filter Hours" Section of the previous day's log.

26. Testing of this Fire Alarm panel will illuminate only the trouble light, NOT the alarm light AND the panel buzzer should sound. Testing of this panel will also bring up an alarm on CCR panel SD, window 1-5.

27. WHEN filter reaches 600 hours, WRITE a Work Order to the Performance Monitoring Group to obtain sample per Technical Specification 4.5.E.3.

28. WHEN filter reaches 600 hours, WRITE a Work Order to the Performance Monitoring Group to obtain sample per Technical Specification 4.5.G.2.

29. WHEN filter reaches 600 hours, WRITE a Work Order to the Performance Monitoring Group to obtain sample per Technical Specification 4.5.F.3. RECORD Charcoal Filter Hours until 720 hours is reached. After 720 hours, log >720 on reading sheet. After filter sample is taken AND with concurrence from T&P, re-zero filter hour clock.

30. Radiation Monitor purges SHALL be done on the 1900 - 0700 watch. WHEN logging process Radiation Monitor data, VERIFY monitor is active (indication NOT locked onto a single value).

31. CHECK Alarm Panel Annunciator Lights AND Alarm Horns (IF equipped). Any Alarms that do NOT clear as a result of this test SHALL be explained in the Remarks section. IF any Alarm Cans require change out, REFER to OASL 15.81, Annunciator Can Change Out AND ENSURE appropriate attachment is completed.

32. Testing of this Fire Alarm Panel will illuminate only the Trouble Light, NOT the Alarm light AND the panel buzzer should sound. Testing of this panel will NOT bring up an alarm on CCR Panel SD OR SM.

33. During startup OR low temperature operation, it is possible for RCP Channel I Loop Flow to indicate >120%. In these cases RCP Motor Current should be used as the limiting value.

34. IF a Sequence of Events report is collected for other than planned testing, CIRCLE ✓ in red. MAKE a comment in the comment section AND NOTIFY the SM immediately. DOCUMENT the concern via a Corrective Action report.

35. Fire Water Storage Tank.

    a. IF the first segment of the bar graph is flashing, the instrument loop has an open circuit (1% below band).

    b. IF the digital display indicates (- - - -), the instrument is under ranged (10% below span).

    c. IF the bar graph AND digital display are blank THEN one of the following has occurred:

        1. The indicator OR transmitter has failed.

        2. Power has been lost. (Transmitter Ckt 13 / Indicator Ckt 11 both on L&P Panel PH)

36. Unit 1 Condensate Storage Tanks.

    a. The CST High Level Control Valve LCV-7816 will close on the following signals:

        1. Trip at 466 inches, increasing; Reset at 416 inches, decreasing.

        2. Local Alarm at 481 Inches, increasing; Reset at 476 inches, decreasing.

        3. Conductivity Trip 0.8 µSiemens, increasing; local alarm at 0.7 µSiemens.

37. COMPARE with previous log readings for unexplained deviations.

38. COMPARE the Service Water Inlet Recorder reading to the local temperature indications for at least one condenser waterbox inlet as a qualitative check of the recorder.

39. WHEN Plant Computer System is inoperable PERFORM the following:

    1. CONNECT DVM to TP/P412A "Turbine Press" (Channel 412A) in Rack A1 AND RECORD Reading.

    2. CONNECT DVM to TP/P412B "Turbine Press" (Channel 412B) in Rack A9 AND RECORD Reading.

    3. COMPARE readings. Maximum allowable difference is 22.7 mV.

40. The discrete indicators ("sugar cube" lights) shall agree with their respective continuous level indicators to within approximately 1 Ft. Elevation.

41. In addition to qualitative checks, VERIFY monitor is active (indication NOT locked onto a single value).

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42. VERIFY that reading is ABOVE "Min. Value". Readings of "0.00E+0" that are NOT accompanied by a "No CPM" condition OR periodic fluctuations below "Min Value" are acceptable.

43. RECORD Alarm setpoint, THEN COMPARE the recorded Alarm setpoint value to the value given in the Operator Aid "Monitor Backgrounds, Calibration Constants AND Setpoint Limits".

44. Data are to be compared to meteorological parameters obtained using IP-1016, Section 5.0 (Primary Tower). ENSURE comparison is made to data in the same time frame. In addition, the Wind Speed data (10m) from the Backup Tower is taken. The check of the B/U tower wind speed is a qualitative check ONLY. The 2 m/sec. does NOT apply.

    Note that the primary tower data, using 5.3.5a, are in miles/hr direction degrees, AND temperature differential in Deg F. Data SHALL be converted to meters/sec AND proper Pasquill category for comparison; MPH x 0.447 = m/s AND Table 5.2.2 converts the temp differential to Pasquill category. The Pasquill letter printed on the output (Addendum 5.2) under WD3 is NOT to be used for comparison.

    During light wind speed conditions (speed LESS THAN 4 miles/hr) the direction difference may EXCEED 150 Deg due to meander. Emergency Planning section is to be contacted for parameter verification.

45. OBTAIN Vent Flow from R-27 Monitor AND from magnahelic in alleyway AND COMPARE the two readings. NPO will give reading in SCFM as long as their hand held computer is functioning. Otherwise Convert in. H_2O Magnahelic reading as follows:
    $SCFM=7.12 \times 10{,}000 \sqrt{\text{in. } H_2O}$

46. Deleted

47. Record which FCU is currently being monitored. IF the WEIR level is high enough to indicate a flow rate on the display, USE graphs RCS 6-1, 6-2, 6-3, 6-4, OR 6-5 as appropriate to convert FCU condensate level to flow rate.

48. The Discrete, Redundant, AND Continuous levels SHALL be consistent with each other AND be within 1 ft EL difference.

49. The NR reading SHALL NOT be more than 1 psig above the highest reading WR channel OR more than 1 psig below the lowest reading WR channel.

50. PERFORM a qualitative check for these steps by OBSERVING channel behavior, including any other available indication such as alarm AND failure lights, etc., to determine acceptability.

51. IF the Plant Computer System is unavailable for QPTR calculations, PERFORM a manual QPRT calculation per DSR 4B, Unit 2 Quadrant Power Tilt (Det. Curr.). IF required to log detector output voltages, ATTACH printed report from plant computer system to this DSR.

52. IF the Plant Computer System is unavailable for Delta I calculations, USE DSR 1A, Central Control Room Log (Reactor Delta I Critical Ops Only) to record these values.

53. The normal and MIN/MAX limits assume both tanks are operable and reading in this range to satisfy Tech Spec level limits. IF one BAST is taken out of service, EVALUATE appropriate Tech Spec levels of the remaining tank using GRAPH TC-3, Boric Acid Storage Tank, and GRAPH TC-3A, Boric Acid Storage Tanks BAT21 and BAT22 Level Transmitters.

54. VERIFY that the Plant Computer System autologging comparison AND alarm functions of Analog RPIs and Rod Bank Step Counters is operable (Plant Computer System will actuate Panel SFF 2-7, CONTROL ROD OR POWER DISTRIBUTION TROUBLE, if the two indications do NOT agree within a programmed deadband). IF the Plant Computer System autologging OR IRPI Alarm Function is NOT operable, COMPLETE DSR 3, Unit 2 Rod Position Verification.

55 The Plant Computer System will generate a report displaying current Rod status, Position, etc. Attach this report to this DSR.

56 To verify the Plant Computer System alarm status is operating properly, OBSERVE alarm function screen using Turn-On Code ANNUN AND VERIFY there are no abnormal conditions.

57 IF less than three off site power supplies aligned to U1 L&P busses, REFER to U1 TS 2.5.1.1.

58 Reactor Power is determined by the Plant Computer System (PICS) On-line Heat Balance. NI upper limits and adjustments are controlled by SOP 15.1, Reactor Thermal Power Calculation.

59 VERIFY weekly PC Heat Balance results with PICS Heat balance. IF PC heat balance is Greater Than +/- 0.2 percent of PICS Heat Balance, CONTACT the IT PICS group. The PICS Heat Balance will continue to be used to calculate Reactor Power.

60 IF Station Auxiliary Transformer (SAT) Tap Changer unable to operate in Automatic, GO TO SOP 27.1.4, 6900 Volt System.

61 Per TS 3.10.5.1, the following limits apply:

Above 85 Percent Power (TS Table 3.10-1)

Group Step Counter Demand Position (Steps)	Maximum Positive Deviation		Maximum Negative Deviation	
	Steps	Inches	Steps	Inches
≤ 209	12	7.5	-12	7.5
210 to 221	16	10	-12	7.5
222	16	10	-13	8.125
223	16	10	-14	8.75
224	16	10	-15	9.375
≥ 225	16	10	-16	10

At or Below 85 Percent Power. +/- 24 steps. This equates to +/- 15 inches.

These comparisons are between the analog RPI and their associated Rod Bank Step Counters.

LONG TERM CORRECTIVE ACTIONS:

Incorporated **TPC 01-0041** as a Long Term Corrective Action into Revision 83 of this DSR. This TPC changes the Normal and Min/Max limits for Instrument Bus Voltage as follows:

NORMAL 117-120V

MIN/MAX 117-122V

This TPC will be removed following completion of CR 200101134

JAN 20 2002

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PARAMETER		UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
N31 (✦ 8)	Counts Per Second	CPS	Variable	3 / 1E5	See	See
	Ten Minute Count	Counts		-	See	See
	Current Counts/ 6 HR Prev Counts	Calc	< 1.2	0.8 / 1.2	See	See
	Current Counts/ 24 HR Prev Counts				See	See
N32 (✦ 8)	Counts Per Second	CPS	Variable	3 / 1E5	See	See
	Ten Minute Count	Counts		-	See	See
	Current Counts/ 6 HR Prev Counts	Calc	< 1.2	0.8 / 1.2	See	See
	Current Counts/ 24 HR Prev Counts				See	See
INTERMEDIATE RANGE	N - 35	AMPS	Variable	Variable	1.6E-4	1.6E-4
	N - 36				1.9E-4	1.9E-4
POWER RANGE	N - 41	%	(✦ 68)	MAX DIFF 2% WHEN POWER >15% (✦ 58)	99.9	100.0
	N - 42				100	100.0
	N - 43				100	99.9
	N - 44				100	100.0
VERIFY U1 offsite feeders supplying U1 L&P busses	13W92	N/A	✓ (✦ 57)	✓	✓	✓
	13W93				✓	✓
	13W94				✓	✓
DC BUS VOLTAGE	21	Volts DC	130 - 131	125 / 136	130	130
	22				130	130
	23				130	131
	24				130	130
STATION AUX TRANSFORMER TAP CHANGER		✓	IN AUTO (✦ 60)	IN AUTO (✦ 60)	✓	✓
INSTRUMENT BUS VOLTAGE	21	Volts AC	117 - 120	117 / 122	118	119
	22				117	118
	23				118	118
	24				119	120
Unit 1 CST (✦ 36)	11	Inches (Feet)	416 - 466 (34.7 - 38.8)	300 / 481 (25 - 40)	34.5	37.7
	12				34.4	37.6
	13				34.5	37.7
SERVICE WATER TEMP (TR - 6281)	RIVER WATER TEMP RECORDER OPERABLE (✦ 11)	✓	Operable (✓)	Operable/ Inoperable	✓	✓
	Unit 1 Inlet (01)	°F	N/A	(✦ 38)	32.5	32.13
	Unit 2 Inlet (02) (✦ 9)		-/77	-/92	31.9	31.94
	Unit 3 Inlet (03)		N/A	(✦ 38)	29.3	29.09
	South Disch (04)				60.9	60.74
	Middle Disch (05)				61.1	60.74
	North Disch (06)				61.7	61.50
	Unit 1, 2 & 3 Ave Inlet Temp (26)		-/77	-/92	32.2	32.06
	Site Ave Outlet Temp (27)		April 15 to June 30 < 90 °F July 1 to April 14 < 107 °F		61.3	61.00

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PARAMETER			UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
GENERATOR TEMPERATURE	Cold Gas Cooler 21 {point 1}		°C	35 - 45	30 / 46	44.8	43.1
	Cold Gas Cooler 22 {point 3}					45.8	44.8
	Cold Gas Cooler Delta T			0 - 5	0 / 10	1.0	1.7
	Stator Cooling Water In {point 7}			41 - 45	38 / 46	44.9	45.0
	Stator Cooling Water Out {point 8}			41 - 73	38 / 75	63.9	63.6
FIREWATER STORAGE TANK (✦ 35)			**INCHES**	**380 - 389**	**365 / 395**	388.1	
R - 41 MONITOR (✦ 41)	VC Air Particulate (✦ 12)		µCi/cc	Variable	Variable	5.64E-10	5.77E-10
CONDENSER SALINITY			PPB	0 - 2	- / 4.9	0.2	0
HIGHEST S/G SODIUM			# PPB	0 - 1	0 / 5	24 0.4	24 .39
MAIN STEAM LINE RADIATION MONITORS		R-28	CPM	(✦ 50)	N/A	16	17
		R-29				13	14
		R-30				43	22
		R-31				15	9
TOXIC GAS MONITOR	Channel 1	AIT-5092 NH_3	PPM	0 - 5	0 / 10	0	0
		AIT-5093 Cl_2		0 - 0.5	0 / 0.8	0	0
	Channel 2	AIT-5095 NH_3		0 - 5	0 / 10	2	2
		AIT-5096 Cl_2		0 - 0.5	0 / 0.8	0	0
CCR INTAKE VENT. RADIATION		R-38-1	mR / hr	(✦ 50)	N/A	0.2	
		R-38-2				0.06	
VC HIGH RANGE RADIATION MONITORS		R-25	R / hr	(✦ 50)	N/A	<1	<1
		R-26				<1	<1
WIDE RANGE PLANT VENT MONITOR		R-27 EFFLUENT	µCi/sec	(✦ 50)	N/A	104	115
U2 PLANT VENT FLOW MONITOR		MAGNAHELIC	SCFM	(✦ 50)	**MAX DIFF 24,000 (✦ 45)**	44,464	
		R-27, MI-29				47,000	
CONTAINMENT SUMP LEVEL REDUNDANT		LI - 3303	EL	N/A	(✦ 48)	40'9"	39'6"
		LI - 3304				39'	39'
QUADRANT POWER TILT RATIO PICS QPTR TILT REVIEW (TILT) (✦ 51)		**Top**	**N/A**	**≤1.02**	**≤1.02**	1.005	1.005
		Bottom		**≤1.02**	**≤1.02**	1.003	1.003
VERIFY PICS DELTA FLUX (DF) display is operable and updating properly. (Data is green) (✦ 52)			✓	✓	✓	✓	✓
GENERATOR	Stator Current Amps Meter	A	K-Amps	Variable	- / 29.8	28	27.9
		B				27.5	27.4
		C				27	27.3
	Stator Voltage		K-Volts	20 - 23	19.8 / 23.1	22.2	21.2
	Hydrogen Pressure		PSIG	60 - 75	30 / 79	64	63
	Field Amps		AMPS	< 6000	- / < 6000	4800	3900
MAIN UNIT LOAD			MW	Various	N/A	1005	1005
NET LOAD						984	985
GENERATOR MVARS			MVAR			310	70

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PARAMETER		UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
GOVERNOR CONTROL		PSIG	40 - 45	35 / 50	42.3	42.1
LOAD LIMIT # 1		PSIG	Governor Oil Pressure +1 psi	Governor Oil Pressure +5 psi	(40.6)	(40.7)
LOAD LIMIT # 2		PSIG	Governor Oil Pressure +1 psi	Governor Oil Pressure +5 psi	41.1	(41.1)
MAIN STEAM HDR PRESSURE		PSIG	625 - 995	0 / 1005	720	720
TURBINE 1ST STAGE PRESSURE (Plant Computer System)	412A	PSIG	Variable	MAX DIFF 34 PSIG (◆ 39)	490.3	490.5
	412B	PSIG	Variable	MAX DIFF 34 PSIG (◆ 39)	491.8	491.6
21 STEAM LINE PRESSURE	PI-419A	PSIG	N/A	MAX DIFF 112 PSIG	764 5	740
	PI-419B	PSIG	N/A	MAX DIFF 112 PSIG	764 0	730
	PI-419C	PSIG	N/A	MAX DIFF 112 PSIG	730	730
22 STEAM LINE PRESSURE	PI-429A	PSIG	N/A	MAX DIFF 112 PSIG	740	740
	PI-429B	PSIG	N/A	MAX DIFF 112 PSIG	725	720
	PI-429C	PSIG	N/A	MAX DIFF 112 PSIG	730	730
23 STEAM LINE PRESSURE	PI-439A	PSIG	N/A	MAX DIFF 112 PSIG	730	730
	PI-439B	PSIG	N/A	MAX DIFF 112 PSIG	745	740
	PI-439C	PSIG	N/A	MAX DIFF 112 PSIG	725	720
24 STEAM LINE PRESSURE	PI-449A	PSIG	N/A	MAX DIFF 112 PSIG	730	730
	PI-449B	PSIG	N/A	MAX DIFF 112 PSIG	730	730
	PI-449C	PSIG	N/A	MAX DIFF 112 PSIG	725	730
FLIGHT PANEL ANNUNCIATOR POWER LIGHTS		✓	LIT ✓	LIT ✓	✓	✓
21 STEAM GENERATOR LEVEL (◆ 14)	LI-417A	%	46 / 52	MAX DIFF 8% 46 / 52	50	50
	LI-417B	%	46 / 52	MAX DIFF 8% 46 / 52	46	46
	LI-417C	%	46 / 52	MAX DIFF 8% 46 / 52	51	51
	Average of Operable channels	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	49	49
22 STEAM GENERATOR LEVEL (◆ 14)	LI-427A	%	46 / 52	MAX DIFF 8% 46 / 52	51	51
	LI-427B	%	46 / 52	MAX DIFF 8% 46 / 52	46	47
	LI-427C	%	46 / 52	MAX DIFF 8% 46 / 52	49	49
	Average of Operable channels	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	48.1	49
23 STEAM GENERATOR LEVEL (◆ 14)	LI-437A	%	46 / 52	MAX DIFF 8% 46 / 52	51	52
	LI-437B	%	46 / 52	MAX DIFF 8% 46 / 52	47	47
	LI-437C	%	46 / 52	MAX DIFF 8% 46 / 52	47	47
	Average of Operable channels	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	48.3	48
24 STEAM GENERATOR LEVEL (◆ 14)	LI-447A	%	46 / 52	MAX DIFF 8% 46 / 52	48	48
	LI-447B	%	46 / 52	MAX DIFF 8% 46 / 52	47	48
	LI-447C	%	46 / 52	MAX DIFF 8% 46 / 52	46	46
	Average of Operable channels	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	47	47
PRESSURIZER PRESSURE (◆ 15)	PI-455	PSIG	2208 - 2258	2208 / 2258 MAX DIFF 60 PSIG	2250	2245
	PI-456	PSIG	2208 - 2258	2208 / 2258 MAX DIFF 60 PSIG	2230	2235
	PI-457	PSIG	2208 - 2258	2208 / 2258 MAX DIFF 60 PSIG	2235	2238
	PI-474	PSIG	2208 - 2258	2208 / 2258 MAX DIFF 60 PSIG	2235	2239
	Average of Operable channels	PSIG	4: 2208/2258 3: 2212/2255	4: 2208/2258 3. 2212/2255	2237.5	2239
PRESSURIZER LEVEL (◆ 16)	LI-459	%	33 / 49	MAX DIFF 8 % 33 / 49	43	43
	LI-460	%	33 / 49	MAX DIFF 8 % 33 / 49	46	46
	LI-461	%	33 / 49	MAX DIFF 8 % 33 / 49	42	42
	Average of Operable channels	%	3: 37.9/45.9 2: 37.1/45.1	3: 37.9/45.9 2: 37.1/45.1	43.0	44

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END DATE

PARAMETER		UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
Attach the Plant Computer System Control Rod Auto Log Report (✦ 55)		N/A	✓	✓	✓	✓
VERIFY Plant Computer System Alarm Functions Operable (✦ 56)		N/A	✓	✓	✓	✓
PERFORM PC Heat Balance on Sunday		N/A	N/A	(✦ 59)	NA	
PICS 8 Hour Reactor Power rolling ave (VERIFY S/G Blowdown Flow updated prior to taking reading)	U1118HR8	Mw	≤ 3071.4	- / ≤ 3071.4	3070.7	3071.15
Analog RPI: Shutdown Bank A	High	Inches	N/A	(✦ 61)	144	144
	Low				139	138
Analog RPI: Shutdown Bank B	High				144	144
	Low				140	140
Analog RPI: Shutdown Bank C	High				>144	>144
	Low				144	144
Analog RPI: Shutdown Bank D	High				144	144
	Low				140	141
Analog RPI: Control Bank A	High				144	144
	Low				141	141
Analog RPI: Control Bank B	High				144	144
	Low				144	144
Analog RPI: Control Bank C	High				144	144
	Low				139	138
Analog RPI: Control Bank D	High				135	135
	Low				132	132
Rod Pos Step Counters Shutdown Bank A, Group 1	U0053	Steps	N/A	(✦ 64)	223	223
	FLT Pnl				223	223
Rod Pos Step Counters Shutdown Bank A, Group 2	U0053				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Shutdown Bank B, Group 1	U0054				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Shutdown Bank B, Group 2	U0054				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Shutdown Bank C	U0055				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Shutdown Bank D	U0056				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Control Bank A, Group 1	U0049				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Control Bank A, Group 2	U0049				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Control Bank B, Group 1	U0050				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Control Bank B, Group 2	U0050				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Control Bank C, Group 1	U0051				223	223
	FLT Pnl				223	223
Rod Pos Step Counters Control Bank C, Group 2	U0051				223	223
	FLT Pnl				223	223

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END DATE

PARAMETER			UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
Rod Pos Step Counters Control Bank D, Group 1		U0052	Steps	N/A	(◆ 64)	207	207
		FLT Pnl				207	207
Rod Pos Step Counters Control Bank D, Group 2		U0052				207	207
		FLT Pnl				207	207
RCS TEMP ΔT INDICATORS	TI - 411A		°F	N/A	MAX DIFF 13°F	52	51
	TI - 421A					62	62
	TI - 431A					55.5	55.5
	TI - 441A					54.5	54.5
T - AVERAGE (◆ 17)	TI-412C		°F	Variable	MAX DIFF 8°F	557.5	557.0
	TI-422C					563	562.5
	TI-432C					560	560.0
	TI-442C				Variable	559	559.0
	Avg - T Avg					559.9	559.6
REACTOR COOLANT PUMP No. 1 SEAL RETURN	21 RCP		GPM	1.0 - 3.0	0.2 / 5	1.7	1.71
	22 RCP					2.3	2.41
	23 RCP					1.8	2.27
	24 RCP					2.0	2.15
REACTOR COOLANT PUMP LOOP FLOW (◆ 33)	LOOP 21	FI - 414	%	95 - 102	93 / 120	99	99
		FI - 415	%	N/A	MAX DIFF of all three 9%	102	102
		FI - 416				102	101
	LOOP 22	FI - 424	%	95 - 102	93 / 120	101	100
		FI - 425	%	N/A	MAX DIFF of all three 9%	101	101
		FI - 426				101	101
	LOOP 23	FI - 434	%	95 - 102	93 / 120	99	99
		FI - 435	%	N/A	MAX DIFF of all three 9%	101	100
		FI - 436				102	101
	LOOP 24	FI - 444	%	95 - 102	93 / 120	99	99
		FI - 445	%	N/A	MAX DIFF of all three 9%	99	99
		FI - 446				100	100
REACTOR COOLANT PUMP MOTOR CURRENT	21 RCP		AMPS	380 - 410	350 / 450	390	390
	22 RCP					380	380
	23 RCP					390	395
	24 RCP					390	390
REACTOR COOLANT PUMP THERMAL BARRIER DELTA P	21 RCP		INCHES WATER	30 - 100	5 / -	42	44
	22 RCP					30	31
	23 RCP					49	49
	24 RCP					37	36
REACTOR COOLANT PUMP No.1 SEAL DELTA P	21 RCP		PSID	> 400	326 / -	>400	>400
	22 RCP					>400	>400
	23 RCP					>400	>400
	24 RCP					>400	>400
REACTOR COOLANT PUMP SEAL OUTLET TEMP.	21 RCP		°F	80 - 150	70 / 159	140	140
	22 RCP					132	132
	23 RCP					142	140
	24 RCP					142	140
VESSEL FLANGE LEAKOFF			°F	60 - 130	50 / 140	76	76

END DATE

PARAMETER		UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
REACTOR COOLANT PUMP SEAL INJECTION FLOW	21 RCP	GPM	6 - 12	2 / 20	7.5	
	22 RCP				7.2	
	23 RCP				7.5	
	24 RCP				7.2	
CONTAINMENT	VC Pressure (NR)	PSIG	-1 / +1	-2 / +2	0.3	
	HIGHEST VC Pressure (WR) #		N/A	MAX DIFF 0.5 PSIG (✦49)	A_2 1	
	LOWEST VC Pressure (WR) #				C_2 0	
	Temperature (✦18)	°F	87 - 118	85 / 130	126	
PRESSURIZER RELIEF TANK	LEVEL	%	69 - 75	67 / 77	71	
	PRESSURE	PSI	1 - 5	0.5 / 7	2	
	TEMP.	°F	90 - 120	- / 130	72	
RX CAVITY SUMP (✦19)		EL	Variable	-1 < 19' 3"	< 19' 3"	
CONTAINMENT SUMP LEVEL CONTINUOUS	LI - 3300			-1 < 44' 4"	41' 3"	
CONTAINMENT SUMP LEVEL DISCRETE	LI - 940	EL	N/A	(✦48)	< 41' 3"	
	LI - 941				40' 9"	
RECIRCULATION SUMP (✦20)		EL	Variable	-1 < 35'	< 35'	
RECIRCULATION SUMP CONTINUOUS	LR - 3301	EL	N/A	(✦40)	35.2	
RECIRCULATION SUMP DISCRETE	LI - 938				< 39' 9"	
	LI - 939				< 35'	
RWST TEMP.		°F	50 - 90	44 / 95	89	
RWST LEVEL	LI - 920 (CCR)	FEET	37.2 - 37.4	37.0 / 37.5	37.4	
	LR - 5751 (CCR)		N/A	N/A MAX DIFF 1	37	
	LI - 921 (LOCAL)				NOT TAKEN	
21 ACCUMULATOR LEVEL	LI - 934A	%	40 - 60	MAX DIFF 8 %	54	
	LI - 935A			35 / 65	54	
22 ACCUMULATOR LEVEL	LI - 934B	%	40 - 60	MAX DIFF 8 %	56	
	LI - 935B			35 / 65	56	
23 ACCUMULATOR LEVEL	LI - 934C	%	40 - 60	MAX DIFF 8 %	56	
	LI - 935C			35 / 65	56	
24 ACCUMULATOR LEVEL	LI - 934D	%	40 - 60	MAX DIFF 8 %	55	
	LI - 935D			35 / 65	55	
21 ACCUMULATOR PRESSURE	PI - 936A	PSIG	635 - 680	MAX DIFF 42 PSIG	640	
	PI - 937A			630 - 680	635	
22 ACCUMULATOR PRESSURE	PI - 936B	PSIG	635 - 680	MAX DIFF 42 PSIG	640	
	PI - 937B			630 - 680	640	
23 ACCUMULATOR PRESSURE	PI - 936C	PSIG	635 - 680	MAX DIFF 42 PSIG	645	
	PI - 937C			630 - 680	640	
24 ACCUMULATOR PRESSURE	PI - 936D	PSIG	635 - 680	MAX DIFF 42 PSIG	650	
	PI - 937D			630 - 680	660	

END DATE

PARAMETER			UNITS	NORMAL	MIN / MAX	TIME 1900 - 0700	TIME 0700 - 1900
FAN COOLER UNIT SERVICE WATER OUTLET FLOWS	21		GPM	1200 - 1600	1000 / 1800	1060	
	22					1160	
	23					1100	
	24					1100	
	25					1050	
WIDE RANGE STEAM GENERATOR LEVELS (✦ 21)	21		%	Variable	A) 60 / 100 B) 45 / 80	52	
	22					55	
	23					56	
	24					53	
HOTWELL LEVEL			FEET	2.5 - 3.5	2.5 / 3.9	3.3	
PRIMARY WATER TANK LEVEL	LI-1131-1 (CCR)			12 - 28	11.25 / 30 MAX DIFF 2	27.5	
	LIC-1101-S (Local)			N/A	N/A	26.8	
CONDENSATE STORAGE TANK LEVEL (✦ 22)				**21 - 29**	**20 / 29**	28.5	
CHARGING LINE FLOW			GPM	30 - 45	- / -	62	
CVCS LETDOWN	TEMP.		°F	122 - 127	100 / 145	123	
	FLOW		GPM	82 - 88	40 / 122	87	
	PRESSURE		PSI	225 - 275	225 / 400	280	
VOLUME CONTROL TANK	PRESSURE		PSI	15 - 25	15 / 65	28	
	LEVEL		%	21.4 - 35	21 / 91	40	
BORIC ACID STORAGE TANK	**21**	**LEVEL (✦ 37)**	**%**	**42 - 80 (✦ 53)**	**39 / 80**	58	
	22					64	
	21	**TEMP.**	**°F**	**160 - 174**	**155 / 200**	171	
	22					167	
COMPONENT COOLING SYSTEM (✦ 23)	Heat Exchanger Outlet Temp		°F	72 - 100	70 / 110 120 / 2 HRS	92	
	Flow		GPM	3000 - 4000	1500 / 7000	3000	
	Surge Tank Level		%	47 - 53	46 / 54	51	
CONTAINMENT SUMP FLOW	FI - 3401		GPM	N/A	(✦ 50)	0	
SUPERVISORY PANEL ANNUNCIATOR POWER LIGHTS			✓	LIT ✓	LIT ✓	✓	
UNIT AUX TRANSFORMER VOLTAGE			VOLTS	7050 - 7150	7000 / 7200	7050	
STATION AUX TRANSFORMER VOLTAGE						7100	
TOTAL AUX TRANSFORMER LOAD			MW	Various	N/A	34.5	
STATION SERVICE TRANSFORMER 480 V BUS AMPERAGE	BUS 5A		AMPS	40 - 150	0 / 200	60	
	BUS 2A					132	
	BUS 3A					120	
	BUS 6A					75	
LOWEST 480 BUS VOLTAGE			**# Volts**	**475** 490	**460** 495	2A 480	
SERVICE WATER PRESSURE	21-22-23 HDR		PSI	60 - 80	58 / 125	99	
	24-25-26 HDR					94	
CONTAINMENT DEW POINT	HIGH		°F	65 - 80	- / 95	44	
	LOW					37	

END DATE

PARAMETER			UNITS	NORMAL	MIN / MAX	TIME	
						1900 - 0700	0700 - 1900
FAN COOLER UNIT WEIR LEVEL		21	INCHES	-6 / +1.8	-6 / +2	-6	-6.0
		22				-0.1	0.1
		23				-5.9	-0.4
		24				-0.1	0.1
		25				0.9	0.6
FAN COOLER UNIT WEIR FLOW	21	Ind.	GPM	N/A	MAX DIFF 6 GPM (✦ 47)	0	0
		RCS-6-1				0	0
	22	Ind.				0	0
		RCS-6-2				0	0
	23	Ind.				0	0
		RCS-6-3				0	0
	24	Ind.				0	0
		RCS-6-4				0	0
	25	Ind.				0	0
		RCS-6-5				0	0

JAN 20 2003
END DATE

PARAMETER	MAX DIFF	MIN VALUE	UNITS	CHANNEL	ALARM SETPOINT	1900 - 0700	
98' PAB Area Radiation	N/A	N/A	mR/hr	R-5987	100	0.2	SAT / UNSAT
CCR Area Radiation	N/A	N/A	mR/hr	R-1	0.15	0	SAT / UNSAT
80' VC Area Radiation	N/A	N/A	mR/hr	R-2	50	4	SAT / UNSAT
Charging Pumps Area Radiation	N/A	N/A	mR/hr	R-4	50	0.1	SAT / UNSAT
FSB Area Radiation Radiation	N/A	N/A	mR/hr	R-5	10	6.5	SAT / UNSAT
Sampling Room Area Radiation	N/A	N/A	mR/hr	R-6	50	1	SAT / UNSAT
Incore Inst Room Area Radiation	N/A	N/A	mR/hr	R-7	100	>	SAT / UNSAT
CCW Hx 21 SW Outlet Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-39	1.10E-6 (✦ 43)	7.28E-8	SAT / UNSAT
CCW Hx 22 SW Outlet Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-40	6.00E-6 (✦ 43)	O/S	SAT / UNSAT
Containment Air Particulate Activity	N/A (✦ 41)	1.00E-14 (✦ 42)	uCi/cc	R-41	9.40E-10 (✦ 43)	5.75E-12	SAT / UNSAT
Containment Air Radio gas Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-42	1.20E-2 (✦ 43)	1.16E-4	SAT / UNSAT
Plant Vent Particulate Activity	N/A (✦ 41)	1.00E-14 (✦ 42)	uCi/cc	R-43 (Part.)	2.00E-7 (✦ 43)	8.10E-11	SAT / UNSAT
Plant Vent Iodine Activity	N/A (✦ 41)	1.00E-14 (✦ 42)	uCi/cc	R-43 (Iodine)	1.36E-8 (✦ 43)	2.27E-11	SAT / UNSAT
Plant Vent Gaseous Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-44	3.75E-4 (✦ 43)	4.32E-6	SAT / UNSAT
Discharge Condenser SJAE Gaseous Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-45	3.00E-3 (✦ 43)	1.09E-5	SAT / UNSAT
FCU Service Water Outlet Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-46	3.00E-6 (✦ 43)	1.04E-8	SAT / UNSAT
CCW Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-47	1.00E-4 (✦ 43)	2.18E-5	SAT / UNSAT
WDS Liquid Effluent Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-48	(✦ 43)	O/S	SAT / UNSAT
SG Blowdown Effluent Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-49	1.00E-4 (✦ 43)	1.30E-6	SAT / UNSAT
Large Gas Decay Tank Activity	N/A (✦ 41)	1.00E-04 (✦ 42)	Ci	R-50	6.00E2 (✦ 43)	1.01	SAT / UNSAT
SBBPS Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-51	1.00E-4 (✦ 43)	See	SAT / UNSAT
SBBPS Cooling Water Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-52	3.00E-6 (✦ 43)	See	SAT / UNSAT
FCU Service Water Outlet Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-53	3.00E-6 (✦ 43)	8.40E-8	SAT / UNSAT
Liquid Waste Distillate Activity	N/A (✦ 41)	1.00E-10 (✦ 42)	uCi/cc	R-54	4.00E-4 (✦ 43)	2.15E-4	SAT / UNSAT
SG 21 Blowdown Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-55A	1.00E-4 (✦ 43)	O/S	SAT / UNSAT
SG 22 Blowdown Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-55B	1.00E-4 (✦ 43)	O/S	SAT / UNSAT
SG 23 Blowdown Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-55C	1.00E-4 (✦ 43)	O/S	SAT / UNSAT
SG 24 Blowdown Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-55D	1.00E-4 (✦ 43)	O/S	SAT / UNSAT
Sewage Effluent Activity (Incl NSB)	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-57	3.00E-5 (✦ 43)	5.95E-10	SAT / UNSAT

JAN 2 0 2000

END DATE

PARAMETER	MAX DIFF	MIN VALUE	UNITS	CHANNEL	ALARM SETPOINT	1900 - 0700	
House Service Boiler Condensate Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-59	$3.00E^{-6}$ (✦ 43)	C/S	SAT / UNSAT
Stack Vent Particulate Activity	N/A (✦ 41)	1.00E-13 (✦ 42)	uCi/cc	R-60 (Part.)	$1.00E^{-8}$ (✦ 43)	$9.81E^{-10}$	SAT / UNSAT
Stack Vent Iodine Activity	N/A (✦ 41)	1.00E-14 (✦ 42)	uCi/cc	R-60 (Iodine)	$1.52E^{-8}$ (✦ 43)	$1.41E^{-11}$ ~~1.50E-8~~	SAT / UNSAT
Stack Vent Noble Gas Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-60 (Gas)	$6.00E^{-5}$ (✦ 43)	$6.85E^{-8}$	SAT / UNSAT
Sphere Foundation Sump Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-62	$1.00E^{-5}$ (✦ 43)	$2.12E^{-6}$	SAT / UNSAT
M & O Building Vent Particulate Activity	N/A (✦ 41)	1.00E-14 (✦ 42)	uCi/cc	R-5976 (Part.)	$6.00E^{-9}$ (✦ 43)	$4.00E^{-10}$	SAT / UNSAT
M & O Building Vent Gaseous Activity	N/A (✦ 41)	1.00E-09 (✦ 42)	uCi/cc	R-5976 (Gas)	$1.00E^{-5}$ (✦ 43)	$1.72E^{-6}$	SAT / UNSAT

PARAMETER	MAX DIFF	UNITS	CHANNEL	1900 - 0700		RESULTS
Wind Speed	2 (✦ 44)	M/sec	122m	1016	5.7	SAT / UNSAT
			122m	CCR	5.1	
			60m	1016	4.9	SAT / UNSAT
			60m	CCR	4.9	
			10m (pri)	1016	2.4	SAT / UNSAT
			10m (pri)	CCR	2.4	
			10m (B/U)	B/U Tower	1.9	SAT / UNSAT
Wind Direction	90 (✦ 44)	Deg	122m	1016	195	SAT / UNSAT
			122m	CCR	195	
			60m	1016	213	SAT / UNSAT
			60m	CCR	213	
			10m	1016	193	SAT / UNSAT
			10m	CCR	192	
Delta T Pasquill	1 letter (✦ 44)	Category	10-122m	1016	D	SAT / UNSAT
			10-122m	CCR	D	
			10-60m	1016	E	SAT / UNSAT
			10-60m	CCR	E	

JAN 2 0 2006

END DATE

PARAMETER		UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900
OAD 3 KEY CHART RECORDERS	CHART WORKING	N/A	✓	✓	✓	✓
	INKING	N/A	✓	✓	✓	✓
	PEN(S) ALIGNED	N/A	✓	✓	✓	✓
	TIME STAMPED	N/A	✓	✓	✓	✓
	DATED	N/A	✓	✓	✓	✓

WCPS SURVEILLANCE (✦ 24)

CURRENT TIME :	0000	ZONE I	752
PREVIOUS READING TIME :	0200	ZONE II	3842
DELTA HOURS:	22	ZONE III	2741
		ZONE IV	584
		TOTAL	7919

AVERAGE LEAK RATE = TOTAL / DIFFERENCE TIME x 60 = 6 **CFM (MAXIMUM = 15.2 CFM)**

RECORDER LEAK RATE = 6 CFM

CHARCOAL FILTER HOURS (✦ 25)

FILTERS	UNITS	NORMAL	MIN/MAX	TOTAL HOURS RUN TODAY		TOTAL HOURS AS OF 0000 THE PREVIOUS DAY		TOTAL HOURS
CCR (✦ 27)	Hours	0 - 600	- / 720	0.03	+	208.59	=	208.62
PACV(✦ 28)	Hours	0 - 600	- / 720	0	+	0	=	0
FSB (✦ 29)	Hours	- / -	- / -	24	+	>720	=	>720
TSC	Hours	0 - 600	- / 720	0	+	0	=	0

RADIATION MONITOR PURGE (✦ 30)

MONITOR	LOCATION	UNITS	MINIMUM PURGE TIME (MINS)	1900 - 0700
R54	WASTE DISTILLATE DISCHARGE	YES (✓) / NO	2	✓

JAN 20 2003

END DATE

EQUIPMENT	STATUS / UNITS	NUMBER	SHIFT 1900 - 0700	SHIFT 0700 - 1900
MAIN BOILER FEED PUMP SPEED	RPM ,SEC, O/S	21	4745	4753
		22	4720	4720
CHARGING PUMP SPEED	% SPEED, SEC, O/S	21	See	See
		22	45	40
		23	See	See
PRIMARY WATER PUMPS	I/S(✓) , STBY, SEC, O/S	21	✓	✓
		22	STBY	STBY
FAN COOLER UNITS	I/S (✓) , STBY, SEC, O/S	21	STBY	STBY
		22	✓	✓
		23	STBY	STBY
		24	STBY	STBY
		25	✓	✓
HEATER DRAIN TANK PUMPS	AMPS, SEC, O/S	21	60	60
		22	67	67
CONDENSATE PUMPS	AMPS, STBY, SEC, O/S	21	175	175
		22	220	220
		23	208	208
CONTAINMENT SUMP PUMPS	STBY, AUTO, ON, OFF, HAND	29	AUTO	AUTO
		210	STBY	STBY
COMPONENT COOLING WATER PUMPS	I/S (✓) , STBY, SEC, O/S	21	STBY	STBY
		22	✓	✓
		23	STBY	STBY
ESSENTIAL S.W. HEADER	✓	-	1,2,3 ✓ 4,5,6 ✓	1,2,3 ✓ 4,5,6 ✓
SERVICE WATER PUMPS	I/S (✓) , STBY, SEC, O/S	21	✓	✓
		22	✓	✓
		23	See	See
		24	STBY	STBY
		25	✓	✓
		26	✓	✓
LOW PRESSURE RIVER WATER PUMPS	AMPS, STBY, SEC, O/S	11	520	515
		12	STBY	STBY
CIRCULATING WATER PUMPS	AMPS, SEC, O/S	21	54	54
		22	51	51
		23	52	51
		24	50	50
		25	51	51
		26	51	50
COMPONENT COOLING WATER HEAT EXCHANGER	I/S (✓) , SEC, O/S	21	✓	
		22	See	See
PURIFICATION LINE UP	SFP / RWST	SFP / RWST	SFP	SFP
LIFTING JETS	DEGAS PUMP / AUX STM	-	DEGAS PUMP	Degas Pump
HOUSE SERVICE BOILER	I/S(✓) , SEC, O/S	21	✓	✓
		22	O/S	O/S
STATION AIR COMPRESSORS	I/S (✓) , STBY, SEC, O/S	21	STBY	STBY
		11	✓	✓
		12	See	See
INSTRUMENT AIR COMPRESSORS	I/S (✓) , STBY, SEC, O/S	21	STBY	STBY
		22	STBY	STBY

JAN 0 1 2019

END DATE

ALARM PANEL TEST (✦ 31)			
ALARM PANEL	UNITS	TIME	
		1900 - 0700	0700-1900
TA EDISON MONITOR FOR UNIT 1 RIVER WATER PUMPS	Alarm Panel Tested (✓)	✓	✓
UNIT 1 SUPERVISORY PANEL		✓	✓
HP & LP TURBINE SOFT SIDE VIBRATION MONITOR (Bentley Nevada)		✓	✓
HP & LP TURBINE GENERATOR (Bentley Nevada)		✓	✓
21 & 22 MBFP VIBRATION MONITOR (Bentley Nevada)		✓	✓
HP & LP TURBINE HARD SIDE VIBRATION (Bentley Nevada) (Upper Panel)		✓	✓
HP & LP TURBINE HARD SIDE VIBRATION (Bentley Nevada) (Lower Panel)		✓	✓
G.E. GENERATOR PANEL		✓	✓
ACCIDENT ASSESSMENT PANEL 1 (AS-1)		✓	✓
FLIGHT PANEL - UNIT 1 (1 FAF)		✓	✓
DIESEL FIRE PUMP		✓	✓
AREA RADIATION MONITORS		✓	✓
CONTAINMENT BUILDING FIRE PANEL (✦ 32)		✓	✓
CENTRAL CONTROL ROOM FIRE ALARM PANEL PA-1 (✦ 26)		✓	✓
AUXILIARY BOILER FEED PUMP BUILDING FIRE PANEL (✦ 32)		✓	✓
PAB BUILDING FIRE PANEL (✦ 32)		✓	✓
M.O. BUILDING FIRE PANEL (✦ 32)		✓	✓
RCP VIBRATION MONITOR		✓	✓
TURBINE FIRST OUT (FAF)		✓	✓
PRESSURIZER, STEAM GENERATOR, AND G.E. MAIN GENERATOR PANEL (FBF)		✓	✓
REACTOR CONTROL PANEL (FCF)		✓	✓
REACTOR FIRST OUT PANEL (FDF)		✓	✓
PROCESS RADIATION MONITORS (SAF-1)		✓	✓
REACTOR COOLANT SYSTEM (SAF)		✓	✓
CCR SAFEGUARDS (SBF-1)		✓	✓
CCR SAFEGUARDS (SBF-2)		✓	✓
CONDENSATE AND BOILER FEED (SCF)		✓	✓
TURBINE RECORDER (SDF)		✓	✓
TURBINE AND G.E. GENERATOR START-UP (SEF)		✓	✓
CHEMICAL AND VOLUME CONTROL (SFF)		✓	✓
AUXILIARY COOLANT SYSTEM (SGF)		✓	✓
CCR ELECTRICAL (SHF)		✓	✓
COOLING WATER AND AIR (SJF)		✓	✓
BEARING MONITOR (SKF)		✓	✓
WELD CHANNEL (SLF)		✓	✓
CCR SAFETY INJECTION (SMF)		✓	✓
ELECTRIC HEAT TRACING AND DELUGE (SOF)		✓	✓
CCR SEQUENCE OF EVENTS REVIEWED (✦ 34)	(✓)	✓	✓

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Determine Appropriate RWP And Take Action For High Area Radiation Alarm.	JPM No.:	2003 NRC A3 RO
K/A Reference:	2.3.2 (2.5)		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: X Actual Performance: _____

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:	You are an extra operator on shift. You have been directed to perform a valve alignment in the 59' Ion Exchange Valve Gallery
Task Standard:	Correct survey map identified, correct RWP used to perform task, and actions to minimize exposure are taken
Required Materials:	Survey Maps RWP Alarming dosimeter
General References:	Radiation Protection plan
Handouts:	Survey Maps RWPs
Initiating Cue:	Choose the correct RWP to perform the task required
Time Critical Task:	NO
Validation Time:	5 Minutes

(Denote Critical Steps with an asterisk)

Note: Hand the candidate the attached survey maps.

* **Performance Step: 1** Identify survey map for area required to enter

Standard: Identifies correct survey map #59 (Ion Exchange Valve Gallery)

Comment: **NOTE: When survey map is identified, hand the candidate the attached RWPs.**

* **Performance Step: 2** Identify RWP required for task to be performed

Standard: Identifies correct RWP (032002 Task 22)

Comment: **CUE: When candidate identifies RWP, ask if there are any additional controls required to perform the assigned task. Correct response is that HP coverage is required for access as well as the Anti-C and dosimetry requirements on the survey map and RWP**

CUE: Inform candidate that the work is complete but their digital dosimeter is alarming.

* **Performance Step: 3** Verify dosimeter alarm condition

Standard: Checks dosimeter to check dose and dose rate

Comment: **Cue: Inform candidate that dose rate indicates 200 mr/hour**

* **Performance Step: 4** Leave the area. Contact HP

Standard: Leaves to a lower dose area. Contacts HP for guidance

Comment:

Terminating Cue: When the candidate leaves the area of high radiation and informs HP, the evaluation for this JPM is complete

Job Performance Measure No.: IP2 2003 NRC A3 RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: You are an extra operator on shift. You have been directed to perform a valve alignment in the 59' Ion Exchange Valve Gallery

INITIATING CUE: Choose the correct RWP to perform the task required

Indian Point 2	**RADIOLOGICAL WORK PERMIT**	RWP Number 032002 Rev. 00		
RWP Title: Operations Activities - Indian Point 2	NRC Code: ROS	032002		
Requesting Department:	RWP Type: Routine	Start Date 12/27/02	Closed Date 01/01/04	Review Dat

Job Description: Operations Unit 2 Support

Job Location:

RADIOLOGICAL CONDITIONS	LIMITING CONDITIO
See current surveys for radiological conditions associated with your entry area.	

GENERAL REQUIREMENTS

Pre-job Briefing: NOT Required	Post Job Review: NOT Required

ACTIVITY REQUIREMENTS

01 Task - Nuclear Watch
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Rate: .1 mrem

02 Task- Trainees
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS / NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Rate: .1 mrem

03 Task-Mentors and Peer Checkers
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS / NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Rate: .1 mrem

22 Task - Unit 2 Ops Support
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 10, Rate Alarm: 50, Stay Time: 12:00, Chirp Rate: 10 mrem

WORKER SPECIAL INSTRUCTIONS (SI)

Protective Clothing for Contaminated Areas only□□Double protective clothing required for general areas greater than 100,000 DPM/100cm2□□Use catch container when venting / opening wet system□□Overhead areas must be surveyed by HP prior to work.□□Check your M/G frequently□□Partia PC's shall be used when reaching into or touching Contaminated Areas or Equipment□□Do not work with M-G in alarm mode. Back out and check with HP.□□M-G setpoints may be adjusted on a case by case basis.

RP TECHNICIAN SPECIAL INSTRUCTIONS

Air sampling as per HP-SQ-3.012 "Airborne Radioactivity Sampling and Analysis"□□Pre-Job ALARA Brief required for LHRA- Control Point Monitior/Guard required for LHRA.□□Unit 1 Routines, and steps taken to Decon, Dismantle, or work on equipment that is exclusivley for Unit 1 will be worked on a Unit 1 RWP which has a 1000 series number

RP Technician	RP Supervisor
ZOLOTAS, WILLIAM E	RICHARDS, ROBERT H

For off shift RP coverage contact the RP Watch at 734-5272, or 734-5424.

Indian Point 2	**RADIOLOGICAL WORK PERMIT**	RWP Number 020204 Rev. 03		
RWP Title: Operations Activities - Indian Point 2	NRC Code: ROS	020204		
Requesting Department:	RWP Type: Routine	Start Date 12/20/01	Closed Date 01/01/03	Review Dat

Job Description: Operations Non Outage Activities

Job Location:Unit 1 & 2

RADIOLOGICAL CONDITIONS	LIMITING CONDITIO
See current surveys for radiological conditions associated with your entry area.	

GENERAL REQUIREMENTS

Pre-job Briefing: NOT Required	Post Job Review: NOT Required

ACTIVITY REQUIREMENTS

00 Task - Planned Entry, <5 mRem Accumulated Dose
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 5, Rate Alarm: 10, Stay Time: 14:00, Chirp Rate: .1 mrem

01 Task - Planned Entry, >5 mRem Accumulated Dose
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Rate: .1 mrem

02 Task- Trainees
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS / NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Rate: .1 mrem

03 Task-Mentors and Peer Checkers
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS / NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Rate: .1 mrem

04 Task - Labeling
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Rate: .1 mrem

WORKER SPECIAL INSTRUCTIONS (SI)

Protective Clothing for Contaminated Areas only□□Double protective clothing required for general areas greater than 100,000 DPM/100cm2□□Use catch container when venting / opening wet system□□Overhead areas must be surveyed by HP prior to work.□□Check your M/G frequently□□Part PC's shall be used when reaching into or touching Contaminated Areas or Equipment

RP TECHNICIAN SPECIAL INSTRUCTIONS

Air sampling as per HP-SQ-3.012 "Airborne Radioactivity Sampling and Analysis"□□Pre-Job ALARA Brief required for LHRA- Control Point Monitior/Guard required for LHRA.

RP Technician	RP Supervisor
MISKIMEN, MARIE L	RICHARDS, ROBERT H

For off shift RP coverage contact the RP Watch at 734-5272, or 734-5424.

Indian Point 2	**RADIOLOGICAL WORK PERMIT**	RWP Number 031002 Rev. 00		
RWP Title: Operations Unit 1 Support	NRC Code: RPM	0 3 1 0 0 2		
Requesting Department:	RWP Type: Routine	Start Date 12/27/02	Closed Date 01/01/04	Review Dat

Job Description: Operations Unit 1 Support

Job Location:

RADIOLOGICAL CONDITIONS	LIMITING CONDITION
See current surveys for radiological conditions associated with your entry area.	

GENERAL REQUIREMENTS

Pre-job Briefing: NOT Required	Post Job Review: NOT Required

ACTIVITY REQUIREMENTS

01 Task - Nuclear Watch
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Rate: .1 mrem

02 Task- Trainees
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS / NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Rate: .1 mrem

03 Task-Mentors and Peer Checkers
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS / NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Rate: .1 mrem

22 Task - Unit 1 Ops Support
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 10, Rate Alarm: 50, Stay Time: 12:00, Chirp Rate: 10 mrem

WORKER SPECIAL INSTRUCTIONS (SI)

Protective Clothing for Contaminated Areas only□□Double protective clothing required for general areas greater than 100,000 DPM/100cm2□□Use catch container when venting / opening wet system□□Overhead areas must be surveyed by HP prior to work.□□Check your M/G frequently□□Parti PC's shall be used when reaching into or touching Contaminated Areas or Equipment□□Do not work with M-G in alarm mode. Back out and check with HP.□□M-G setpoints may be adjusted on a case by case basis.

RP TECHNICIAN SPECIAL INSTRUCTIONS

Air sampling as per HP-SQ-3.012 "Airborne Radioactivity Sampling and Analysis"□□Pre-Job ALARA Brief required for LHRA- Control Point Monitior/Guard required for LHRA.□□

RP Technician	RP Supervisor
ZOLOTAS, WILLIAM E	RICHARDS, ROBERT H

For off shift RP coverage contact the RP Watch at 734-5272, or 734-5424.

Indian Point 2	**RADIOLOGICAL WORK PERMIT**	RWP Number 032028 Rev. 00		
RWP Title: Vapor Containment Entries - Indian Point 2	NRC Code: RPM	032028		
Requesting Department:	RWP Type: Routine	Start Date 01/01/03	Closed Date 01/01/04	Review Dat

Job Description: Non-Outage Vapor Containment Entries all groups

Job Location:Unit 2 Vapor Containment

RADIOLOGICAL CONDITIONS	LIMITING CONDITION
See VC historical surveys for the corresponding power level and location.	

GENERAL REQUIREMENTS

Pre-job Briefing: Required	Post Job Review: NOT Required

ACTIVITY REQUIREMENTS

00 Task - Planned Entry <5 mRem Accumulated Dose
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PC CHANGES AS PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: ALARA BRIEFING RQ'D FOR LHRA / CONTACT HP PRIOR TO ENTRY / LHRA CONTROL POINT GUARD / NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 5, Rate Alarm: 10, Stay Time: 14:00, Chirp Rate: 1 mrem

01 Task - Planned Entry up to 25 mRem Accumulated Dose
RP Coverage: Constant Coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PC CHANGES AS PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: ALARA BRIEFING RQ'D FOR LHRA / CONTACT HP PRIOR TO ENTRY / LHRA CONTROL POINT GUARD / NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Rate: 1 mrem

02 Task - Planned Entry up to 100 mRem Accumulated Dose
RP Coverage: Constant Coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PC CHANGES AS PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: ALARA BRIEFING RQ'D FOR LHRA / CONTACT HP PRIOR TO ENTRY / LHRA CONTROL POINT GUARD / NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 100, Rate Alarm: 300, Stay Time: 14:00, Chirp Rate: 1 mrem

03 Task - Planned Entry up to 350 mRem Accumulated Dose
RP Coverage: Constant Coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PC CHANGES AS PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: ALARA BRIEFING RQ'D FOR LHRA / CONTACT HP PRIOR TO ENTRY / LHRA CONTROL POINT GUARD / NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 350, Rate Alarm: 4000, Stay Time: 14:00, Chirp Rate: 1 mrem

10 Task - Preoutage work
RP Coverage: Constant Coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PC CHANGES AS PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: ALARA BRIEFING RQ'D FOR LHRA / CONTACT HP PRIOR TO ENTRY / LHRA CONTROL POINT GUARD / NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 06:00, Chirp Rate: 1 mrem

WORKER SPECIAL INSTRUCTIONS (SI)

Protective Clothing for Contaminated Areas only□Double protective clothing required for general areas greater than 100,000 DPM/100cm2□HP Approval required prior to brushing, welding, grinding, or use of compressed air or solvents.□Overhead areas must be surveyed by HP prior to work.□□All non-repetitive jobs shall be evaluated to determine RWP requirements

RP TECHNICIAN SPECIAL INSTRUCTIONS

Air sampling as per HP-SQ-3.012 "Airborne Radioactivity Sampling and Analysis"Pre-Job ALARA Brief required for LHRA- Control Point Monitior/Gu required for LHRA.HP to complete HP-SQ-3.102 "VC Pre-Entry Checklist" prior to entry.□□Individual entry MG setpoints may be adjusted with prior approval and if included in the brief.

RP Technician	RP Supervisor
ZOLOTAS, WILLIAM E	BAER, STEVEN R

For off shift RP coverage contact the RP Watch at 734-5272, or 734-5424.

Indian Point 2	**RADIOLOGICAL WORK PERMIT**	RWP Number 032006 Rev. 00		
RWP Title: Program & Component Engineering	NRC Code: ISI	0 3 2 0 0 6		
Requesting Department:	RWP Type: Routine	Start Date 12/20/02	Closed Date 01/01/04	Review Dat

Job Description: Program & Component Engineering (ERG)

Job Location:Units 1 & 2

RADIOLOGICAL CONDITIONS	LIMITING CONDITION
See Posting Surveys for Current Data	

GENERAL REQUIREMENTS

Pre-job Briefing: NOT Required	**Post Job Review: NOT Required**

ACTIVITY REQUIREMENTS

00 Task - Planned Entry, <5 mRem Accumulated Dose
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 5, Rate Alarm: 10, Stay Time: 14:00, Chirp Rate: .1 mrem

01 Task - Planned Entry >5mRem
RP Coverage: Intermittent coverage , Dosimetry: TLD AND DRD REQUIRED , Clothing: PARTIAL PC'S <20,000dpm/100cm2 / PC CHANGES A PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure Control: CONTACT HP PRIOR TO ENTRY / MUST SURVEY OVERHEAD AREAS NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Rate: .1 mrem

WORKER SPECIAL INSTRUCTIONS (SI)

Protective Clothing for Contaminated Areas only□□Double protective clothing required for general areas greater than 100,000 DPM/100cm2□□HP Approval required prior to brushing, welding, grinding, or use of compressed air or solvents.□□Overhead areas must be surveyed by HP prior to work.□□Do not work with M-G in alarm mode. Back out and check with HP.□□M-G setpoints may be adjusted on a case by case basis.

RP TECHNICIAN SPECIAL INSTRUCTIONS

Air sampling as per HP-SQ-3.012 "Airborne Radioactivity Sampling and Analysis"□□Pre-Job ALARA Brief required for LHRA- Control Point Monitior/Guard required for LHRA.

RP Technician	RP Supervisor
ZOLOTAS, WILLIAM E	RICHARDS, ROBERT H

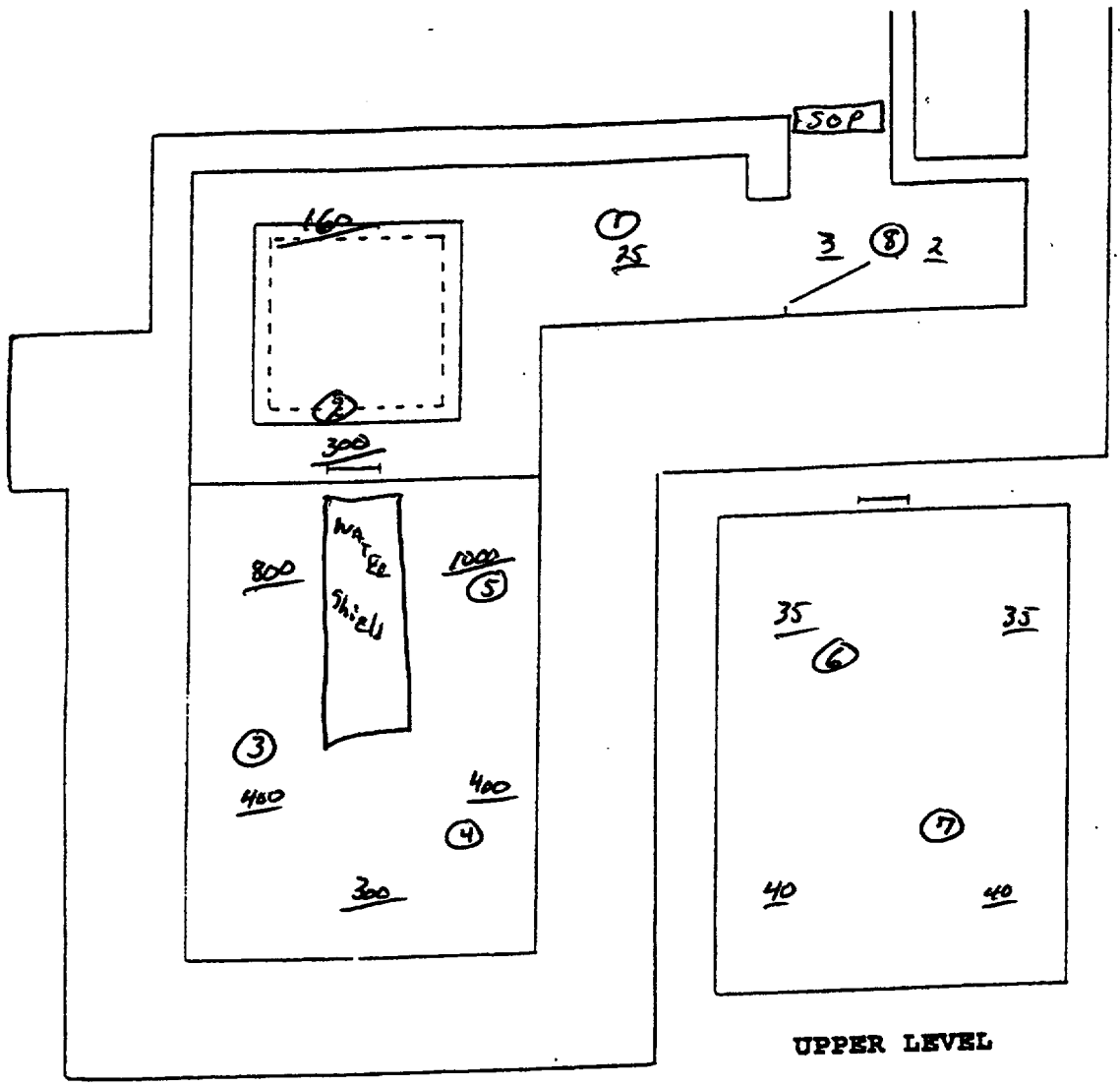
For off shift RP coverage contact the RP Watch at 734-5272, or 734-5424.

Con Edison
Indian Point Station
Health Physics

Attachment 7.4
Page 1 of 1
RADIOLOGICAL SURVEY

HP-SQ-3.701
Rev. 11
Map # 59

By: C. Burns
Area / Item: 59' ION EXCHANGE VALVE GALLERY
Survey Category: Routine ☐
Date: 1-10-03 Time: 1620
Type of Survey: ■ Radiation ■ Contamination ☐ Airborne
New RWP #
Meter / Serial #: RO-2 #IC-49
Counter / Serial # RM14 - F-92 BC4 - n/a SAC4 - n/a
Support # 032002
Survey Key: ____ = DoseRate, * = Contact, β = Beta, O = Smear, H = Head, C = Chest, K = Knee, FL = Floor
Other: SFP Platf
Area Posted As: ■ RCA ☐ VHRA ☐ SLHRA ■ LHRA ☐ HRA ☐ RAD ■ Radioactive Materials
■ Contaminated ☐ Particle ☐ Airborne ☐ Respiratory Protection



Contamination Results dpm / 100 cm²
MDA / BC4 = n/a
MDA / SAC4 = n/a

1	1000
2	2000
3	3000
4	4000
5	6000
6	2000
7	2000
8	1000

Surveyors Exposure: 7	(mRad / hr) Exposure (mRem / hr) Beta	Gamma	Hot Spot	Contamination (dpm / 100 cm²) Beta - Gamma	Alpha	Airborne (µCi / cc) Radiogas	Particulate	Charcoa
General Area	n/t	35-800	n/t	1000-4000	n/t	n/t	n/t	n/t
Maximum	n/t	1000		6000	n/t			

Comments: RO-2 #IC-49 CAL DUE DATE: 4-9-03 RM-14 #F-92 CAL. DUE DATE: 5-23-03

Head	Body	Feet	Hands	Dosimetry	Respiratory Protect
☐ Hood	■ 1 pr. Coveralls	Shoe Covers	■ Cotton Inserts	■ TLD	☐ Full Face N/P
☐ 2 Hoods	☐ 2 pr. Coveralls	☐ High ☐ Low	☐ 1 pr. Rubber Gloves	■ Electronic DRD	Filters:
☐ Surgeon Cap	☐ Disp. Coveralls	■ 2 pr. High & Low	■ 2 pr. Rubber Gloves	☐ DRD	☐ Particulate
☐ Waterproof	☐ Plastic Suit	☐ Rubber Boots	☐ Surgical Gloves	☐ Extremity	☐ Charcoal
☐ Face Shield	☐ No Personal	☐ PVC Boots	☐ Work Gloves	☐ Multi - Badge	☐ Full Face A/S
☐ Taped	Outer Clothing	☐ Taped	☐ Taped	☐ Special: See	☐ A/S Hood
☐ ____	☐ ____	☐ ____	☐ ____	Attachment	☐ PAPR

HEALTH PHYSICS SUPERVISOR: REVIEW / DATE C. Burns / 1/13/03

Con Edison
Indian Point Station
Health Physics

Attachment 7.4
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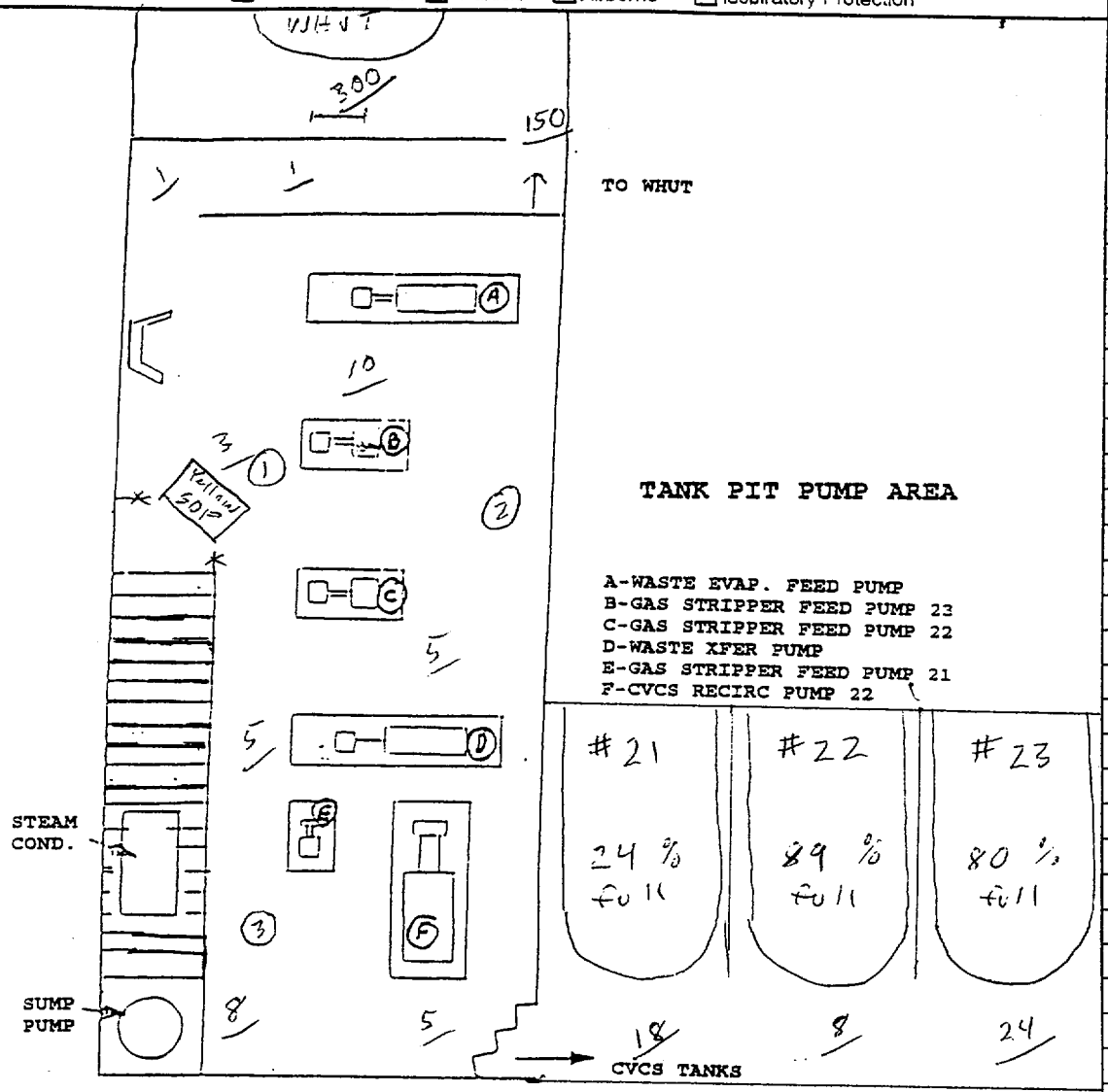
RADIOLOGICAL SURVEY

HP-SC-3.701
Rev. 11
Map # 46

By Priest	Area / Item: 58' CVCS PUMP PIT		Survey Category
Date: 1-13-3 Time: 0905	Type of Survey: ☒ Radiation ☒ Contamination ☐ Airborne		Routine: ☐
Meter / Serial #: RO2 IC9 1-28-3	Counter / Serial # RM14 - F92 BC4 - SAC4 -		New RWP #
Survey Key: ____ = DoseRate , * = Contact , β = Beta , O = Smear , H = Head , C = Chest , K = Knee , FL = Floor			Support #
Area Posted As : ☒ RCA ☐ VHRA ☐ SLHRA ☒ LHRA ☐ HRA ☐ RAD ☒ Radioactive Materials ☒ Contaminated ☐ Particle ☐ Airborne ☐ Respiratory Protection			Other : 032016



Contamination Results
dpm / 100 cm²
MDA / BC4 = NA
MDA / SAC4 = ____

1	150,000
2	400,000
3	100,000

Surveyors Exposure: 0.6	(mRad / hr) Exposure (mRem / hr) Beta	Gamma	Hot Spot	Contamination (dpm / 100 cm²) Beta - Gamma	Alpha	Airborne (µCi / cc) Radiogas	Particulate	Charcoal
General Area	NA	10	NA	200,000	NA	NA	NA	NA
Maximum		300		400,000				

Comments : OPs valve lineup & maintenance lighting walkdown.

Head	Body	Feet	Hands	Dosimetry	Respiratory Protection
☐ Hood	☐ 1 pr. Coveralls	Shoe Covers	☐ Cotton Inserts	☐ TLD	☐ Full Face N/P
☐ 2 Hoods	☐ 2 pr. Coveralls	☐ High ☐ Low	☐ 1 pr. Rubber Gloves	☐ Electronic DRD	Filters:
☐ Surgeon Cap	☐ Disp. Coveralls	☐ 2 pr. High & Low	☐ 2 pr. Rubber Gloves	☐ DRD	☐ Particulate
☐ Waterproof	☐ Plastic Suit	☐ Rubber Boots	☐ Surgical Gloves	☐ Extremity	☐ Charcoal
☐ Face Shield	☐ No Personal	☐ PVC Boots	☐ Work Gloves	☐ Multi - Badge	☐ Full Face A/S
☐ Taped	Outer Clothing	☐ Taped	☐ Taped	☐ Special: See	☐ A/S Hood
☐ ____	☐ ____	☐ ____	☐ ____	Attachment	☐ PAPR

HEALTH PHYSICS SUPERVISOR : REVIEW / DATE ____ / 1/14/03

Con Edison
Indian Point Station
Health Physics

Attacnment 7.4
Page 1 of 1
RADIOLOGICAL SURVEY

HP-SQ-3.701
Rev. 11
Map # 36

By: Robin M. Tamburini | Area / Item: #23 CHARGING PUMP

Date: 2-7-03 Time: | Type of Survey: ☒ Radiation ☒ Contamination ☐ Airborne

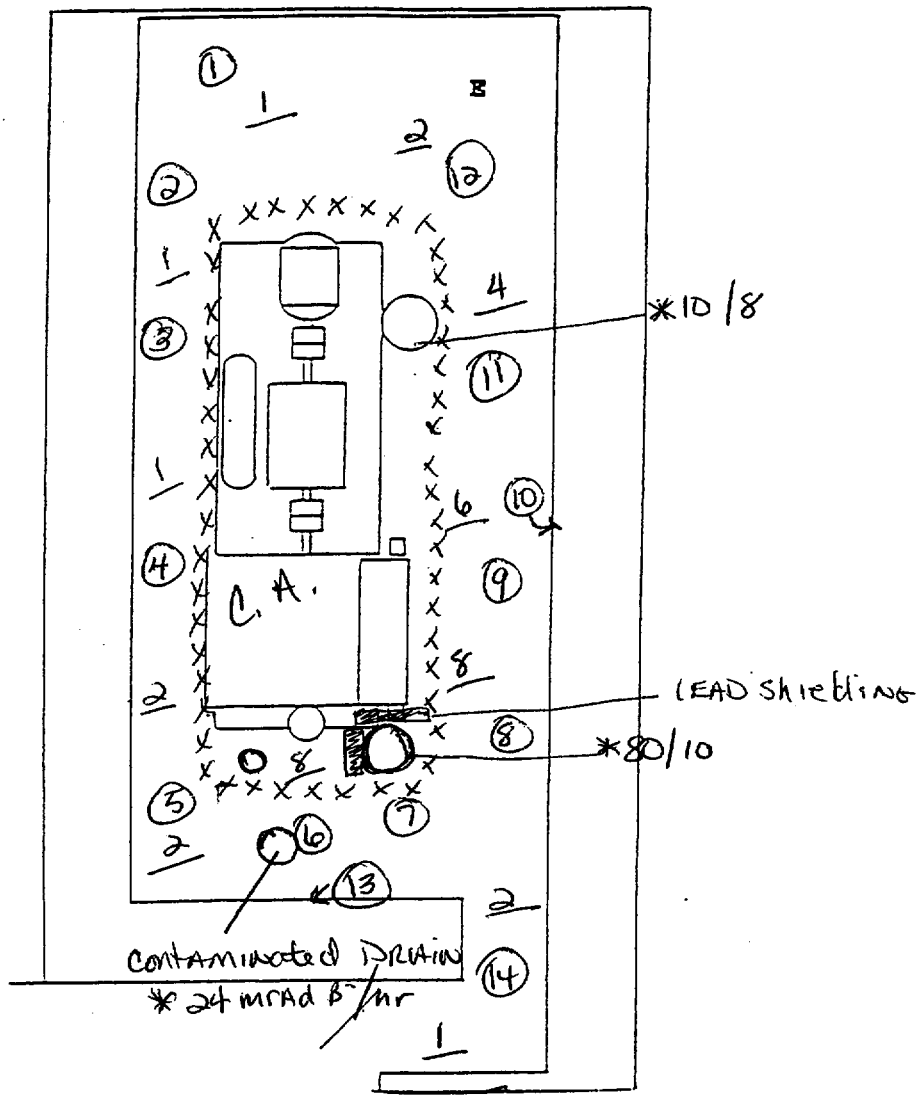
Meter / Serial #: R02 IC 101 7/22/03 | Counter / Serial # RM14 - BC4 - 491 SAC4 -

Survey Key: ____ = DoseRate, * = Contact, β = Beta, O = Smear, H = Head, C = Chest, K = Knee, FL = Floor

Area Posted As: ☒ RCA ☐ VHRA ☐ SLHRA ☐ LHRA ☐ HRA ☒ RAD ☒ Radioactive Materials ☒ Contaminated ☐ Particle ☐ Airborne ☐ Respiratory Protection

Survey Category: Routine: ☐ New RWP # ____ Support # ____ Other: Posting

Cal Due Date:
BC4- 3-5-03



W-WATER A-AIR E-ELECTRIC

Contamination Results dpm / 100 cm²
MDA / BC4 = 121
MDA / SAC4 = N/A

1	≤ 121
2	≤ 121
3	≤ 121
4	≤ 121
5	≤ 121
6	≤ 121
7	≤ 121
8	≤ 121
9	≤ 121
10	≤ 121
11	≤ 121
12	≤ 121
13	≤ 121
14	≤ 121

Surveyors Exposure: 4	(mRad / hr) Exposure (mRem / hr) Beta	Gamma	Hot Spot	Contamination (dpm / 100 cm²) Beta - Gamma	Alpha	Airborne (µCi / cc) Radiogas	Particulate	Charcoal
General Area		1-8	N/D	≤ 121	N/T	N	T	
Maximum	24	*10-*80						

Comments: Lead Shielding on Suction Stabilizer

Head	Body	Feet	Hands	Dosimetry	Respiratory Protection
☐ Hood	☐ 1 pr. Coveralls	Shoe Covers	☐ Cotton Inserts	☐ TLD	☐ Full Face N/P
☐ 2 Hoods	☐ 2 pr. Coveralls	☐ High ☐ Low	☐ 1 pr. Rubber Gloves	☐ Electronic DRD	Filters:
☐ Surgeon Cap	☐ Disp. Coveralls	☐ 2 pr. High & Low	☐ 2 pr. Rubber Gloves	☐ DRD	☐ Particulate
☐ Waterproof	☐ Plastic Suit	☐ Rubber Boots	☐ Surgical Gloves	☐ Extremity	☐ Charcoal
☐ Face Shield	☐ No Personal	☐ PVC Boots	☐ Work Gloves	☐ Multi - Badge	☐ Full Face A/S
☐ Taped	Outer Clothing	☐ Taped	☐ Taped	☐ Special: See	☐ A/S Hood
☐ ____	☐ ____	☐ ____	☐ ____	Attachment	☐ PAPR

HEALTH PHYSICS SUPERVISOR : REVIEW / DATE ____ / 2/10/03

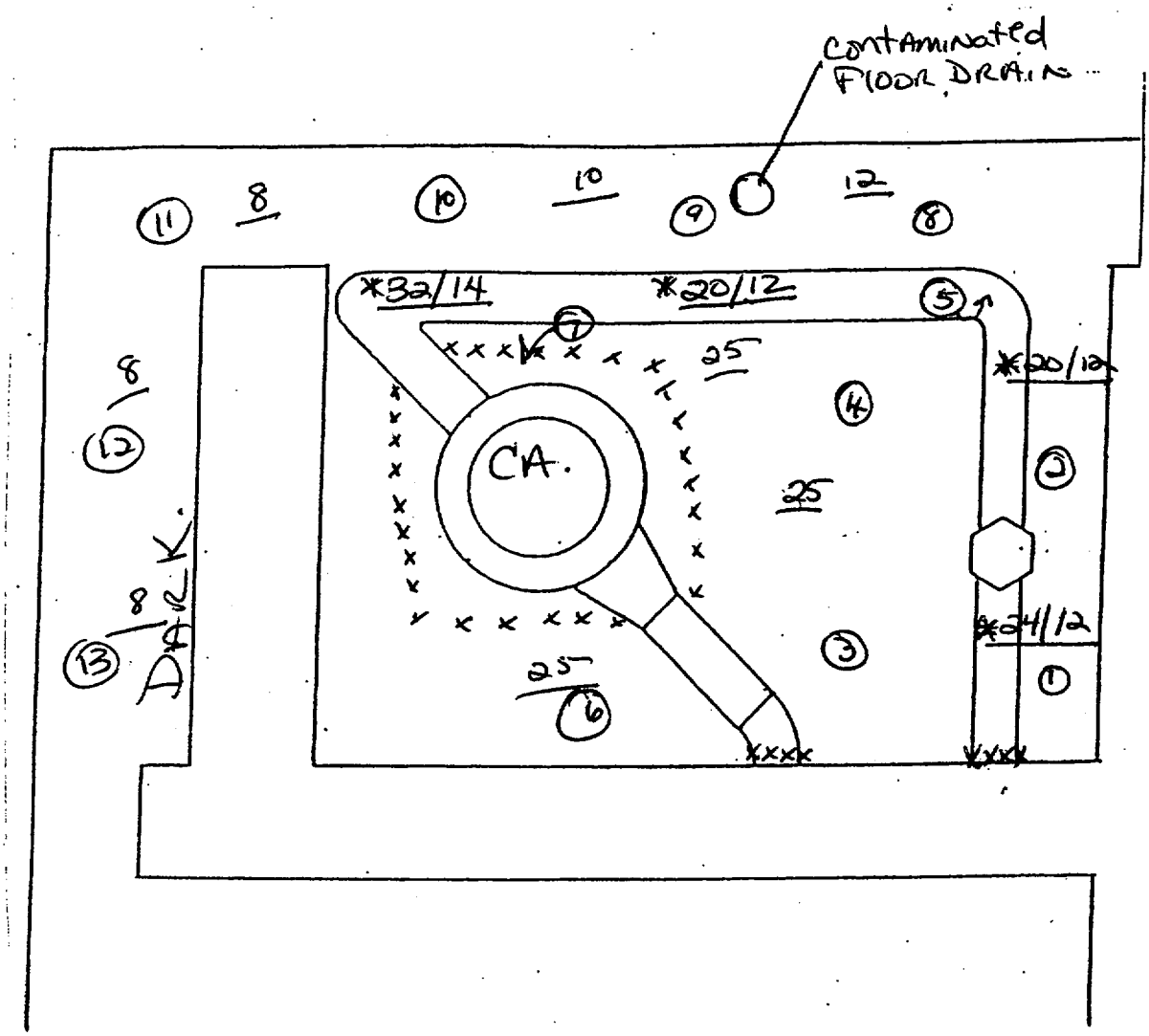
Con Edison
Indian Point Station
Health Physics

Attachment 7.4
Page 1 of 1
RADIOLOGICAL SURVEY

HP-SQ-3.701
Rev. 11
Map # 73

By: Robin M. Tambini | Area / Item: 15' #22 RHR PUMP | Survey Category
Date: 2-7-03 | Time: 1400 | Type of Survey: [X] Radiation [X] Contamination [ ] Airborne | Routine: [X]
Meter / Serial #: RO2 IC 101 7/22/03 | Counter / Serial # RM14 - BC4 - 991 SAC4 - | New RWP #
Survey Key: ____ = DoseRate, * = Contact, β = Beta, O = Smear, H = Head, C = Chest, K = Knee, FL = Floor | Support #
Area Posted As: [X] RCA [ ] VHRA [ ] SLHRA [ ] LHRA [X] HRA [ ] RAD [X] Radioactive Materials | Other: Posin
[X] Contaminated [ ] Particle [ ] Airborne [ ] Respiratory Protection

BC4 - CDD - 3/5/03



Contamination Results dpm / 100 cm²
MDA / BC4 = 12
MDA / SAC4 = N

1	≤ 121
2	≤ 121
3	≤ 121
4	≤ 121
5	≤ 121
6	≤ 121
7	1223
8	≤ 121
9	≤ 121
10	≤ 121
11	≤ 121
12	≤ 121
13	≤ 121

Surveyors Exposure: 8	(mRad / hr) Exposure (mRem / hr) Beta	Gamma	Hot Spot	Contamination (dpm / 100 cm²) Beta - Gamma	Alpha	Airborne (µCi / cc) Radiogas	Particulate	Charco
General Area	N	8-12	N	≤121	N	N		
Maximum	D	*25 *32	D	1223	T		T	

Comments:

Head	Body	Feet	Hands	Dosimetry	Respiratory Protec
[ ] Hood	[ ] 1 pr. Coveralls	Shoe Covers	[ ] Cotton Inserts	[ ] TLD	[ ] Full Face N/P
[ ] 2 Hoods	[ ] 2 pr. Coveralls	[ ] High [ ] Low	[ ] 1 pr. Rubber Gloves	[ ] Electronic DRD	Filters:
[ ] Surgeon Cap	[ ] Disp. Coveralls	[ ] 2 pr. High & Low	[ ] 2 pr. Rubber Gloves	[ ] DRD	[ ] Particulate
[ ] Waterproof	[ ] Plastic Suit	[ ] Rubber Boots	[ ] Surgical Gloves	[ ] Extremity	[ ] Charcoal
[ ] Face Shield	[ ] No Personal	[ ] PVC Boots	[ ] Work Gloves	[ ] Multi - Badge	[ ] Full Face A/S
[ ] Taped	Outer Clothing	[ ] Taped	[ ] Taped	[ ] Special: See	[ ] A/S Hood
[ ] _____	[ ] _____	[ ] _____	[ ] _____	Attachment	[ ] PAPR

HEALTH PHYSICS SUPERVISOR: REVIEW / DATE A Barry / 2/10/03

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Attachment 7.4
Page 1 of 1
RADIOLOGICAL SURVEY

HP-SQ-3.701
Rev. 11
Map # 55

By: T. Whittemore | Area / Item: 35' SERVICE WATER CHASE | Survey Category

Date: 12-5-02 Time: 0300 | Type of Survey: [X] Radiation [X] Contamination [ ] Airborne | Routine: [ ]

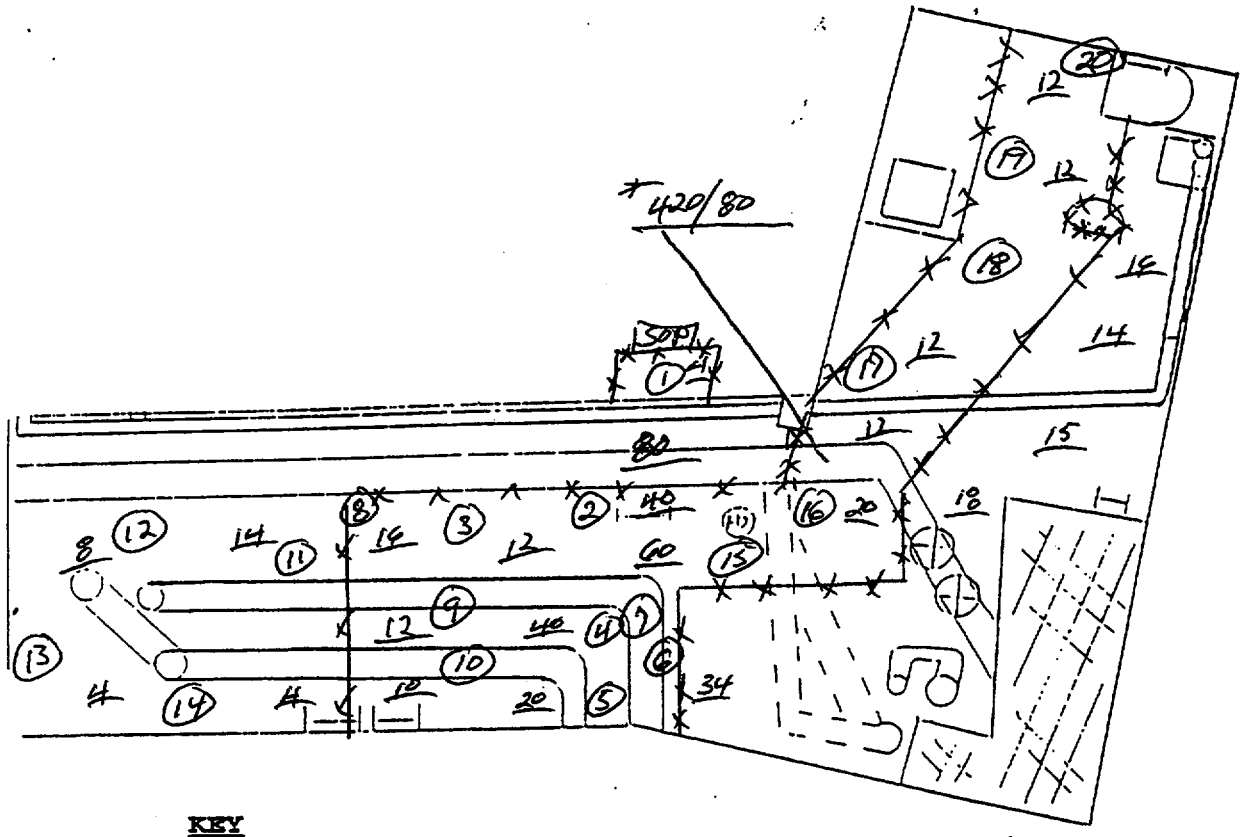
Meter / Serial #: RO2 #IC-50 | Counter / Serial # RM14 - F5C BC4 - 972 SAC4 - | New RWP #

Survey Key: ____ = DoseRate, * = Contact, β = Beta, O = Smear, H = Head, C = Chest, K = Knee, FL = Floor | Support #

Area Posted As: [X] RCA [ ] VHRA [ ] SLHRA [ ] LHRA [X] HRA [ ] RAD [X] Radioactive Materials | Other: pre-de

[X] Contaminated [ ] Particle [ ] Airborne [ ] Respiratory Protection

Cal. due date: 4-9-03/4-5-03/12-21-02



KEY

Ladders

overhead piping

Contamination Results
dpm / 100 cm²
MDA / BC4 = 11
MDA / SAC4 = N

1	<111
2	921
3	3000
4	4000
5	1000
6	1000
7	<111
8	3000
9	3000
10	2000
11	4000
12	1000
13	232
14	3000
15	2000.
16	2000
17	1000
18	1000
19	1000
20	1000

Surveyors Exposure: 3	(mRad / hr) Exposure (mRem / hr) Beta	Gamma	Hot Spot	Contamination (dpm / 100 cm²) Beta - Gamma	Alpha	Airborne (µCi / cc) Radiogas	Particulate	Charco
General Area	N/D	12-40	N/D	2000	NT	NT	NT	NT
Maximum		*420		4000	NT			

Comments:

Head	Body	Feet	Hands	Dosimetry	Respiratory Protec
[ ] Hood	[ ] 1 pr. Coveralls	Shoe Covers	[ ] Cotton Inserts	[X] TLD	[ ] Full Face N/P
[ ] 2 Hoods	[ ] 2 pr. Coveralls	[ ] High [ ] Low	[ ] 1 pr. Rubber Gloves	[X] Electronic DRD	Filters:
[ ] Surgeon Cap	[ ] Disp. Coveralls	[ ] 2 pr. High & Low	[ ] 2 pr. Rubber Gloves	[ ] DRD	[ ] Particulat
[ ] Waterproof	[ ] Plastic Suit	[ ] Rubber Boots	[ ] Surgical Gloves	[ ] Extremity	[ ] Charcoal
[ ] Face Shield	[ ] No Personal	[ ] PVC Boots	[ ] Work Gloves	[ ] Multi - Badge	[ ] Full Face A/S
[ ] Taped	Outer Clothing	[ ] Taped	[ ] Taped	[ ] Special: See Attachment	[ ] A/S Hood
[ ] _____	[ ] _____	[ ] _____	[ ] _____		[ ] PAPR

HEALTH PHYSICS SUPERVISOR : REVIEW / DATE A Baer / 12/5/02

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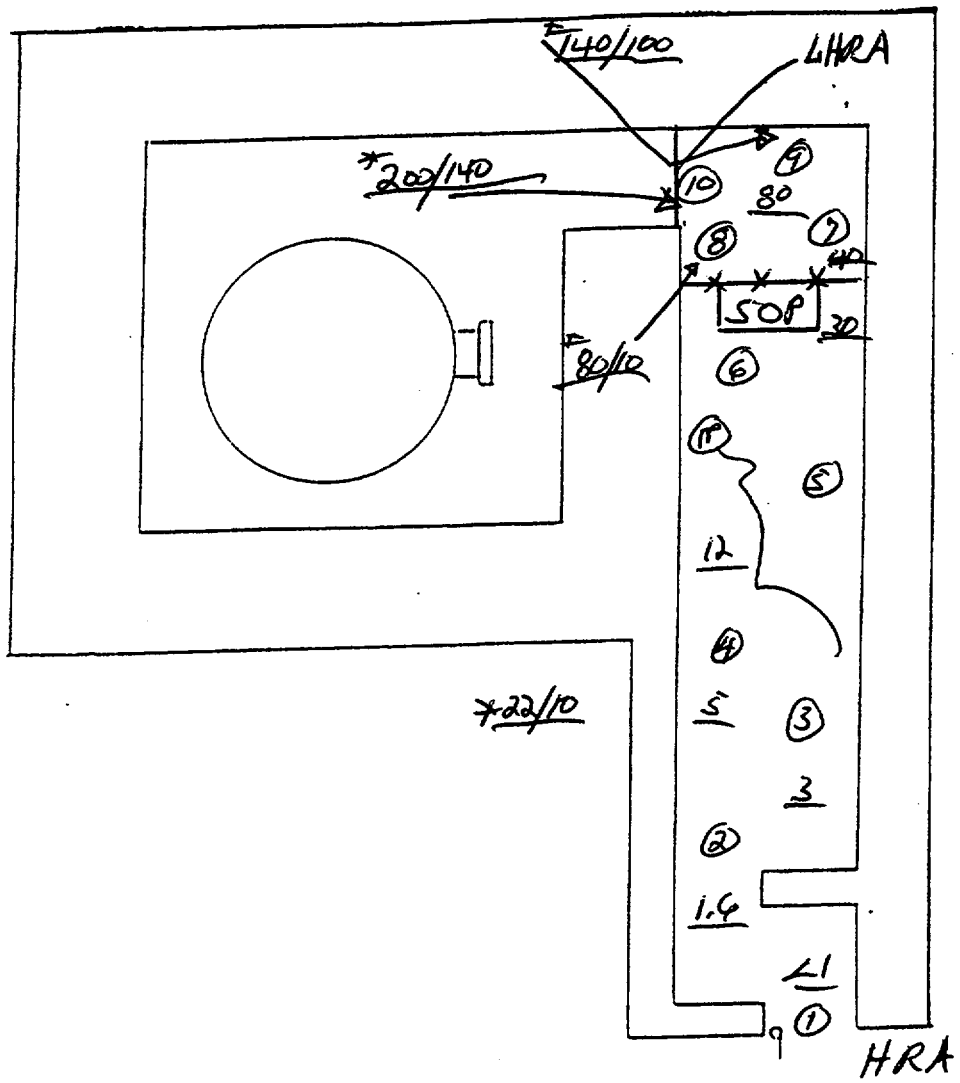
Attachment 7.4
Page 1 of 1
RADIOLOGICAL SURVEY

HP-SQ-3.701
Rev. 11
Map # 23

By: T. Whittemore | Area / Item: 98' VOLUME CONTROL TK & VALVE CORRIDOR | Survey Category
Date: 8-23-02 Time: 2030 | Type of Survey: ■ Radiation ■ Contamination ☐ Airborne | Routine: ■
Meter / Serial #: RO2 II IC-106 | Counter / Serial # RM14-F46 BC4-162 SAC4-1292 | New RWP #
Survey Key: ____ = DoseRate, * = Contact, β = Beta, O = Smear, H = Head, C = Chest, K = Knee, FL = Floor | Support #
Area Posted As: ■ RCA ☐ VHRA ☐ SLHRA ☐ LHRA ■ HRA ☐ RAD ■ Radioactive Materials ■ Contaminated ☐ Particle ☐ Airborne ☐ Respiratory Protection | Other: posting



Contamination Results dpm / 100 cm²

MDA / BC4 = 100
MDA / SAC4 = 10.

1	<100
2	<100
3	<100
4	<100
5	<100
6	<100
7	<1000
8	1000
9	2000
10	2000
	alpha
1	<10.6
10	<10.6
	partial
11	ND
	N/A

Surveyors Exposure: 2	(mRad / hr) Exposure (mRem / hr) Beta	Gamma	Hot Spot	Contamination (dpm / 100 cm²) Beta - Gamma	Alpha	Airborne (µCi / cc) Radiogas	Particulate	Charco
General Area	ND	<1-40	ND	<100	<10.6	NT	NT	NT
Maximum	ND	*200	ND	2000	<10.6			

Comments:

Head	Body	Feet	Hands	Dosimetry	Respiratory Protec
☐ Hood	☐ 1 pr. Coveralls	Shoe Covers	☐ Cotton Inserts	■ TLD	☐ Full Face N/P
☐ 2 Hoods	☐ 2 pr. Coveralls	☐ High ☐ Low	☐ 1 pr. Rubber Gloves	■ Electronic DRD	Filters:
☐ Surgeon Cap	☐ Disp. Coveralls	☐ 2 pr. High & Low	☐ 2 pr. Rubber Gloves	☐ DRD	☐ Particulate
☐ Waterproof	☐ Plastic Suit	☐ Rubber Boots	☐ Surgical Gloves	☐ Extremity	☐ Charcoal
☐ Face Shield	☐ No Personal	☐ PVC Boots	☐ Work Gloves	☐ Multi - Badge	☐ Full Face A/S
☐ Taped	Outer Clothing	☐ Taped	☐ Taped	☐ Special: See Attachment	☐ A/S Hood
☐ _____	☐ _____	☐ _____	☐ _____		☐ PAPR

HEALTH PHYSICS SUPERVISOR: REVIEW / DATE _____ / 8/30/02

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Attachment 7.4
Page 1 of 1
RADIOLOGICAL SURVEY

HP-SQ-3.701
Rev. 11
Map # 6

S

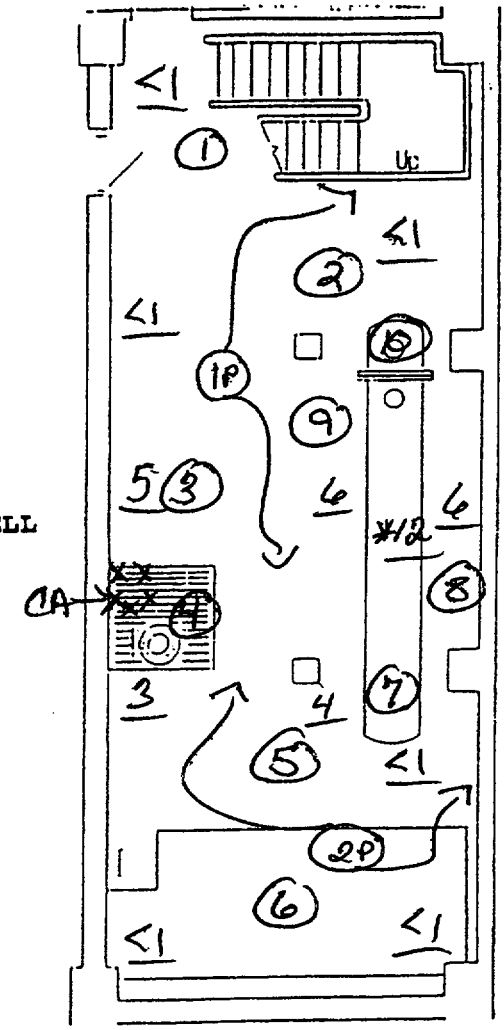
By: C. DeCarolis
Area / Item: 80' SPENT FUEL HEAT EXCHANGER
Survey Category: Routine: X

Date: 8-12-02 Time: 1620
Type of Survey: X Radiation X Contamination ☐ Airborne

Meter / Serial #: RO2 IC 1066
Counter / Serial # RM14 - F46 BC4 - 991 SAC4 - 658
New RWP #:

Survey Key: ____ = DoseRate, * = Contact, β = Beta, O = Smear, H = Head, C = Chest, K = Knee, FL = Floor
Support #:

Area Posted As: X RCA ☐ VHRA ☐ SLHRA ☐ LHRA ☐ HRA X RAD X Radioactive Materials
☐ Contaminated ☐ Particle ☐ Airborne ☐ Respiratory Protection
Other: Rad NV



ORIGINAL
When in REL

Contamination Results
dpm / 100 cm²
MDA / BC4 = 120
MDA / SAC4 = 13

1	< 120
2	< 120
3	< 120
4	242
5	< 120
6	< 120
7	< 120
8	< 120
9	< 120
10	< 120
	Alpha
4	< 13
	Particle
1P	N/A
2P	N/A

N/A

Surveyors Exposure: .2	(mRad / hr) Exposure (mRem / hr)			Contamination (dpm / 100 cm²)		Airborne (μCi / cc)		
	Beta	Gamma	Hot Spot	Beta - Gamma	Alpha	Radiogas	Particulate	Charcoal
General Area	N/A	≤1 - 6	N/A	< 120	< 13	N/T	N/T	N/T
Maximum		12		242	< 13			

Comments: Particle survey masslin < 1000 cpm

Head	Body	Feet	Hands	Dosimetry	Respiratory Protection
☐ Hood	☐ 1 pr. Coveralls	Shoe Covers N/A	☐ Cotton Inserts	☐ TLD	☐ Full Face N/P
☐ 2 Hoods	☐ 2 pr. Coveralls	☐ High ☐ Low	☐ 1 pr. Rubber Gloves	☐ Electronic DRD	Filters:
☐ Surgeon Cap	☐ Disp. Coveralls	☐ 2 pr. High & Low	☐ 2 pr. Rubber Gloves	☐ DRD	☐ Particulate
☐ Waterproof	☐ Plastic Suit	☐ Rubber Boots	☐ Surgical Gloves	☐ Extremity	☐ Charcoal
☐ Face Shield	☐ No Personal	☐ PVC Boots	☐ Work Gloves	☐ Multi - Badge	☐ Full Face A/S
☐ Taped	Outer Clothing	☐ Taped	☐ Taped	☐ Special: See	☐ A/S Hood
☐ _____	☐ _____	☐ _____	☐ _____	Attachment	☐ PAPR

HEALTH PHYSICS SUPERVISOR: REVIEW / DATE _____ / 8/13/02

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Perform the RCS Leak Rate Surveillance	JPM No.:	2003 NRC A2 RO
K/A Reference:	2.2.12 (3.0)		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:	A manual RCS leak rate calculation was started 4 hours ago in accordance with SOP-1.7.
Task Standard:	RCS leak rate is calculated correctly within +/- 0.1 GPM
Required Materials:	SOP-1.7 Calculator Steam Tables
General References:	SOP-1.7
Handouts:	SOP1.7 and completed attachment 1
Initiating Cue:	Using the final values below, manually calculate RCS leak rate in accordance with SOP-1.7, section 4.2.2.1, RCS Inventory Balance.
Time Critical Task:	NO
Validation Time:	20 Minutes

(Denote Critical Steps with an asterisk)

Note: Hand candidate attachment 1 with initial and final data

Performance Step: 1 Transfer data to attachment 2

Standard: Refer to attachment 1 and place data in appropriate blocks on attachment 2

Comment:

Performance Step: 2 Calculate total surveillance period time

Standard: Calculates 240 minutes

Comment:

Performance Step: 3 Calculate total volume diverted

Standard: Calculates zero gallons

Comment:

Performance Step: 4 Determine total Boric Acid and Primary Water makeup from totalizers

Standard: Calculates 34 gallons boric acid, 426 gallons primary water

Comment:

* **Performance Step: 5** Calculate total volume diverted from total makeup

Standard: Calculates 460 gallons

Comment:

Performance Step: 6 Calculate change in VCT volume and convert to gallons

Standard: Calculates 38.6 gallons

Comment:

* **Performance Step: 7** Sum change in VCT volume and net makeup
Standard: Calculates 498.6 gallons

Comment:

Performance Step: 8 Calculate change in RCS mass due to change in pressurizer level
Standard: Calculates 519.9 lbm

Comment:

Performance Step: 9 Calculate the change in RCS mass due to Tave
Standard: Calculates (-) 784 lbm

Comment:

Performance Step: 10 Sum the mass changes due to level and temperature changes
Standard: Calculates (-) 264.1 lbm and converts to (-) 31.95 gallons

Comment:

* **Performance Step: 11** Add total volumes
Standard: Calculates 466.7 gallons

Comment:

* **Performance Step: 12** Divide total elapsed time
Standard: Total value of leakage is 1.94 gpm
(Candidate should arrive at 1.84 to 2.04)

Comment:

* **Performance Step: 13** Subtract identified leakage from last safety evaluation
Standard: Subtracts 1.7 gpm to arrive at 0.24 GPM total unidentified leakage

Comment:

Performance Step: 14	Record the total unidentified leak rate on attachment 5
Standard:	Locates attachment 5
Comment:	
Terminating Cue:	When RCS leak rate calculation is complete, the evaluation for this JPM is complete

VERIFICATION OF COMPLETION

Job Performance Measure No.: IP2 2003 NRC A2 RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

INITIAL CONDITIONS: A manual RCS leak rate calculation was started 4 hours ago in accordance with SOP-1.7.

INITIATING CUE: Using the final values below, manually calculate RCS leak rate in accordance with SOP-1.7, section 4.2.2.1, RCS Inventory Balance.

Final Values:

- Provided on Attachment 1 (provided)
- Last Identified leak rate from safety evaluation 3 days ago is 1.7 GPM

HANDOUT

ATTACHMENT 1
LEAKAGE SURVEILLANCE DATA SHEET
(PAGE 1 of 2)

DATE TODAY

PARAMETER	PLANT COMPUTER SYSTEM	INDICATION	PREVIOUS (Initial) DATA [1]	Present (Final) DATA
Time	Clock	Panel 1FAF	T+0	T+4 Hours
RCS Activity (μCi/cc)		Sample	2.2E-6	2.2E-6
Kr88 Activity (μCi/cc)		Sample	1.6E-7	1.6E-7
R-41 Activity (μCi/cc)			3.1E-6	3.1E-6
R-41 Background (μCi/cc)			4.2E-4	4.2E-6
BA Integrator	-	Panel FBF	66	100
PW Integrator	-	Panel FBF	24	450
VC Sump Flow Integrator	-	Panel SFF	006626	006626
VCT Level	L0112	LI-112	26	24
Average PZR Level [2]	U0483	-	45	44
Ch.1 PZR Level [2]	L0480	LI-459	45	44
Ch.2 PZR Level [2]	L0481	LI-460	45	44
Ch.3 PZR Level [2]	L0482	LI-461	45	44
VC Sump Level	L6055	Panel SBF-1	40' 0"	40' 0"
T_{AVE}	U0484 or T0499 or RCSAVETAVE (SAS)	Panel FCF or FDF	559	558
RCS Pressure	U0482 or P0499	PT-455,456 457,474	2235	2235
Weir Level 21 FCU	-	LI-1133	0.0"	0.0"
22 FCU	-	LI-1134	0.0"	0.0"
23 FCU	-	LI-1135	-0.1"	-0.1"
24 FCU	-	LI-1136	0.0"	0.0"
25 FCU	-	LI-1137	0.0"	0.0"
VC Dew Pt. 21 FCU	-	Recorder	70.7°F	70.7°F
22 FCU	-	Recorder	70.7°F	70.7°F

ATTACHMENT 1
LEAKAGE SURVEILLANCE DATA SHEET
(PAGE 2 of 2)

DATE Today

PARAMETER	PLANT COMPUTER SYSTEM	INDICATION	PREVIOUS (Initial) DATA [1]	Present (Final) DATA
23 FCU	-	Recorder	70.7 °F	70.7 °F
24 FCU	-	Recorder	70.7 °F	70.7 °F
25 FCU	-	Recorder	70.7 °F	70.7 °F
BA makeup to RWST	-	CRS Log	0	0
PW makeup to RWST	-	CRS Log	0	0
Let Down Integrator [2]	-	Panel SFF		0
RHR Valve Leakage	-	SOP 1.7 Att 6	0	0
Known Leakage other than RCS in VC	-	SOP 1.7 Att 6	0	0
Identified RCS Leakage	-	SOP 1.7 Att 6	1.7 GPM	1.7 GPM
VC Sump Temperature	-	WDS Panel	106 °F	106 °F
VC Sump Boron	-	Chemist Sample [3]	NA	NA
VC Sump Sodium Chloride	-	Chemist Sample [3]	NA	NA
VC Sump Molybdenum	-	Chemist Sample [3]	NA	NA
VC Sump Ph @ 25°C	-	Chemist Sample [3]	NA	NA
VC Sump Activity	-	Chemist Sample [3]	NA	NA
VC Sump Conductivity	-	Chemist Sample [3]	NA	NA

[1] Not Required if using PC
[2] ZERO the Letdown Integrator after recording data by pressing the Control Reset button.
[3] IF requested by CRS per step 4.2.2.(2)(j)

ATTACHMENT 2
MANUAL RCS WATER INVENTORY BALANCE WORK SHEET
(PAGE 1 of 3)

DATE _____

CAUTION

Use this attachment **ONLY** at Normal, Full Power Temperature and Pressure of 559°F, and 2235 psig.

RCS Water Inventory Balance (Section 4.2.2)

( ) indicates mathematical sign must be observed.

A. Final Time _____ : _____

Initial Time - _____ : _____

Elapsed Time _____ : _____ = _____ Minutes
(A)

B. Make Up to RWST and Letdown diversion to CVCS HUT.

BA MU from CRS log _____

PW MU from CRS log + _____

RWST MU _____

(b1)

LD Integrator _____ gal
(b2)

Total Divert _____ gal (b1) + _____ gal (b2) = _____ gal (B)

C. Total RCS Make up volume

Final BA Counter _____

Initial BA _____

Difference _____ gal
(c1)

Final PW Counter _____

Initial PW Counter _____

Difference _____ gal
(c2)

Total Makeup _____ gal (c1) + _____ gal (c2) = _____ gal (C)

ATTACHMENT 2
MANUAL RCS WATER INVENTORY BALANCE WORK SHEET
(PAGE 2 of 3)

DATE _____

D. Net MU - Divert _____ (C) gal - _____ (B) gal = ( ) _____ (D) gal

E. Change in VCT volume.

Initial VCT Level _____ %
Final VCT Level _____ %
Difference ( ) _____ % X 19.3 gal / % = ( ) _____ (E) gal

F. Net VCT plus MU/Divert ( ) _____ (D) gal ( ) _____ (E) gal = ( ) _____ (F) gal

G. Change in RCS mass due to change in PZR level

Initial Pzr Level _____ %
Final Pzr Level - _____ %
Difference ( ) _____ % X 126.2 gal / % = ( ) _____ (g1) gal

Change in Pzr Mass ( ) _____ (g1) gal X 4.12 lb / gal = ( ) _____ (G) lbm

H. Change in RCS mass due to T_{ave}

Final T_{ave} _____ F°
Initial T_{ave} - _____ F°
Difference ( ) _____ F° X 784 lb / F° = ( ) _____ (H) lbm

I. Total change in RCS Mass

(Pzr Level plus T_{ave}) ( ) _____ (G) lbm ( ) _____ (H) lbm = ( ) _____ (I) lbm

J. Total change in RCS Volume

(Referenced to VCT temp.) ( ) _____ (I) lbm X 0.121 gal / lb = ( ) _____ (J) gal

ATTACHMENT 2
MANUAL RCS WATER INVENTORY BALANCE WORK SHEET
(PAGE 3 of 3)

DATE _____

K. Change in System Volume
(RCS plus VCT) ( ) _____ (F) gal ( ) _____ (J) gal = ( ) _____ (K) [1] gal

L. Total System leakage _____ (K) gal ÷ _____ (A) min = _____ (L) gpm

M. Previously Identified leakage (From last SE) _____ (M) gpm

N. Unidentified Leakage _____ (L) gpm - _____ (M) gpm = _____ (N) gpm

[1] A positive number indicates a net removal of mass from the system

ANSWER KEY

ATTACHMENT 2
MANUAL RCS WATER INVENTORY BALANCE WORK SHEET
(PAGE 1 of 3)

DATE TODAY

CAUTION

Use this attachment **ONLY** at Normal, Full Power Temperature and Pressure of 559°F, and 2235 psig.

RCS Water Inventory Balance (Section 4.2.2)

( ) indicates mathematical sign must be observed.

A. Final Time T:4
Initial Time - T:0
Elapsed Time 4:00 = 240 Minutes
(A)

B. Make Up to RWST and Letdown diversion to CVCS HUT.

BA MU from CRS log 0
PW MU from CRS log + 0
RWST MU 0
(b1)

LD Integrator 0 gal
(b2)

Total Divert 0 gal (b1) + 0 gal (b2) = 0 gal (B)

C. Total RCS Make up volume

Final BA Counter 100
Initial BA 66
Difference 34 gal
(c1)

Final PW Counter 450
Initial PW Counter 24
Difference 426 gal
(c2)

Total Makeup 34 gal (c1) + 426 gal (c2) = 460 gal (C)

ATTACHMENT 2
MANUAL RCS WATER INVENTORY BALANCE WORK SHEET
(PAGE 2 of 3)

DATE TODAY

D. Net MU - Divert: 460 (C) gal - 0 (B) gal = (+) 460 (D) gal

E. Change in VCT volume.

Initial VCT Level	26 %					
Final VCT Level	24 %					
Difference	(+) 2 %	X	19.3 gal / %	=	(+) 38.6 (E)	gal

F. Net VCT plus MU/Divert: (+) 460 (D) gal (+) 38.6 (E) gal = (+) 498.6 (F) gal

G. Change in RCS mass due to change in PZR level

Initial Pzr Level	45 %					
Final Pzr Level	- 44 %					
Difference	(+) 1 %	X	126.2 gal / %	=	(+) 126.2 (g1)	gal
Change in Pzr Mass	(+) 126.2 (g1) gal	X	4.12 lb / gal	=	(+) 519.94 (G)	lbm

H. Change in RCS mass due to T_{ave}

Final T_{ave}	558 F°					
Initial T_{ave}	- 559 F°					
Difference	(-) 1 F°	X	784 lb / F°	=	(-) 784 (H)	lbm

I. Total change in RCS Mass (Pzr Level plus T_{ave}): (+) 519.94 (G) lbm (-) 784 (H) lbm = (-) 264.1 (I) lbm

J. Total change in RCS Volume (Referenced to VCT temp.): (-) 264.1 (I) lbm X 0.121 gal / lb = (-) 31.95 (J) gal

ATTACHMENT 2
MANUAL RCS WATER INVENTORY BALANCE WORK SHEET
(PAGE 3 of 3)

DATE Today

K. Change in System Volume
(RCS plus VCT) (+) 498.6 gal (F) (−) 31.95 gal (J) = (+) 466.7[1] gal (K)

L. Total System leakage 4667 gal (K) ÷ 240 min (A) = 1.94 gpm (L)

M. Previously Identified leakage (From last SE) 1.7 gpm (M)

N. Unidentified Leakage 1.94 gpm (L) − 1.7 gpm (M) = 0.24 gpm (N)

[1] A positive number indicates a net removal of mass from the system

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: Indian Point Unit 2 Task No.: N/A

Task Title: Review Control Room Log Entries JPM No.: 2003 NRC A1b SRO

K/A Reference: 2.1.18 (3.0)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The surveillances required by DSR-1 are complete for 0700

Task Standard: All corrective actions taken or in progress in accordance with DSR-1

Required Materials: DSR-1 Rev 91

General References: DSR-1 Rev 91

Handouts: DSR-1 Rev 91

Initiating Cue: Review the log entries taken on the 1900-0700 shift for approval

Time Critical Task: NO

Validation Time: 15 minutes

Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Emergency Plan Questions	JPM No.:	2003 NRC A4 RO
K/A Reference:	2.4.29 (2.6)		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:	N/A
Task Standard:	Two questions answered 80% correctly
Required Materials:	E-Plan Implementing Procedures
General References:	E-Plan Implementing Procedures
Handouts:	N/A
Initiating Cue:	N/A
Time Critical Task:	NO
Validation Time:	10 Minutes

ANSWER KEY

NRC RO ADMIN A.4 QUESTION 1 (NO Reference allowed)

You are on shift as a spare RO, doing procedure walkdowns.

A Site Area Emergency has been declared at Indian Point. Site accountability is required.

Where are you required to report?

ANSWER:

The Central Control Room

REFERENCE:

IP-2001, Attachment 5.3

ANSWER KEY

NRC RO ADMIN A.4 QUESTION 2 (CLOSED Reference)

A Site Area Emergency has been declared at Indian Point.

List 5 of the Emergency Response Facilities that are staffed as a result of this event.

ANSWER:

- Central Control Room (CCR)
- Technical Support Center (TSC)
- Operations Support Center (OSC)
- Emergency Operations Facility (EOF)
- Alternate EOF (AEOF)
- Joint News Center

20% each for a maximum of 100%

REFERENCE:

E-Plan

NRC RO ADMIN A4 QUESTION 1

(Closed Reference)

You are on shift as a spare RO, doing procedure walkdowns.

A Site Area Emergency has been declared at Indian Point. Site accountability is required.

Where are you required to report?

NRC RO ADMIN A4 QUESTION 2

(Closed Reference)

A Site Area Emergency has been declared at Indian Point.

List 5 of the Emergency Response Facilities that are staffed as a result of this event.

Job Performance Measure No.: IP2 2003 NRC A4 RO

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____