Facility:	Indian Point 2	Date of Examination: 3/17/2003			
Examina	tion Level: SRC	Operating Test Number: 1			
Administr	rative Topic/Subject	Describe method of evaluation:			
[	Description	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	<ul> <li>2.2.17 Knowledge of the process for managing maintenance activities during power operations. (2.3/3.5)</li> <li>JPM: Review (for approval) a completed surveillance for Tech Spec required equipment</li> </ul>			
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	2.3.2 (2.9) Knowledge of facility ALARA program.			
	Exposure Limits Question	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			

Appendix C	Job Performanc Worksho	e Measure eet	Form ES-C-1	
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 Examine	•. •	
Facility Evaluator:		Date:		
Method of testing:				
Simulated Perform	ance:	Actual Perform	ance: X	
Classr	room 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

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\*

#### Page 2 of 5 PERFORMANCE INFORMATION

Form ES-C-1

#### (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:	

Appendix C		Page 3 of 5 Form ES-C-1 PERFORMANCE INFORMATION
*	Performance Step: 6 Standard:	Calculate Quadrant Power Tilt for top and bottom detectors Performs calculation
	Comment:	
	Performance Step: 7 Standard:	Record Highest Quadrant Power Tilt and appropriate signatures Records and signs DSR-4B
	Comment:	
	Performance Step: 8 Standard:	Document results Enters data on DSR-1
	Comment:	Cue: DSR-1 entry made be made later
*	Performance Step: 9 Standard:	Determine requirements of TS 3.10.3 are NOT met 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

Appendix C
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### Page 4 of 5 VERIFICATION OF COMPLETION

Form ES-C-1

Job Performance Measure No.:	<u>IP2 2003 NRC A</u>	1a 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:	 

Appendix C	Page 5 of 5 JPM CUE SHEET	Form ES-C-1
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 using the given detector currents in accordance appropriate procedure, determine if the calculate Technical Specification limits, and any appropria if necessary	QPTR manually with the ed values meet te actions to take,

HANDOUT	
UNIT TWO QUADRANT POWE DSR-4B NSC REVIEW DATE DATE USING DETECTOR NPROVED (RE) DATE Current QT number and Normalization Factors	R TILT CALCULATION SHEET Rev. 73 (QT-16-6) DATE: To b A Y TIME: Aww AVE REACTOR PWR: 700.0 OUTPUT CURRENT s provided by Reactor Engineer. ted detector current by normalization factor as follows:
Channel Det Current Nor Ratio	Channel Det Current Nor Ratio
41  Top = 41 T = 14 A / 114.6 = 14 A	41 Bottom = 41B = ~ A /* 112.6 = ~ A
42 Top = 42T = /* 88.3 =	42 Bottom = 42B = 111. ( /* 111.8 =
43 Top = 43T = <u>/04; ( /* 108.9</u> =	43 Bottom = 43B = 1(8.( /* 118.9 =
44 Top = 44T = 166.9 /* 105.9 =	44 Bottom = 44B = (17.0 /* 118.3 =
Average Normalized Ratio Top       = ANRT =         Average Normalized Ratio Bottom = ANRB =         3.       Determine The quadrant power tilt ratio for the power ratio for the top and bottom respective         Quadrant Power Tilt Top = QPTT = Highest         QPTT =       ANRT =         Quadrant Power Tilt Bottom = QPTB = High         QPTB =       ANRB =         4.       The higher of the two quadrant power tilts st Limit of 1.0200.	A A A A A A A A A A A A A A A A A A A
Enter the Higher QPT(Top or Bottom) = Technical Specification Limit = 1.0	
	$\frac{1}{1}$
1. If the quadrant power tut exceeds the Tech. informed ASAP.	opec. minus, the one one one and divented shall be
2. If one detector is out of service, the three in normalized ratios (ensure denominators in a	service detectors will be used to compute the average step 2 are changed from 4 to 3).
RO:	SM:
Pa	age 1 of 1

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HASWER KEY

UNIT TWO QUADRANT POWER TILT CALCULATION SHEET DSR-4B Rev. 73

(QT-16-6) DATE: TobAY TIME: ~~~~ AVE REACTOR PWR: 700.0

SNSC REVIEW

### 3-93 USING DETECTOR OUTPUT CURRENT

APPROVED DATE

Previous SNSC #2545

11/5/98

DATE, 1/13/03

DATE

- 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 = rí A	41 Bottom = 41B	= <u>NA</u> /* <u>112.6</u>	- NA
42 Top = 42T =	<u>. 87.0</u> r	<u> 88.3 = 0.9853</u>	42 Bottom = 42B	= <u>\\\.\</u> /* <u>111.8</u>	<u>= 0.5937</u>
43 Top = 43T =	<u>    /04,         /</u>	108.9 = 0.9559	43 Bottom = 43B	= <u>\\8.\</u> / <u>*118.9</u>	<u>= 0.9933</u>
44 Top = 44T =	106.9 1	* <u>105.9 = 1.0094</u>	44 Bottom = 44B	= <u></u>	= <u>0.9890</u>

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

Average Normalized Ratio Top = ANRT = 41T + 42T + 43T + 44T = 0.9835Average Normalized Ratio Bottom = ANRB = 41E + 42B + 43B + 44B = 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.

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

Quadrant Power Tilt Bottom = QPTB = <u>Highest value of 41B, 42B, 43B, or 44B</u>

$$\frac{Value}{PTB} = \frac{0.9937}{0.9920} = \frac{1.0017}{0.0017}$$

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

Enter the Higher QPT(Top or Bottom) = 1.0200 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:

Appendix C	Job Performanc Worksh	eet	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 Perform	ance:	Actual Perform	ance: X	
Classr	oom <u>X</u> 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 Refer to TS 3.4.A.3. Determine TS minimum is met. Action to Standard: 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.

## Page 3 of 4 VERIFICATION OF COMPLETION

Form ES-C-1

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:

Appendix C	Page 4 of 4 JPM CUE SHEET	Form ES-C-1
INITIAL CONDITIONS:	The surveillances required by DSR-1 are o	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: 1/16/02	JAN 2 0 2003 END DATE
1900 - 0700 <u>REMARKS</u> (USE attached sheet for additional space.)	0700 - 1900 <u>REMARKS</u> (USE attached sheet for additional space.)
se unauced	See attached list
FM4.4 Qa	22.1
NO SIGNATORE: // / //www.completed by at least two a	RO SIGNATURE: Known OAD 3 Middle of watch Key Chart Recorder
2ND RO SIGNATURE: (+1) Walkdown completed by at least two o SM, CRS, <u>OR</u> WE <u>AND</u> RO review ch on page 15	hecked 2ND RO SIGNATURE:(+1) walkdown completed by at least two of the; SM, CRS, <u>OR</u> WE <u>AND</u> RO review checked
CRS SIGNATURE: Declaston SM: WE:	CRS SIGNATURE:
CRS: TAYOZ	CRS: <u>45</u>

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END DATE

ALARMS (at the end of 1900 - 0700 watch
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#### NOTE (denoted by +)

- IF log readings are taken by an Operator other than the person assigned the watch, the 2nd Operator SHALL sign the additional signature 1. block.
- 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. <u>WHEN</u> a reading is <u>NOT</u> applicable. MARK N/A in box. USE O/S <u>AND</u> COMMENT on the reason <u>OR</u> SEC <u>WHEN</u> applicable. Any readings outside of Normal range for a Non-Tech Spec item SHOULD be questioned, logged 2. first, THEN corrected IF feasible.
- Any readings which exceed a Min/Max value SHALL be logged first, red circled, corrected AND explained in the Remarks Section 3

tems 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 <u>OR</u> SAO-700 Series parameter out of Normal <u>OR</u> out of Min/Max SHALL be logged first, red circled <u>AND</u> SM notified <u>IMMEDIATELY</u>. The parameter SHALL be corrected <u>AND</u> explained in the Remarks section. (Fire Protec out of Min/N

- This log is to be used whenever TAVE is greater than 200°F. 5.
- Recorder charts SHALL be updated each shift. 6.
- LIST all alarm windows that are indicating at the end of 1900-0700 watch in space provided above <u>OR</u> on an attached sheet. EXPLAIN the reason for the alarm occurring; CONTINUE explanations on back of sheet <u>IF</u> more space is needed.
- IF either 12 hr. OR 24 hr. comparison indicates a count rate increase that can <u>NOT</u> be explained by planned changes in RCS conditions (eg. dilution, heatup etc.), <u>THEN</u> OBTAIN an RCS Boron sample ASAP. IF the calculated ratio is less than 0.8 <u>OR</u> greater than 1.2, <u>THEN</u> RESET the HIGH FLUX SHUTDOWN alarm per SOP 13.2, Setting of High Flux at Shutdown Alarm. IF the Reactor is shutdown <u>AND</u> either of the two HIGH FLUX SHUTDOWN alarms are blocked <u>OR</u> out of service <u>THEN</u> RCS Boron sampling frequency SHOULD be increased to at least twice per day. 8. increased to at least twice per day.
- 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. 9
- 10. Deleted
- IF river water temperature recorder is <u>NOT</u> recording temperatures continuously, RECORD all operable inlet <u>AND</u> outlet temperatures on CCR display, at hourly intervals on supplemental log. 11.
- 12. An increase in RCS leakage may be indicated by either an increased activity noted during the 12 hour log interval <u>OR</u> by receipt of the Warn Alarm. <u>IF</u> an unexplained, increasing trend is noted <u>OR</u> the Warn Alarm annunciates, <u>AND</u> the alarm is <u>NOT</u> 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).
- <u>IF</u> containment temperature exceeds 118°F, CONSULT SM for guidance. <u>IF</u> temperature exceeds 125°F, LOG VC Temps on hourly Supplemental Log <u>AND</u> CONSULT System Engineering to determine at what indicated temperature to begin a reactor shutdown per T.S. 3.3.F.4.
- USE ARP SBF-1, window 3-2 alarm to verify less than 19'3". <u>IF</u> alarm is up, log >19'3" until indication can be used to give actual level. <u>IF</u> the indicated level reaches 20 ft. EL action should be taken to determine whether water is in the sump <u>OR</u> whether an instrument problem exists. <u>IF</u> 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:
  - This range is used WHEN Reactor Power is less than OR equal to 2%. Range A)
    - This range is used WHEN Reactor Power is greater than 2%. Range B)
- 22. Condensate Storage Tank Level, Tech. Spec. requirement applies to the Low Level. Tech Spec. 3.4.A.3.

MAN 9 0 2003

#### IND 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 <u>AND</u> stop times are logged in the CCR Log. <u>WHEN</u> charcoal is replaced <u>QR</u> 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.
- Testing of this Fire Alarm panel will illuminate only the trouble light, <u>NQT</u> the alarm light <u>AND</u> 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.
- 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 <u>AND</u> with concurrence from T&P, re-zero filter hour clock.
- Radiation Monitor purges SHALL be done on the 1900 0700 watch. <u>WHEN</u> logging process Radiation Monitor data, VERIFY monitor is active (indication <u>NOT</u> locked onto a single value).
- 31. CHECK Alarm Panel Annunciator Lights AND Alarm Horns (<u>IF</u> equipped). Any Alarms that do <u>NOT</u> clear as a result of this test SHALL be explained in the Remarks section. <u>IF</u> any Alarm Cans require change out, REFER to OASL 15.81, Annunciator Can Change Out <u>AND</u> ENSURE appropriate attachment is completed.
- 32. Testing of this Fire Alarm Panel will illuminate only the Trouble Light, <u>NOT</u> the Alarm light <u>AND</u> the panel buzzer should sound. Testing of this panel will <u>NOT</u> bring up an alarm on CCR Panel SD <u>OR</u> SM.
- 33. During startup <u>OR</u> 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. <u>IF</u> the bar graph <u>AND</u> digital display are blank <u>THEN</u> one of the following has occurred:
    - 1. The indicator <u>OR</u> 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 gualitative 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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## END DATE

- VERIFY that reading is <u>ABOVE</u> "Min. Value". Readings of "0.00E+0" that are <u>NOT</u> accompanied by a "No CPM" condition <u>OR</u> periodic fluctuations below "Min Value" are acceptable. 42.
- RECORD Alarm setpoint, <u>THEN</u> COMPARE the recorded Alarm setpoint value to the value given in the Operator Aid "Monitor Backgrounds, Calibration Constants <u>AND</u> 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 <u>ONLY</u>. The 2 m/sec. does <u>NOT</u> apply.

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

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

OBTAIN Vent Flow from R-27 Monitor <u>AND</u> from magnahelic in alleyway <u>AND</u> COMPARE the two readings. NPO will give reading in SCFM as long as their hand held computer is functioning. Otherwise Convert in, H₂O Magnahelic reading as follows: SCFM=7.12 x 10,000 √ in, H₂O 45.

#### 46. Deleted

- Record which FCU is currently being monitored. <u>IF</u> 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, <u>OR</u> 6-5 as appropriate to convert FCU condensate level to flow rate. 47.
- 48. The Discrete, Redundant, AND Continuous levels SHALL be consistent with each other AND be within 1 ft EL difference.
- 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 49. WR channel.
- PERFORM a qualitative check for these steps by OBSERVING channel behavior, including any other available indication such as alarm <u>AND</u> 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.
- 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.
- 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. 53
- VERIFY that the Plant Computer System autologging comparison <u>AND</u> 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 <u>NOT</u> agree within a programmed deadband). IF the Plant Computer System autologging <u>OR</u> IRPI Alarm Function is <u>NOT</u> operable, COMPLETE DSR 3, Unit 2 Rod Position Verification. 54.
- 55 The Plant Computer System will generate a report displaying current Rod status, Position, etc. Attach this report to this DSR.
- To verify the Plant Computer System alarm status is operating properly, OBSERVE alarm function screen using Turn-On Code ANNUN 56 AND VERIFY there are no abnormal conditions.
- IF less than three off site power supplies aligned to U1 L&P busses, REFER to U1 TS 2.5.1.1. 57
- 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. 58
- 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. 59
- IF Station Auxiliary Transformer (SAT) Tap Changer unable to operate in Automatic, GO TO SOP 27.1.4, 6900 Volt System. 60
- Der TS 2 10 5 1, the following limits apply 6

Above 85 Percent Power	Group Step Counter Demand	Maximum Po:	Silve Deviation	maximum	1
(TS Table 3.10-1)	Position (Steps)	Steps	Inches	Steps	Inches
	- 200	12	7.5	-12	7.5
	3 209	16	10	-12	7.5
	210 to 221	16	10	-13	8.125
	222	16	10	-14	8.75
	223		10	-15	9.375
	224	10	10	-16	10
	≥ 225	16	10	1 -10	1

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 2 0 2002

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END DATE

		T			TIME		
PARAMETER		UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900	
	Counts	Per Second	CPS	Variable	3 / 1E5	See	ser
	Ten M	finute Count	Counts	Variable	-	Sa	Ser
N31 (+8)	Curro 6 HR	ent Counts/ Prev Counts		. 1 2	08/12	See	sec
	Curro 24 HR	ent Counts/ Prev Counts	Calc	< 1.2	0.071.2	Sa	see
	Counts	s Per Second	CPS	Variable	3 / 1E5	Ser.	See
N32	Ten N	/inute Count	Counts		-	<u></u>	See
(+8)	Curr 6 HR	ent Counts/ Prev Counts	Calc	< 1.2	0.8 / 1.2	Se	See
	Curr 24 HR	ent Counts/ Prev Counts	Calc			sec	Sec
		N - 35	AMPS	Variable	Variable	1.6E-7	165-4
RANGE		N - 36		tion live is christic worked	an a said a star bint da said finit sa si din	1.967	1,9:1
		N - 41				99.9	100,0
		N-42			2% WHEN 2% WHEN POWER >15%	100	100.0
POWER RANGE		N 43	%	( 🕈 58 )		100	99.9
		N-44			( 🗣 58 )	100	100.0
		131/192					
VERIFY U1 offsite feed	ers	1311/93	N/A				
supplying U1 L&P bus	ses	13W94					
		21	in the second			130	130
		22	Volts DC	130 - 131	. 1257 136	130	130
DC BUS VOLTAGE		28				130	131
		24				130	130
STATION AUX T	RANSFOR	MER			AUTO	1 mar	
TAP CH	ANGER			( + 60 )	( <b>+</b> 60 )	1.0	119
		21	4			110	118
INSTRUMENT BUS VOL	TAGE	22	Volts	117 - 120	117 / 122	118	118
		23	4			119	120
		24		<u></u>		34.5	37,7
11-14 1 CET		11	Inches	416 - 466	300 / 481	34.4	37.6
(+36)		12	(Feet)	(34.7 - 38.8)	(25 - 40)	3415	37.7
	RIVER	WATER TEMP		Operable	Operable		
	OPER	RABLE (+ 11 )		• • • • • • • • • • • • • • • • • • •	Inoperable	37.5	27 17
	Uni	t 1 Inlet (01)			( + 38 )	2315	22611
	Uni	t 2 inlet (02)		-177	• / 92	31.7	51,99
	Un	it 3 Inlet (03)				29.3	19,07
(TR - 6281)	Sou	th Disch (04)	e	N/A	(+38)	1.1 1	61.74
	Mide	die Disch (05)	_		,	1.1.7	1,1,50
	Nor	th Disch (06)	-	- / 77	- / 92	222	32.06
	Unit 1	2 & 3 Ave inlet Temp (26)				52.2	1/122
9S		ve Outlet Temp (27)		April 15 to July 1 to A	June 30 < 90 °F pril 14 < 107 °F	61.5	61,00

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					T				TI	ME
		PARAM	ETER			UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900
	G E Cold Gas Cooler 21 {point 1} Cold Gas Cooler 22 E M [point 3]			35 - 45	30 / 46	44.8	43.1			
G E	Ĕ	Cold	Gas Cooler {point 3}	22					75.8	44.8
NUR	PER	Cold	Cold Gas Cooler Delta T			°C	0 - 5	0/10	1.0	1.7
ATO	A T U	Stator C	ooling Wat {point 7}	ter In			41 - 45	38 / 46	44.9	45.0
	E	Stator Co	ooling Wate (point 8)	er Out			41 - 73	38 / 75	63.9	63,6
		FIREWATER ST	ORAGE T	NK .		INCHES	380 - 389	365/395	388.1	<u>XXXXX</u>
	R-	41 MONITOR (+41)	Ρ	VC Air articulate ( + 12 )		µCl/cc	Variable	Variable	5.64E-10	5.72-10
		CONDENSE	R SALINIT	(		PPB	0 - 2	- / 4.9	0.2	1 76
		HIGHEST S/	G SODIUM	1		# PPB	0 - 1	0/5	24 0.4	141.37
		, <u>,</u>		R-28					16	
	MAIN	STEAM LINE RADIA		R-29		СРМ	( + 50 )	N/A	13	(9
		MONITORS	· ·	R-30		-		i	93	G
		······		R-31						
Т		Channel		AIT-5092 NH3			0 - 5	0 / 10	<i>v</i>	0
Ó X I	M N N	1		AIT-5093 Cl <sub>2</sub>	093		0 - 0.5	0 / 0.8	0	0
C G	+ T O	Observati		AIT-5095 NH3		FENN	0 - 5	0 / 10	2	2
A S	R	2		AIT-5096 Cl,		· .	0 - 0.5	0 / 0.8	0	0
	CCR	I	ATION	R-38-1		mR / hr	( + 50 )	N/A	0.2	
	VCI	HIGH RANGE RADIA MONITORS		R-25		R / hr	( + 50 )	N/A	<u> </u>	</td
	wi	DE RANGE PLANT V	'ENT	R-27	т	µCi/sec	( + 50 )	N/A	104	115
		MONITOR		MAGNAHEL			( ) 50 )	MAX DIFF	44,464	
U	2 PL/	ANT VENT FLOW M	ONITOR	R-27, MI-2	9	SCFM	(+ 50)	(+45)	47,000	
	(	CONTAINMENT SUN	1P T	LI - 3303		EL	N/A	( + 48 )	40191	291
		and a state of the state of the state of the	in in which	L1 - 3304		ie set transformi		-9.02	1.005	1,005
	iadr Cs q	ANT POWER TILT R PTR TILT REVIEW (	ATIO TILT)	Top		NA	≤ <b>1.02</b>	≤1.02	1.003	1.003
VERIFY PICS DELTA FLUX (DF) display is operable and updating properly. (Data is green)			and	1	1	1				
		(+:			A				28	27.9
G		S	itator urrent	ŀ	B	K-Amps	Variable	- / 29.8	27.5	27.4
Ĕ N	E Amps N Meter		ŀ	с	1			27	127.3	
Ř Stator Voltage				K-Volts	20 - 23	19.8 / 23.1	22.2	121.2		
T Hydrogen Pressure			PSIG	60 - 75	30 / 79	44	$\frac{(e)}{2(e+1)}$			
ĸ		F	ield Amps			AMPS	< 6000	- / < 6000	4800	15700
		MAIN UN	IT LOAD			MW			1005	1000
		NET	LOAD				Various	N/A	210	705
		GENERAT	OR MVAR	6		MVAR	<u> </u>	<u>L</u>	1 210	

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PARAMET	rer		UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900
GOVERNOR C	ONTROL			40 - 45	35 / 50	42.3	42.1
LOAD LIMI	T#1		PSIG	Governor Oil	Governor Oil Pressure	(40,6)	<u>40.7</u>
LOAD LIMI	Т#2			Pressure +1 psi	+5 psi	91.1	<u><u><u>u</u></u></u>
MAIN STEAM HDR	MAIN STEAM HDR PRESSURE			625 - 995	0 / 1005	720	120
TURBINE 1 <sup>ST</sup> STAGE PRESSU	JRE (Plant	412A	PSIG	Variable	MAX DIFF 34 PSIG	490.5	490,5 441.6
Computer System)		412B				ALUS	24 27411
	PI-4	19A	5010	N// A	MAX DIFF	71.40	730
21 STEAM LINE PRESSURE	PI-4	19B	PSIG	N/A	112 PSIG	730	730
		190				740	740
22 STEAM LINE	PI-4	129R	PSIG	N/A	MAX DIFF 112 PSIG	725	720
PRESSURE	STEAM LINE PI-					730	-730
	PI-4	139A				730	730
23 STEAM LINE	PI-4	439B	PSIG	N/A	MAX DIFF 112 PSIG	745	740
PRESSURE	PI-4	439C				725	120
	Pl-4	449A				736	150
24 STEAM LINE PRESSURE	Pl-	449B	PSIG	N/A	112 PSIG	750	$\frac{750}{770}$
	PI-	449C			National Characteria	10)	
FLIGHT PANEL ANNUNCIA	TOR POWE	R LIGHTS	1				
	LI	417A			MAX DIFF	50	50
21 STEAM GENERATOR	L -	417B	%	46 / 52	8% AB I 52	46	46
STEAM GENERATOR LEVEL	LI-	417C				31	$\sum_{i \in \mathcal{U}}$
(* 1- )	Ave Operabl	rage of e channels	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	49	49
	LI-	427A	%	46 / 52	MAX DIFF	51	51
22	LJ-	427B			46 / 52	<u> </u>	41
STEAM GENERATOR LEVEL	LI-	427C				99	$\frac{91}{10}$
( • ( • )	Average of Operable channels		%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	48.7	49
	L1-	437A	-		MAX DIFF	<u> </u>	
23	LI-	4378	%	46 / 52	46152	41	$\frac{1}{1}$
LEVEL	L1-437C				2: 47 6/52 7	4/	48
	Average of Operable channels		%	3: 47.6/52.7 2: 48.2/52.1	2: 48.2/52.1	78.5	10
	Lŀ	447A	_		MAX DIFF	$\frac{98}{10}$	48
	LI-	447B	%	46 / 52	46   62	41 46	41
LEVEL	Ll·	447C		0, 17 0/50 7	3. 47 6/52 7	10	117
	Ave Operab	rage of le channels	%	3: 47.6/52.7 2: 48.2/52.1	2: 48.2/52.1	1 47	
		1-455				<u> 7250</u>	12243
PRESSURIZER	ſ	1-456	PSIG	2208 - 2258	2208 / DIFF 2258 60	1230	7775
PRESSURE ( ◆ 15 )	ſ	1-457			<b>PSIC</b>	2125	22.79
	19. 19. 19. <b>1</b> 9	1-474			A- 2208/2258	0.00.	17129
	Ave Operab	erage of le channels	PSIG	4: 2208/2258 3: 2212/2255	3: 2212/2255	231.5	117
	L	.1-459			MAX DIFF 8%	<u>4</u> 3	
PRESSURIZER	L	.1-460	%	33 / 49	27/10	40	42.
LEVEL (+ 16)	L	_1-461			2: 27 0/45 0	127	144
	Av Operat	erage of ble channels	%	3: 37.9/45.9 2: 37.1/45.1	2: 37.1/45.1		1

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## JAN 2 0 2003

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			Ĭ	T	TIME		
PARAMETER		UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900	
Attach the Plant Computer System Control Rod Auto Log Report (+ 55)		N/A	1	1			
VERIFY Plant Computer System Alarm Operable (+ 56)	Functions	N/A	1	1	<u> </u>		
PERFORM PC Heat Balance on <u>Su</u>	Inday	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	s 3071.4	-/≤ 3071.4	3070,7	301.15	
	High				144	144	
Shutdown Bank A	Low				137	138	
Analog RPI:	High				199		
Shutdown Bank B	Low				170	190	
Analog RPI;	High					7199	
Shutdown Bank C	Low				199	199	
Analog RPI:	High				149	199	
Shutdown Bank D	Low	Inches	N/A	( + 61 )	140		
	High	moneo			199	199	
Control Bank A	Low				19/	141	
Analog RPI:	High				144	144	
Control Bank B	Low				144		
	High				144	144	
Control Bank C	Low				139	155	
	High				135	135	
Control Bank D	Low				132	132	
	U0053				223	223	
Shutdown Bank A, Group 1	FLT Pnl				223	223	
	U0053				43	223	
Rod Pos Step Counters Shutdown Bank A, Group 2	FLT Pnl				223	223	
	U0054				223	223	
Rod Pos Step Counters Shutdown Bank B, Group 1	FLT Pnl	-			223	223	
	U0054				223	223	
Rod Pos Step Counters Shutdown Bank B, Group 2	FLT Pnl				223	223	
	U0055				223	223	
Rod Pos Step Counters Shutdown Bank C	FI T Pnl				223	223	
	10056				203	223	
Rod Pos Step Counters Shutdown Bank D	FLT Pnl				223	223	
	L0049	Steps	N/A	[	Sil	223	
Rod Pos Step Counters Control Bank A, Group 1					223	223	
	10049				223	223	
Rod Pos Step Counters Control Bank A, Group 2	ELT Pol				223	223	
	10050				223	223	
Rod Pos Step Counters Control Bank B, Group 1	FIT Pnl				223	223	
	10050				223	223	
Rod Pos Step Counters Control Bank B. Group 2		1			223	223	
					223	223	
Rod Pos Step Counters	00051				223	223	
	FLT Phi	4			223	223	
Rod Pos Step Counters	00051	4		다고 있었다. 한국가 1999년 1999년 1997년 - 한국가 1999년 1999년 1999년 1997년 - 한국가 1999년 199	223	223	
Control Balik C, Group 2	FLT Pnl		<u>L</u>				

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PARAM	ETER		UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900
		U0052				207	207
Rod Pos Step Counters Control Bank D, Group 1		FLT Pni				20)	207
		U0052	Steps	N/A		705	207
Rod Pos Step Counters Control Bank D, Group 2		FLT Pol				207	207
	TI	411A				52	5/
RCS TEMP ⊾T INDICATORS	T1 -	421A	•-	КИЛ	MAX DIFF	62	62
	TI	431A		N/A	13°F	55.5	55.5
	TI -	441A				54,5	57,5
	TI-4	112C				357.5	3310
T - AVERAGE	TI-4	122C			B'F	543	56d.5
	TI-4	132C	۶F	Variable		540	560.0
	TI-4	142C			Variable	559	559.0
	Avg -	T Avg				559.7	5 51.6
	21	RCP				1.7	$\frac{1}{2}$
	. 22	RCP	GPM	1.0 - 3.0	0.2/5	2:3	2:1-
PUMP No. 1 SEAL RETURN	23	RCP				1,0	d.L.
	24	RCP				2.0	2.1
		FI - 414	%	95 - 102 N/A	93/120	99	49
		FI - 415	~ ~		MAX DIFF of all	102	102
		FI - 416	76		unes <i>o lo</i>	102	101
		FI-424	%	95 - 102	93 / 120	(01	100
		FI - 425	~ %	N/A	MAX DIFF of all	101	101
REACTOR CODI ANT PUMP		FI - 426			uiree av	101	10/
LOOP FLOW (4 33)	LOOP 23 LOOP	FI - 434	%	95 - 102	93 / 120	19	99
		FI - 435	%	N/A	MAX DIFF of all	101	100
		FI - 436				102	101
		F1-444	%	95 - 102 N/A	93 / 120	19	99
		FI - 445	%		MAX DIFF of all	14	99
		FI - 446				100	296
	21	RCP				270	570
REACTOR	22	RCP	AMPS	380 - 410	350 / 450	380	365
PUMP MOTOR CURRENT	23	RCP	AIVIES			260	260
x	24	RCP				370	<u> </u>
	21	RCP	_			20	21
REACTOR COOLANT	22	RCP	INCHES	30 - 100	5/-	119	126
PUMP THERMAL BARRIER	23	RCP	WATER			37	$\frac{1}{2}$
	24	RCP	<u> </u>	<b></b>		74150	- Junio
	21	RCP	4			2400	>4/11
REACTOR COOLANT	22	RCP	PSID	> 400	326 / -	7400	546/1
NO.1 SEAL DELTA P	23	RCP	4			2400	>400
	24	RCP	<u>  </u>			IVA	140
	21	I RCP	4			(27-	1 122
REACTOR COOLANT	22	2 RCP	°F	80 - 150	70 / 159	luin.	141
	2:	3 RCP				142	140
	24	4 RCP			E0.1440	$\frac{1}{2}$	76
VESSEL FLA	NGE LEAKOF	F	•F	60 - 130	1 50/140	<u>¥</u>	

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PARAM	ETER		10	ITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900
	2	1 RCP	<u> </u>				7.5	7.5
	2	2 RCP		DM	6 - 12	2/20	7.2	7.2
SEAL	2	3 RCP	]	PM	0-12		7.5	7.5
FLOW	FLOW 24 RCP					an de saast wat 'n All' Nikota	7.2	1.2
	VC Pre	ssure		1	-1/+1	-21+2	0.3	0.3
e o	HIGH	EST					A (	
, Š	VC Pre ( WI	ssure R)	#	PSIG	N/A	6.5 PSIG	Ar	M2 .
A	LOW VC Pre	EST	#			- (♦49)	C2 D	Cr O
Ë N	( WI	R)				or ( 47)		131
	Tempe (+1	rature 18)		°F	87 - 118	857130	126	
		LEVEL	ļ	%	69 - 75	67 / 77	2	2
PRESSURIZER RELIEF TANK	PR	ESSURE		>SI	1-5	(130	72	72
	<del>ه ، روم ، ، ، ، ، ، ، ، ، ,</del>	TEMP.		°F	90 - 120	-/ -/ -/ -/	219'3"	L19'J"
RX CAVITY S	UMP (+1			31	Variable			Vi 24
CONTAINMENT SUM	P S	LI - 3300					41 5	141'5
CONTAINMENT SUM	P .	LI - 940	1	EL	N/A	( + 48 )	40'6"	240'9"
LEVEL DISCRETE		LI - 941	<b>. 65</b> . 6 (1997)				(15)	635'
RECIRCULATION	SUMP (	20)		EL	Varianio		- 3 4	ATTENTS .
RECIRCULATION SUI	ИР	LR - 3301				(* 40)	35.2	- 4343434
	CODETE	LI - 938		EL	N/A	(+ 40)	235 1	
RECIRCULATION SUMP DI	SUREIL	LI - 939				44.405	<u>233</u>	88
Т	EMP.	STREET,		°F	50 - 90	44795		27
		LI - 920 ( CCR )			37.2-37.4	37.5 MAX	37.4	- 37.9
	L	.R - 5751 ( CCR )	F	EET		DIFF	37	
		LI - 921			N/A	N/A	37	
	) 	LOCAL )			3	MAX DIFF	54	55
21 ACCUMULATOR LE	VEL	LI - 934A		*	40 - 50	8% 15165	54	55
		LJ - 935A				MAY DIFE	<u> </u>	56
		LI - 934B		%	40 - 60	8%		56
		LI-9358				35/65	<u> </u>	
	VEI	LI - 934C		%	40 - 60	8%		
		LI - 935C				35/65	55	55
		LJ-934D		<b>%</b>	40-60	8 %	56	
		LI - 935D				35/85	56	20
		PI-936A					640	510
21 ACCUMULATOR PRE	SSURE	PI-937A				630 - 680	640	390
		PI-936B				MAX DIFF 42 PSIG	635	640
22 ACCUMULATOR PRE	SSURE	PI-937B		10 A		630 - 680	640	640
		PI - <u>936</u> C				MAX DIFF 42 PSIG	650	650
23 ACCUMULATOR PRE	SSURE	PI - 937/C		PSIG	635 - 680	630 - 680	650	650
		PI - 936D				MAX DIFF	450	650
24 ACCUMULATOR PRE	SSURE	DI - 837D		PSIG	635-680	630 - 680	660	660

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		T T		[	TIME		
PARAME	TER		UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900
	<u> </u>	21				1060	1060
		- 22				1160	1160
FAN COOLER UNIT	-	23	GPM	1200 - 1600	1000 / 1800	1100	1150
OUTLET FLOWS		24				(100	1150
		25				1050	1100
		21				52	51
WIDE RANGE	-	22			A) 60 / 100	55	55
GENERATOR	-	23	%	Variable	B) 45 / 80	56	55
(+21)		24				53	54
HOTWELL	LEVEL			2.5 - 3.5	2.5 / 3.9	3.3	3.0
		LI-1131-1 (CCR)		12 - 28	11.25 / 30 MAX	27.5	28
PRIMARY WATER TANK L	EVEL	LIC-1101-S (Local)	FEET	N/A	N/A 2	26.8	
CONDENSATE	STORAGE			21 - 29	20 / 29	28.5	19
			GPM	30 - 45	-/-	62	40
	т	EMP.	۰F	122 - 127	100 / 145	123	123
cvcs	F	LOW	GPM	82 - 88	40 / 122	87	87
LETDOWN	PRE	ESSURE	PSI	225 - 275	225 / 400	2.30	275
VOLUME	PRI	ESSURE	PSI	15 - 25	15 / 65	28	20
CONTROL TANK	L	EVEL	%	21.4 - 35	21/91	40	2.8
	21			42 - RQ		58	58
BORIC	22	(+37)	<b>%</b> 0	(+ 53)	99100	64	64
ACID STORAGE	21	an a			455 1 000	171	ורו
TANK	22	TEMP.	€	160 - 174	1557290	167	168
	Heat	Exchanger tiet Temp	۰F	72 - 100	70 / 110 120 / 2 HRS	92	92
COMPONENT COOLING		Flow	GPM	3000 - 4000	1500 / 7000	3000	3000
(+23)	Surge	Tank Level	%	47 - 53	46 / 54	51	50
CONTAINMENT SUMP F	LOW	FI - 3401	GPM	N/A	( + 50 )	0	0
SUPERVISORY PANEL		OR POWER	1	ur V			/
UNIT AUX TRANSF	ORMER VO	LTAGE		7050 7150	7000 / 7200	7050	7050
STATION AUX TRANS	SFORMER	/OLTAGE	VOLIS	7050 - 7150	700077200	7100	7:00
TOTAL AUX TRAN	ISFORMER	LOAD	MW	Various	N/A	34.5	34.5
		BUS 5A				60	60
STATION	ŀ	BUS 2A		40 150	0 / 200	132	132
TRANSFORMER	SERVICE TRANSFORMER 480 V BUS AMPERAGE BUS 6A		AMPS	40 - 150	0,200	120	120
						75	13
LOWEST 480 BUS VOLTAGE			# Volts	<b>475</b> 490	460 495	2A 480	24 480
	21-	22-23 HDR	DO	60 - 80	58 / 125	<u> </u>	1 41
PRESSURE	24-	25-26 HDR		60 - 80	58 / 125	1 74	<u> </u>
CONTAINMEN	т	HIGH		65 - 80	- / 95	44	- 44
DEW POINT	-	LOW				13/	<u></u>

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END DATE

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PARAN	PARAMETER			NORMAL	MIN / MAX	1900 - 0700	0700 - 1900
		21		-6/+1.8		-6	-6.0
		22	1		-6 / +2	-0.1	0,1
FAN COOLER UNIT		23	INCHES			-5.9	-0.4
WEIR LEVEL		24				-0.1	Oil
						0.9	0.6
l		Ind.				Ð	Õ
	21	RCS-6-1				0	$\bigcirc$
	22	Ind.				D	0
		RCS-6-2			MAX DIFF	ΰ	ð
FAN COOLER		Ind.			6 GPM	Ũ	O
UNIT WEIR FLOW	23	RCS-6-3	GPM	N/A		D	0
		Ind.			(+47)	0	0
	24	RCS-6-4				D	0
		Ind.				D	0
	25	RCS-6-5				D	

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END DA	T	E		

PARAMETER	MAX DIFF	MIN VALUE	UNITS	CHANNEL	ALARM SETPOINT	190	0 - 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	SATY UNSAT
Sampling Room Area Radiation	N/A	N/A	mR/hr	R-6	50	1	SATY 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	(+43)	7.2858	SA) / UNSAT
CCW Hx 22 SW Outlet Activity	N/A (+41)	1.00E-09 (+42)	uCi/cc	R-40	(+43)	0/5	SAT CUNSAT
Containment Air Particulate Activity	N/A (+41)	1.00E-14 ( + 42 )	uCi/cc	R-41	9.40E-10 (+43)	5.75E	SAD/ UNSAT
Containment Air Radio gas Activity	N/A ( + 41 )	1.00E-09 (+42)	uCi/cc	R-42	1,20E-2 (+43)	1.16E-4	
Plant Vent Particulate Activity	N/A ( + 41 )	1.00E-14 ( + 42 )	uCi/cc	R-43 (Part.)	2:00E-7 (+43)	8.102-11	SAT UNSAT
Plant Vent lodine Activity	N/A ( + 41 )	1.00E-14 ( + 42 )	uCi/cc	R-43 (lodine)	1.36 = 8 (+43)	2.275-11	SAT) UNSAT
Plant Vent Gaseous Activity	N/A ( + 41 )	1.00E-09 (+42)	uCi/cc	R-44	3,75E-4 (+43)	4.32E-6	SADI UNSAT
Discharge Condenser SJAE Gaseous Activity	N/A ( + 41 )	1.00E-09 (+42)	uCi/cc	R-45	3.00E-3 (+43)	1.298-57	SAT / UNSAT
FCU Service Water Outlet Activity	N/A (+41)	1.00E-09 (+42)	uCi/cc	R-46	3.00E-6 (+43)	1.04E-6	SATI / 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)	075	SAT (UNSA)
SG Blowdown Effluent Activity	N/A (+41)	1.00E-09 ( + 42 )	uCi/cc	R-49	1.00E-4 (+43)	1.305-6	SAD/ UNSAT
Large Gas Decay Tank Activity	N/A (+41)	1.00E-04 ( + 42 )	Ci	R-50	6.60EZ (+43)	1.01	SAT / UNSAT
SBBPS Activity	N/A (+41)	1.00E-09 ( + 42 )	uCi/cc	R-51	1.00E-4 (+43)	sec.	SADI UNSAT
SBBPS Cooling Water Activity	N/A ( + 41 )	1.00E-09 (+42)	uCi/cc	R-52	3,00E-6 (+43)	Sle	SAT I UNSAT
FCU Service Water Outlet Activity	N/A (+41)	1.00E-09 ( + 42 )	uCi/cc	R-53	3,00E-C (+43)	8.40E-8	SAT UNSAT
Liquid Waste Distillate Activity	N/A (+41)	1.00E-10 (+42)	uCi/cc	R-54	400E-4 (+43)	2.55E-Y	SAT / UNSAT
SG 21 Blowdown Activity	N/A ( + 41 )	1.00E-09 (+42)	uCi/cc	R-55A	1.00 E 4 (+43)	0/5)	SAT HUNSAT
SG 22 Blowdown Activity	N/A ( + 41 )	1.00E-09 (+42)	uCi/cc	R-55B	(+ 43)	()A)	SAT / UNSAT
SG 23 Blowdown Activity	N/A (+41)	1.00E-09 (+42)	uCi/cc	R-55C	1.00E-4 (+43)	B	SAT / UNSAT
SG 24 Blowdown Activity	N/A ( + 41 )	1.00E-09 (+42)	uCi/cc	R-55D	1.00 E - 4 (+43)	B	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

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34N 2 0 2003 END DATE

PARAMETER	MAX DIFF	MIN VALUE	UNITS	CHANNEL	ALARM SETPOINT	190	0 - 0700
House Service Boller Condensate Activity	N/A (+41)	1.00E-09 (+42)	uCi/cc	R-59	$3,00 \equiv -6$ (+43)	(°/S)	SATIUNSAT
Stack Vent Particulate Activity	N/A (+41)	1.00E-13 (+42)	uCi/cc	R-60 (Part.)	1,60 E-8 (+43)	9.81E-10	SAL UNSAT
Stack Vent Iodine Activity	N/A (+41)	1.00E-14 (+42)	uCi/cc	R-60 (lodine)	1.50 E-8 (+43)	1.4IE-ILA	SAD / UNSAT
Stack Vent Noble Gas Activity	N/A (+41)	1.00E-09 (+42)	uCi/cc	R-60 (Gas)	6 POE-5 (+43)	4.85E-8	SATI UNSAT
Sphere Foundation Sump Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-62	1.00E-5 (+43)	2.12E-6	SAD/ UNSAT
M & O Building Vent Particulate Activity	N/A ( + 41 )	1.00E-14 ( + 42 )	uCi/cc	R-5976 (Part.)	6.00 B- 7 (+43)	4.00E-10	
M & O Building Vent Gaseous Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-5976 (Gas)	1:0025	1.72=-6	SAT / UNSAT

PARAMETER	MAX DIFF	UNITS	CHANNEL		1900 - 0700	RESULTS
			122m	1016	5.7	
-			122m	CCR	51)	SAU/ UNSAT
			60m	1016	4.9	CATUNICAT
Wind Speed 2 ( + 44 )	M/sec	60m	CCR	4.9	SATTONSAT	
		10m (pri)	1016	2:4	CATVUNSAT	
		10m (pri)	CCR	2.4	SAT UNSAT	
			10m (B/U)	B/U Tower	1.8	SAT / UNSAT
		122m	1016	195	FATUINSAT	
		Dec	122m	CCR	195	GAT ONSAT
Wind Direction	90		60т	1016	213	SATUINSAT
Wind Direction	(+44)		60m	CCR	213	
			10m	1016	193	
ň			10m	CCR	192	
			10-122m	1016	$\checkmark$	SAT / UNSAT
Delta T Pasquill	1 letter	•.	10-122m	CCR	D	
	( + 44 )	Category	10-60m	1016	E	SAP / LINSAT
			10-60m	CCR	E	

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JAN 2 0 2003

END DATE

	PARAMETER		Τ	MIN /		
PA			NORMAL	MAX	1900 - 0700	0700 - 1900
	CHART WORKING	N/A	1	1		
010.2	INKING	N/A	1	1		
KEY CHART	PEN(S) ALIGNED	N/A	1	1		
RECORDERS	TIME STAMPED	N/A	1	1		<u> </u>
	DATED	N/A	1	/		

	w	PS SURVEIL	LANCE (+	24)		
CURRENT TIME :	6000			ZONE I ZONE II	3	842
PREVIOUS READING TIME :	0 000			ZONE II ZONE IV	50 -7	919
DELTA HOURS:	22 (1				/	
AVERAGE LEAK RATE =	<u>total</u> Differen	CE TIME × 60	<b>e</b>	6	CFM (MA	XIMUM = 15.2 CFM )
	RECORDER L	EAK RATE	=	k	CFM	

CHARCOAL FILTER HOURS ( + 25 )							
FILTERS	UNITS	NORMAL	MIN/MAX	TOTAL HOURS RUN TODAY	TOTAL HOURS AS OF 0000 THE PREVIOUS DAY	TOTAL HOURS	
PPD ( & 27 \	Hours	0 - 600	-1720	0.03.	208.59=	208.62	
	Hours	0 - 600	-1720	0.	• 0 =	C	
	Hours	-1-	-1-	JY.	. >720 =	>720	
	Hours	0 - 600	- / 720	0	+ Ó =	0	

	RADIATIO	N MONITOR PUE	RGE ( + 30 )	
MONITOR	LOCATION	UNITS	MINIMUM PURGE TIME (MINS)	1900 - 0700
		YES (1) / NO	2	
K54	WASTE DISTICCATE BIOGRAM			

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# JAN 2 0 2003

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## END DATE

		1	SH	lift
EQUIPMENT	STATUS / UNITS	NUMBER	1900 - 0700	0700 - 1900
MAIN BOILER	DDM SEC O/S	21	4745	4753
FEED PUMP SPEED	RPW1,320, 0/3	22	4720	4720
		21	ser	Ser
CHARGING PUMP SPEED	% SPEED, SEC, O/S	22	45	40
		23	Sa	Sec
	101 0 0TDV 050 0/0	21		
	1/S(7), STBY, SEC, 0/S	22	STBY	STBY
		21	STBY	STBÝ
		22	1	
FAN COOLER UNITS	I/S (✓) , STBY, SEC, O/S	23	STBV	STBY
		24	STBY	StB/
		25		
		21	60	60
HEATER DRAIN TANK PUMPS	AMPS, SEC, O/S	22	67	67
		21	125	$1\dot{7}\dot{5}$
CONDENSATE PUMPS	AMPS, STBY, SEC, O/S	22	220	220
		23	208	208
		29	AUTO	Actu
CONTAINMENT SUMP PUMPS	HAND	210	STBY	STBY
		21	STBY	STOY
COMPONENT COOLING	1/S (1), STBY, SEC, O/S	22		
WATER PUMPS		23	STBY	STOY
ESSENTIAL S.W. HEADER	1	-	1,2,3 4,5,6	1,2,3 4,5,6
		21	V.	
		22		
		23	ser.	Sec
SERVICE WATER PUMPS	1/S (✓) , STBY, SEC, O/S	24	STBV	STBY
		25		
		26		
		11	520	515
RIVER WATER PUMPS	AMPS, STBY, SEC, O/S	12	STBY	STAIL
		21	54'	54
		22	51	5
		23	52	3/
CIRCULATING WATER PUMPS	AMPS, SEC, O/S	24	50	57)
		25	51	51
		26	51	570
		21		
COMPONENT COOLING WATER HEAT EXCHANGER	I/S (✔) , SEC, O/S	22	Sel	Sec
	SEP / RWST	SFP / RWST	SFP	SFP
	DEGAS PUMP / AUX STM		DEGAS PUMP	Degas, PUMp
		21		
HOUSE SERVICE BOILER	I/S(✔) , SEC, O/S	22	(0/5)	0/5
		21	STBY	STICY
	1/S (1) . STBY. SEC. O/S	11		<i>7</i>
STATION AIR COMPRESSORS		12	Ser	· sel
		21	STRY	STIM
INSTRUMENT AIR COMPRESSORS	I/S (1), STBY, SEC, O/S	22	STBY	575-1

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# IAN 2 0 2003

END DATE

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ALARM PANEL TEST (+ 31)			
ALARM PANEL	UNITS	1900 - 0700	0700-1900
		1900 - 0700	
TA EDISON MONITOR FOR UNIT 1 RIVER WATER PUMPS	4		
	-		
HP & LP TURBINE SOFT SIDE VIBRATION MONITOR (Bentiley Nevada)			
21 & 22 MBFP VIBRATION MONITOR (Bentley Nevada)			
HP & LP TURBINE HARD SIDE VIBRATION (Bentley Nevada) (Upper Panel)			<u> </u>
HP & LP TURBINE HARD SIDE VIBRATION (Bentley Nevada) (Lower Panel)			
G.E. GENERATOR PANEL		<u> </u>	
ACCIDENT ASSESSMENT PANEL 1 (AS-1)			
FLIGHT PANEL - UNIT 1 (1 FAF)			
DIESEL FIRE PUMP	-		
AREA RADIATION MONITORS		$\checkmark$	
CONTAINMENT BUILDING FIRE PANEL ( + 32)			
CENTRAL CONTROL ROOM FIRE ALARM PANEL PA-1 ( + 26 )			
AUXILIARY BOILER FEED PUMP BUILDING FIRE PANEL (+ 32)		1/	
PAB BUILDING FIRE PANEL ( + 32)			
M.O. BUILDING FIRE PANEL ( + 32 )			
RCP VIBRATION MONITOR			
TURBINE FIRST OUT (FAF)	Tested (✓)	$\smile$	
PRESSURIZER, STEAM GENERATOR, AND G.E. MAIN GENERATOR PANEL (FBF)		<u> </u>	
REACTOR CONTROL PANEL (FCF)		U	
REACTOR FIRST OUT PANEL (FDF)			
PROCESS RADIATION MONITORS (SAF-1)			
REACTOR COOLANT SYSTEM (SAF)		$\sim$	
CCR SAFEGUARDS (SBF-1)			
CCR SAFEGUARDS (SBF-2)		$\sim$	
CONDENSATE AND BOILER FEED (SCF)		$\checkmark$	
TURBINE RECORDER (SDF)		$\smile$	<u> </u>
TURBINE AND G.E. GENERATOR START-UP ( SEF )			
CHEMICAL AND VOLUME CONTROL ( SFF )			
AUXILIARY COOLANT SYSTEM (SGF)		$\checkmark$	
CCR ELECTRICAL (SHF)			/
COOLING WATER AND AIR (SJF)			
BEARING MONITOR (SKF)		<u> </u>	
WELD CHANNEL (SLF)			
CCR SAFETY INJECTION (SMF)	-	~	
ELECTRIC HEAT TRACING AND DELUGE (SOF)			
CCR SEQUENCE OF EVENTS REVIEWED ( + 34 )	(1)	$\bigcirc$	$-(\checkmark)$

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Appendix C	Job Performance Measure Worksheet		Form ES-C-1
Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Review (For Approval) A Complete Surveillance	ed JPM No.:	2003 NRC A2 SRO
K/A Reference:	2.2.12 (3.4)		
Examinee:		NRC Examiner	
Facility Evaluator:		Date:	
Method of testing:			
Simulated Performa	ance:	Actual Perform	ance: X
Classro	oom 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

Ap	opendix C		Form ES-C-1		
		PERFORMANCE IN ORMANON			
(D	(Denote Critical Steps with an asterisk)				
	Performance Step: 1	Calculates total pump head			
	Standard:	Determines head is approximately 275 feet b pressure in feet with calculated value of sucti	y adding discharge on 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 su Greater than 307 for alert range criteria	rveillance value.		
	Comment:				
*	Performance Step: 3	Determines action required			
	Standard:	Step 10.6 requires action for surveillance fail	ure – 21 SWP		
		<ul> <li>Notify SM</li> </ul>			
		o Initiate a CR			
	Comment:	CUE: Inform the candidate of the follow CRS. Are there any additional co requirements associated with the surveillance?	wing; You are the oncerns or e failed		
*	Performance Step: 4	Determines additional action required			
	Standard:	Candidate determines that Essential Service requires 3 pumps operable IAW TS 3.3.F.1	Water header		
		Non-Essential Service Water header requires	s 2 pumps operable		
	Comment:				
Те	erminating Cue:	When the candidate has completed the accept determination and Technical Specification im for this JPM is complete	ptance criteria pact, the evaluation		

Appendix C	Page 3 of 4 VERIFICATION OF COMPLE	ETION	Form ES-C-1
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:	

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Appendix C	Page 4 of 4 JPM CUE SHEET	Form ES-C-1
INITIAL CONDITIONS:	The Plant is at 100% power. All equipment in sem PT-Q26A, 21 Service Water Pump Train Operation performed on your shift.	vice. nal Test, was
INITIATING CUE:	You have been directed by the Shift Manager to p calculations per section 7.4 and acceptance criteri approval per section 10.0 of PT-Q26A	erform a review and



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PT-Q26A Revision 9

HANDOUT

NUCLEAR NORTHEAST INDIAN POINT STATION 1 and 2

	21 SER!	VICE WATER PUMP
Prepared by: Reviewer: Reviewer: Reviewer: SNSC Review:	Varaon.mn V Saco Not Rained Meeting No. / Date Meeting No. / Date	Technical Reviewer:   Reviewer:
	BIENNI	AL REVIEW
Re	viewer / Date	Reviewer / Date
mporary Proced	ure Changes:	
nange No.	/ Date	



#### NUCLEAR NORTHEAST INDIAN POINT STATION 1 and 2

### 21 SERVICE WATER PUMP

### **TEST EQUIPMENT & MATERIALS**

Required Equipment	Serial No. <u>OR</u> 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 <u>OR</u> Microlog	PE-ENTEK-3	10/29/03
FI-5002	FI-5002 (ICPM-1579)	Z/12/04 T.M.
Tethered Ruler	N/A	N/A

Suggested Equipment	Serial No. <u>OR</u> 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 <u>PURPOSE</u>

- 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 <u>OR</u> removed out of the sequence specified in the test <u>AND</u> in parallel with other preparation <u>OR</u> 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 <u>MAY</u> alarm depending on system conditions.
- 2.7 <u>IF</u> a service pump control switch is placed in "Pullout", <u>THEN</u> 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 <u>PURPOSE</u>

- 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 <u>OR</u> removed out of the sequence specified in the test <u>AND</u> in parallel with other preparation <u>OR</u> 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 <u>MAY</u> alarm depending on system conditions.
- 2.7 <u>IF</u> a service pump control switch is placed in "Pullout", <u>THEN</u> the "Safeguards Equipment Locked Open" will alarm.

- 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.

2.8

#### 3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 Use <u>ONLY</u> 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 <u>ONE</u> 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, <u>WHEN</u> personnel are entering enhanced control areas for equipment performance monitoring <u>AND IF</u> enhanced controls are <u>NOT</u> required by other work in progress, <u>THEN</u> enhanced controls may be relaxed.
- 3.5 The Service Water Intake Bay is a confined space. Follow applicable guidance.
- 4.0 <u>PREREQUISITES</u>

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.



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



5.3 RECORD the date that the field work actually began.

DATE

#### **INITIAL CONDITIONS** 6.0

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

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

Initials \_  $\mathcal{U}$ Cognizant Supervisor \_\_\_\_\_

- 7.0 **INSTRUCTIONS**
- 21SWP Test Setup: 7.1

NOTE						
Ensi	Ensure at least <u>ONE</u> other pump on the header is operating for Check Valve testing.					
REF curre	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: 100	Initials <u>C</u>				
7.1.3	ENSURE valve SWN-2, 21SWP Outlet Stop is OPEN.	Initials				
<b>NOTE</b> 21SWP pump shaft remaining stationary indicates Check Valve SWN-1 Cycle Closed (SC-C).						
21S\ Cycl	<b>NOTE</b> WP pump shaft remaining stationary indicates Check Valve SWN-1 - e Closed (SC-C).					
21S\ Cycl 7.1.4	NOTE NP pump shaft remaining stationary indicates Check Valve SWN-1 e Closed (SC-C). VERIFY 21SWP pump shaft remains stationary.	Initials				
21S\ Cycl 7.1.4 7.1.5	NOTE WP pump shaft remaining stationary indicates Check Valve SWN-1 e Closed (SC-C). VERIFY 21SWP pump shaft remains stationary. INSTALL Discharge Pressure Test Gauge as follows:	Initials <u></u>				
21S\ Cycl 7.1.4 7.1.5 a.	NOTE WP pump shaft remaining stationary indicates Check Valve SWN-1 e Closed (SC-C). VERIFY 21SWP pump shaft remains stationary. INSTALL Discharge Pressure Test Gauge as follows: CLOSE SWN-58, PI-1193 Root Stop.	Initials <u></u>				
21S\ Cycl 7.1.4 7.1.5 a. b.	NOTE WP pump shaft remaining stationary indicates Check Valve SWN-1 e Closed (SC-C). VERIFY 21SWP pump shaft remains stationary. INSTALL Discharge Pressure Test Gauge as follows: CLOSE SWN-58, PI-1193 Root Stop. REMOVE PI-1193 installed at SWN-58, PI-1193 Root Stop.	Initials <u>CCC</u> Initials <u>CCC</u> Initials <u>CCC</u>				

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

Level \_\_\_\_\_ Ft. \_\_\_\_ Inches Initials \_\_\_\_

7.1.7 RECORD "As Found" positions <u>AND</u> PERFORM the following valve line-up:

VALVE	DESCRIPTION	AS FOUND	TEST POSITION	INITIALS
SWN-851-X1	FI-5002 Low Side Stop	Um	OPEN	Cm
SWN-850-X1	FI-5002 High Side Stop	Open	OPEN	1 cm
SWN-850-X3	FI-5002 Equalizing Stop	Dien	OPEN	un/
SWN-851	FI-5002 Low Side Root Stop	closed	CLOSED	un
SWN-850	FI-5002 High Side Root Stop	closed	CLOSED	un
SWN-501	26SWP Pump Test Header Inlet	Lock close	LOCKED CLOSED	hund
SWN-502	25SWP Test Header Stop	Lock close	LOCKED CLOSED	um
SWN-503	24SWP Test Hdr Inlet Stop	lock close	LOCKED CLOSED	un
SWN-504	23SWP Test Hdr Stop	lock close	LOCKED CLOSED	hin
SWN-505	22SWP Test Hdr Stop	Lock dore	LOCKED CLOSED	1 um
SWN-507	Overboard Drain Stop	open	OPEN	1 m
SWN-506	21SWP Test Hdr Inlet Stop	open	OPEN	uni
SWN-2	21SWP Outlet Stop	oner	CLOSED	lun
SWN-600	21SWP Strainer Blowdown Stop	Closed	CLOSED	im

### 7.2 <u>21SWP Test</u>:

7.2.1	ENSURE oil level in 21SWP is satisfactory.	Initials <u>w</u>
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:

How

Initials \_\_\_\_\_

1500 +/- 30 GPM flow rate is obtained with SWN-850-X3 fully closed. Initials

7.2.6

 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.

THROTTLE valves SWN-507, Overboard Drain Stop AND

SWN-850-X3, FI-5002 Equalizing Stop simultaneously UNTIL

- 7.2.8 VERIFY piping <u>OR</u> excessive packing leakage is <u>NOT</u> present. Initials <u>1</u>
- 7.2.9 <u>WHEN</u> 21SWP has run for a <u>MINIMUM</u> of 5 minutes, <u>THEN</u> RECORD the following:

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

Initials

Initials HA

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.
- b. OPEN SWN-851, FI-5002 Low Side Root Stop.
- c. OPEN SWN-850, FI-5002 High Side Root Stop.

### CAUTION

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

### NOTE

Set flow as near as possible to exactly 1500 GPM.

Initials 1

Initials <u>M</u>

Initials 1

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).
- <u>IF</u> vibration points are <u>NOT</u> physically marked on the pump <u>AND</u> motor, <u>THEN</u> INITIATE a Condition Report (CR).



### NOTE

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

MA shall  $\underline{\text{NOT}}$  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 <u>21SWP Test Restoration</u>:
  - 7.3.1 INFORM CRS that the tested Service Water Pump is about to placed initials
  - 7.3.2 OPEN Valve SWN-2, 21SWP Outlet Stop. Initials <u>u</u> Verifier <u>5</u>
  - 7.3.3 PERFORM the following restoration lineup <u>OR</u> ALIGN valves as per the CRS:

Valve	Description	Position	Initials	Verifier
SWN-506	21SWP Test Hdr Inlet Stop	LOCKED CLOSED		8
SWN-850-X3	FI-5002 Equalizing Stop	OPEN	u_	2
SWN-850-X1	FI-5002 High Side Stop	CLOSED		4
SWN-851-X1	FI-5002 Low Side Stop	CLOSED	Ś	4
SWN-850	FI-5002 High Side Root Stop	CLOSED	ĩ	d
SWN-851	FI-5002 Low Side Root Stop	CLOSED	un	F
SWN-600	21SWP Strainer Blowdown Stop	OPEN	5	J.
SWN-507	Overboard Drain Stop	OPEN	m-	Ø∕

7.3.4	PERFORM the following steps to remove the test gauge:	
а	CLOSE valve SWN-58, PI-1193 Root Stop.	Initials
b	REMOVE test gauge at SWN-58, PI-1193 Root Stop.	Initials
с	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:	
а	CLOSE Valve SWN-623-X1, PI-5680 Root Stop.	Initials
b	REMOVE PI-5680.	Initials
С	INSTALL 0-300 psig test gauge.	Initials
d	OPEN Valve SWN-623-X1, PI-5680 Root Stop to test gauge.	Initials
е	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: 100 psig	Initials <u>u</u>
j.	RECORD Strainer Outlet pressure from the test gauge at valve SWN-624-X1.	

Outlet Pressure: \_\_\_\_\_\_\_ psig

Initials

### NOTE

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

k. CALCULATE the Strainer DP by subtracting the value in Step 7.3.5 from the value in Step 7.3.5 i.  $DP = \frac{106}{(\text{Step 7.3.5i})} \text{ psig} = \frac{106}{(\text{Step 7.3.5j})} \text{ sig} = 6$ psid Initials ( I. CLOSE Valve SWN-624-X1, PI-5679 Root Stop. Initials ( m. REMOVE test gauge. Initials 🗸 n. INSTALL PI-5679. Initials Werifier o. OPEN Valve SWN-624-X1, PI-5679 Root Stop. Initials *w* Verifier Initials \_ p. CLOSE Valve SWN-623-X1, PI-5680 Root Stop. Initials L q. REMOVE test gauge Initials Universifier INSTALL PI-5680. r. 🖊 Verifier 🕖 s. OPEN Valve SWN-623-X1, PI-5680 Root Stop. Initials \_ 7.3.6 NOTIFY CCR operator that 21SWP may be operated as directed by the CRS. Initials 🗸

### 7.4 21SWP Test DP Calculation

### <u>NOTE</u>

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

### 7.4.1 CALCULATE 21SWP suction pressure:

Ti	de Level (Step 7.1.6):	(A) Feet	(B)inches	
		(B)inches	x .083 = (C)	
		(C) +	(A) = Pl <sub>ft</sub>	
				Initials
7.4.2	CALCULATE 21SWP	discharge pressure	<b>):</b>	
	21SWPO (Step 7.2.9)	Psig X 2.31	= PO <sup>ft</sup>	Initials
7.4.3	CALCULATE 21SWP	PDP:		
	PO <sub>ft</sub> + PI <sub>ft</sub>	=21DI	P <sub>ft</sub>	Initials

- 7.4.4 TRANSFER information to the Test Results Section 10 as follows:
  - a. <u>IF</u> the test is stopped <u>PRIOR TO</u> recording <u>ANY</u> of the Operability Criteria in Section 10, <u>THEN</u> MARK Sections 10.3, 10.4, <u>AND</u> 10.5 Not Applicable <u>AND</u> RESTORE the system as per the SM <u>OR</u> CRS.
  - b. INDICATE in the Test Results whether this test was performed as surveillance <u>OR PMT</u>. <u>IF</u> test is performed for <u>BOTH</u> surveillance <u>AND</u> PMT requirements, <u>THEN</u> INDICATE PMT as the reason for test.
  - c. ENTER data in <u>ALL</u> Tables.

Initials

- 8.0 DATA (TABLES)
- 8.1 None.

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# 9.0 <u>COMMENTS:</u>

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### 10.0 TEST RESULTS

10.1 The Test Results "Surveillance Acceptance Criteria" are valid WHEN the signatures of the Test Engineer <u>AND</u> 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 <u>AND</u> 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	<u>≤</u> 0.6	SAT UNSAT
7.2.10	Vibration Point AH (IPS)	***********	≤ 0.7	<u>≤</u> 0.6	SAT UNSAT
7.2.10	Vibration Point MA (IPS)		≤ 0.7	<u>≤</u> 0.7	SAT UNSAT
7.4.3	21SWP DP <sub>ft</sub>		≥ 290	<u>≥</u> 300.5 ≤ 355.4	SAT UNSAT

10.4 RECORD the As Found values <u>AND</u> 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	<u>≤</u> 0.25	SAT UNSAT
7.2.10	Vibration Point MA (IPS)		<u>≤</u> 0.32	<u>≤</u> 0.32	SAT UNSAT
7.4.3	21SWP DP <sub>ft</sub>		Not Applicable to PMT	<u>≥</u> 307	SAT UNSAT

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 $\geq 0$ psid]	SAT UNSAT

10.6 <u>IF ANY</u> results above are UNSAT, immediately inform the SM of the UNSAT conditions.

Name of SM Informed

**CRS** Initials

Date

10.7 Inform the CRS that field work is complete:

- 10.8 <u>IF ANY</u> other unsatisfactory results are obtained <u>OR</u> abnormal indications observed during this test, record <u>ALL</u> explanations <u>AND</u> 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

10.10 Forward procedure to the Cognizant Supervisor for review.

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**Print Name/Signature** 

Date

Print Name/Signature

#### 11.0 SUPERVISOR REVIEW

- 11.1 Ensure the test is complete <u>AND</u> 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 <u>IMMEDIATELY</u>.
- 11.3 Initiate a Condition Report for <u>ANY</u> Test Results in Section 10.0 that are UNSAT or any unexplained test anomalies.

Condition Report number:\_\_\_\_\_

### 11.4 COMMENTS:

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<u> </u>			· · · · · · · · · · · · · · · · · · ·
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			· · · · · · · · · · · · · · · · · · ·
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Superv	isor Print Name	Signature	 Date

11.5 Forward procedure to the SM for review.

### 12.0 <u>SM REVIEW</u>

- 12.1 <u>IF ANY</u> Test Results Response was UNSAT, verify that a Condition Report has been written to correct the outstanding deficiency.
- 12.2 Ensure <u>ALL</u> applicable actions are taken in accordance with Technical Specifications <u>OR</u> other applicable documents.
- 12.3 Verify that all comments in steps 9.0 and 11.4 were reviewed and dispositioned.

### 12.4 <u>COMMENTS:</u>

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 <u>ALL</u> deficiencies <u>AND</u> abnormal conditions noted have adequate corrective action identified <u>AND</u> <u>ANY</u> applicable Condition Report numbers are noted.
- 13.1.4 <u>IF ANY</u> discrepancy is found during the test review, correct the discrepancy or initiate a Condition Report.

Condition Report number:\_\_\_\_\_

13.2 <u>COMMENTS:</u>

#### 13.3 ADDITIONAL TEST ENGINEER REQUIREMENTS

13.3.1 UPDATE valve trending computer program.

Test Engineer \_\_\_\_\_

Print Name

Signature

Date

Entergy		EY	PT-Q26A Revision 9
NUCLEAR NO INDIAN POIN	DRTHEAST T STATION 1 and 2 21 SE	RVICE WATER PUMP	
Prepared by: Reviewer: Reviewer: Reviewer: SNSC Review:	Honas n. mn V Sacos Not Reguined Meeting No. / Date Signature / Title	Technical Revie Reviewer: Reviewer: Reviewer: Reviewer: Reviewer:	wer:
5	BIEN	INIAL REVIEW	
R	eviewer / Date	Review	er / Date
Temporary Proced	dure Changes: / Date		



### NUCLEAR NORTHEAST INDIAN POINT STATION 1 and 2

# 21 SERVICE WATER PUMP

# **TEST EQUIPMENT & MATERIALS**

Required Equipment	Serial No. <u>OR</u> M&TE No.	Next Cal. Due Date
Discharge Pressure Test Gauge (0-300 psig)	PE-300-36	5/3/02
Strainer Inlet Test Gauge (0-300 psig)	PE-300-65	3/4/03
Strainer Outlet Test Gauge (0-300 psig)	PE -300-67	2/6/02
Vibrometer <u>OR</u> Microlog	PE-ENTEK-3	10/19/02
FI-5002	FI-5002 (ICPM-1579)	Z/12/04 T.M.
Tethered Ruler	N/A	N/A
•		· · · · · · · · · · · · · · · · · · ·

Suggested Equipment	Serial No. OR M&TE No.	Next Cal Due.
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 <u>PURPOSE</u>

- 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 <u>OR</u> removed out of the sequence specified in the test <u>AND</u> in parallel with other preparation <u>OR</u> 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 <u>MAY</u> alarm depending on system conditions.
- 2.7 <u>IF</u> a service pump control switch is placed in "Pullout", <u>THEN</u> the "Safeguards Equipment Locked Open" will alarm.

- 21 Service Water Pump testing is conducted to meet the requirements stated in the 2.8 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 <u>PURPOSE</u>

- 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 <u>OR</u> removed out of the sequence specified in the test AND in parallel with other preparation <u>OR</u> 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.
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  - 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.
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  - 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.

2.8

### 3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 Use <u>ONLY</u> 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 <u>ONE</u> 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, <u>WHEN</u> personnel are entering enhanced control areas for equipment performance monitoring <u>AND IF</u> enhanced controls are <u>NOT</u> required by other work in progress, <u>THEN</u> 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.



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



5.3 RECORD the date that the field work actually began.

DATE

	60		Revision 9
	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 NA	Date La
	7.0	INSTRUCTIONS	
	7.1	21SWP Test Setup:	
		NOTE	
	E	nsure at least <u>ONE</u> other pump on the header is operating for Check Valv	e testing.
	R CL	EFER to Technical Specification 3.3.F for applicable action statement bas rrent plant conditions.	sed on
	7.1	1 REQUEST CCR Operator to PLACE 21SWP in PULL-OUT.	Initials
١	7.1.	2 RECORD time.	
		Pump in PULL-OUT:	Initials <u>C</u>
	7.1.	3 ENSURE valve SWN-2, 21SWP Outlet Stop is OPEN.	Initials
		NOTE	
	21 Cy	SWP pump shaft remaining stationary indicates Check Valve SWN-1 cle 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 <u></u>
		b. REMOVE PI-1193 installed at SWN-58, PI-1193 Root Stop.	Initials <u>m</u>
		<ul> <li>INSTALL 0-300 psig Discharge Pressure Test Gauge downstream of SWN-58, PI-1193 Root Stop.</li> </ul>	Initials M
•			

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PT-Q26A

**.** •

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

Level	7	Ft.	0	Inches	Initials he

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	Um	OPEN	5
SWN-850-X1	FI-5002 High Side Stop	Open	OPEN	~~~
SWN-850-X3	FI-5002 Equalizing Stop	over	OPEN	un/
SWN-851	FI-5002 Low Side Root Stop	closed	CLOSED	un
SWN-850	FI-5002 High Side Root Stop	closed	CLOSED	un
SWN-501	26SWP Pump Test Header Inlet	Lock close	LOCKED CLOSED	hun
SWN-502	25SWP Test Header Stop	Lock close	LOCKED CLOSED	un
SWN-503	24SWP Test Hdr Inlet Stop	lock close	LOCKED CLOSED	un
SWN-504	23SWP Test Hdr Stop	lock close	LOCKED CLOSED	him
SWN-505	22SWP Test Hdr Stop	Lack doies	LOCKED CLOSED	un!
SWN-507	Overboard Drain Stop	Open	OPEN	i un
SWN-506	21SWP Test Hdr Inlet Stop	open	OPEN	uni
SWN-2	21SWP Outlet Stop	oner	CLOSED	lun
SWN-600	21SWP Strainer Blowdown Stop	Closed	CLOSED	un

### 7.2 <u>21SWP Test</u>:

7.2.1	ENSURE oil level in 21SWP is satisfactory.	Initials <u>(</u>
722	IF oil level is UNSAT. THEN NOTIFY SM PRIOR to starting pump.	Initials

100

7.2.3 REQUEST CCR Operator START 21SWP.

7.2.4 RECORD Start Time:

**Pump Started:** 

Initials \_\_\_\_\_

Initials 🗠

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- 7.2.5 PERFORM the following steps to provide indication to test gauge <u>AND</u> flow to FI-5002:
  - a. OPEN SWN-58, PI-1193 Root Stop.
  - b. OPEN SWN-851, FI-5002 Low Side Root Stop.
  - c. OPEN SWN-850, FI-5002 High Side Root Stop.

## <u>CAUTION</u>

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

### <u>NOTE</u>

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 <u>UNTIL</u>
   1500 +/- 30 GPM flow rate is obtained with SWN-850-X3 fully closed. Initials <u>Acc</u>
- 7.2.7 IF 1500 +/- 30 GPM cannot be obtained <u>WHEN</u> SWN-507 is throttled, <u>THEN</u> leave SWN-507 throttled <u>AND</u> THROTTLE flow to 1500 +/- 30 GPM using SWN-506.
- 7.2.8 VERIFY piping <u>OR</u> excessive packing leakage is <u>NOT</u> present.
- 7.2.9 <u>WHEN</u> 21SWP has run for a <u>MINIMUM</u> of 5 minutes, <u>THEN</u> RECORD the following:

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

Initials

Initials HA

Initials 1

Initials	h
Initials	M

Initials 1

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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).
- <u>IF</u> vibration points are <u>NOT</u> physically marked on the pump <u>AND</u> motor, <u>THEN</u> INITIATE a Condition Report (CR).



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### <u>NOTE</u>

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

MA shall <u>NOT</u> 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)	(*) O.19
AH (Upper Motor Bearing)	(*) 0.16
MA (Motor Axial)	(*) 0. \\
C (Pump Suction Flange Parallel Flow)	0.22
D(Pump Suction Flange Cross Flow)	0.20

### \* SECTION XI ACCEPTANCE POINTS

Initials Cm

Initials <u>verifier</u> <u>o</u>

### 7.3 21SWP Test Restoration:

- 7.3.1 INFORM CRS that the tested Service Water Pump is about to placed Initials
- 7.3.2 OPEN Valve SWN-2, 21SWP Outlet Stop.
- 7.3.3 PERFORM the following restoration lineup <u>OR</u> ALIGN valves as per the CRS:

Valve	Description	Position	Initials	Verifier
SWN-506	21SWP Test Hdr Inlet Stop	LOCKED CLOSED	$\sim$	8
SWN-850-X3	FI-5002 Equalizing Stop	OPEN	~	2
SWN-850-X1	FI-5002 High Side Stop	CLOSED		4
SWN-851-X1	FI-5002 Low Side Stop	CLOSED	w	4
SWN-850	FI-5002 High Side Root Stop	CLOSED	m	d
SWN-851	FI-5002 Low Side Root Stop	CLOSED	un	4
SWN-600	21SWP Strainer Blowdown Stop	OPEN	~~~	F.
SWN-507	Overboard Drain Stop	OPEN	$\sim$	$\mathcal{P}$

		REVISION 9
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 $\mathcal{T}$
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 <u>u</u>
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 <u>u</u>
j.	RECORD Strainer Outlet pressure from the test gauge at valve SWN-624-X1.	

Outlet Pressure: \_\_\_\_\_\_ psig

Initials\_

#### NOTE

Strainer DP  $\geq$  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. ٩.  $DP = \frac{100}{(\text{Step 7.3.5i})} \text{ psig} - \frac{100}{(\text{Step 7.3.5j})} \text{ psig} =$ psid Initials U CLOSE Valve SWN-624-X1, PI-5679 Root Stop. Ι. Initials ( m. REMOVE test gauge. Initials 6 n. INSTALL PI-5679. Initials Verifier o. OPEN Valve SWN-624-X1, PI-5679 Root Stop. Initials 4 Verifier p. CLOSE Valve SWN-623-X1, PI-5680 Root Stop. Initials U REMOVE test gauge q. Initials 6 Initials Werifier INSTALL PI-5680. r. s. OPEN Valve SWN-623-X1, PI-5680 Root Stop. Initials 6 🖌 Verifier 🛛 7.3.6 NOTIFY CCR operator that 21SWP may be operated as directed by the CRS. Initials U

### 7.4 21SWP Test DP Calculation

### <u>NOTE</u>

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)  $\overline{7}$  Feet (B)  $\underline{O}$  inches (B)  $\underline{O}$  inches  $x .083 = \underline{O}$  (C) (C)  $\underline{O}$  + (A) =  $\overline{7}$  Pl<sub>ft</sub>

7.4.2 CALCULATE 21SWP discharge pressure:

 $21SWPO \_ (1 \le 7] Psig X 2.31 = 267.3 PO^{t}$ (Step 7.2.9) Initials

7.4.3 CALCULATE 21SWP DP:

 $PO_{t} 267.3 + PI_{t} - 7 = 274.321DP_{t}$ 

- 7.4.4 TRANSFER information to the Test Results Section 10 as follows:
  - a. <u>IF</u> the test is stopped <u>PRIOR TO</u> recording <u>ANY</u> of the Operability Criteria in Section 10, <u>THEN</u> MARK Sections 10.3, 10.4, <u>AND</u> 10.5 Not Applicable <u>AND</u> RESTORE the system as per the SM <u>OR</u> CRS.
  - b. INDICATE in the Test Results whether this test was performed as surveillance <u>OR</u> PMT. <u>IF</u> test is performed for <u>BOTH</u> surveillance <u>AND</u> PMT requirements, <u>THEN</u> INDICATE PMT as the reason for test.
  - c. ENTER data in <u>ALL</u> Tables.

DATA (TABLES) 8.0

8.1 None.

Initials

Initials

Initials

	9.0	<u>COMMENTS:</u>						PT-Q26 Revision	3A 1 9
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$\frown$					 				

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### 10.0 TEST RESULTS

10.1 The Test Results "Surveillance Acceptance Criteria" are valid WHEN the signatures of the Test Engineer <u>AND</u> 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 <u>AND</u> 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	<u>≤</u> 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	<u>≤</u> 0.7	SAT UNSAT
7.4.3	21SWP DP <sub>ft</sub>		≥ 290	<u>≥</u> 300.5 ≤ 355.4	SAT UNSAT

10.4 RECORD the As Found values <u>AND</u> 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 <sub>ft</sub>		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 $\geq 0$ psid]	SAT UNSAT		

10.6 <u>IF ANY</u> 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

**Print Name/Signature** 

Print Name/Signature

Date

- 10.8 <u>IF ANY</u> other unsatisfactory results are obtained <u>OR</u> abnormal indications observed during this test, record <u>ALL</u> explanations <u>AND</u> 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

and propodure to the Operational Operations in the

10.10 Forward procedure to the Cognizant Supervisor for review.
# 11.0 SUPERVISOR REVIEW

- 11.1 Ensure the test is complete <u>AND</u> the Test Results Section is completed accurately.
- 11.2 <u>IF ANY</u> error is found in the recorded data that changes a SAT response to an UNSAT response in the Test Results Section, notify the SM <u>IMMEDIATELY</u>.
- 11.3 Initiate a Condition Report for <u>ANY</u> Test Results in Section 10.0 that are UNSAT or any unexplained test anomalies.

Condition Report number:\_\_\_\_\_

# 11.4 <u>COMMENTS:</u>

Supervisor			1
	Print Name	Signature	Date
		•	

11.5 Forward procedure to the SM for review.

# 12.0 <u>SM REVIEW</u>

- 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 <u>ALL</u> applicable actions are taken in accordance with Technical Specifications <u>OR</u> other applicable documents.
- 12.3 Verify that all comments in steps 9.0 and 11.4 were reviewed and dispositioned.

# 12.4 COMMENTS:

· · · · · · · · · · · · · · · · · · ·			······································
١	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 <u>ALL</u> deficiencies <u>AND</u> abnormal conditions noted have adequate corrective action identified <u>AND ANY</u> 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 <u>COMMENTS:</u>

# 13.3 ADDITIONAL TEST ENGINEER REQUIREMENTS

13.3.1 UPDATE valve trending computer program.

Test Engineer \_\_\_\_

Print Name

Signature

Date

Appendix C	Job Performa Work	Form ES-C-1	
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 Perform	ance:
Classr	oom X Simulator	Plant	

#### READ TO THE EXAMINEE

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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

### Page 2 of 6 VERIFICATION OF COMPLETION

#### 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:**

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

#### **REFERENCE:**

E-Plan Part 2 section K

#### Page 3 of 6 VERIFICATION OF COMPLETION

#### 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

### Page 4 of 6 VERIFICATION OF COMPLETION

Form ES-C-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?

#### Page 5 of 6 VERIFICATION OF COMPLETION

#### 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.

# Page 6 of 6 JPM CUE SHEET

Job Performance Measure No.:	IP2 SRO ADMIN	I A3 QUESTI	IONS		
Examinee's Name:					
Date Performed:					
Facility Evaluator:					
Number of Attempts:					
Time to Complete:					
Question Documentation:					
Question:					
Response:					
Result:	SAT	UNSAT			
Examiner's Signature:			Date:	. 10.	

Appendix C	Job Perforr Wo	mance Measure orksheet	Form ES-C-1
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 Performa	ance:	Actual Performa	ance: X
Classro	oom <u>X</u> 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:	<ul> <li>A LOCA has occurred.</li> <li>Automatic reactor trip did NOT occur. The reactor was tripped from the Flight Panel</li> <li>Safety Injection and RHR pumps are operating as required</li> <li>RCS pressure has decreased to approximately 100 psig and has stabilized.</li> <li>Containment pressure has increased to 2.8 psig and has stabilized</li> <li>Upon completion of E-0, Reactor Trip or Safety Injection, the team entered the following procedures in sequence: <ul> <li>FR-C.2, due to an Orange Path on Core Cooling.</li> <li>FR-P.1, due to the LOCA in progress.</li> </ul> </li> </ul>
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

# Page 2 of 4 PERFORMANCE INFORMATION

Form ES-C-1

(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
<u>Tin</u>	ne Completed:	
Ter	minating Cue:	When event classification has been made, the evaluation for this JPM is complete

Appendix C	pendix C	ĸС	endix	App
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# Page 3 of 4 VERIFICATION OF COMPLETION

Form ES-C-1

Job Performance Measure No.:	<u>IP-2 2003 NRC A</u>	4 SRO		
Examinee's Name:				
Date Performed:				
Facility Evaluator:				
Number of Attempts:				
Time to Complete:				
Question Documentation:				
Question:				
Response:				
Result:	SAT	UNSAT		
Examiner's Signature:		C	Date:	

Appendix C	Page 4 of 4 JPM CUE SHEET	Form ES-C-1
INITIAL CONDITIONS:	A LOCA has occurred.	
	<ul> <li>Automatic reactor trip did NOT tripped from the Flight Panel</li> </ul>	occur. The reactor was
	<ul> <li>Safety Injection and RHR pum</li> </ul>	ips are operating as required
	<ul> <li>RCS pressure has decreased and has stabilized.</li> </ul>	to approximately 100 psig
	<ul> <li>Containment pressure has incl stabilized</li> </ul>	reased to 2.8 psig and has
	<ul> <li>Upon completion of E-0, React the team entered the following</li> </ul>	tor Trip or Safety Injection, procedures in sequence:
	<ul> <li>FR-C.2, due to an Orar</li> <li>FR-P.1, due to an Oran</li> <li>E-1, due to the LOCA in</li> </ul>	nge Path on Core Cooling. nge Path on Integrity n progress.

INITIATING CUE:

Perform Emergency Classification of the event in progress

ES-301

.

Facility:	Indian Point 2		Date of Examination:	3/10/2003
Examina	tion Level: RO		Operating Test Number:	1
Adı	ministrative	Describe	method of evaluation:	
Topic/Su	bject Description	1. ONE	Administrative JPM, OR	
		2. TWO	Administrative Questions	
A.1a	Conduct of Operations	2.1.7	Ability to evaluate plant performance and majudgments based on operating characteristic and instrument interpretation. (3.7/4.4)	ake operational cs, reactor behavior,
		JPM:	Perform QPTR Calculation	
A.1b	Conduct of Operations	2.1.18	Ability to make accurate, clear, and concise boards, and reports. (2.9/3.0)	logs, records, status
	•	JPM:	Perform a set of Control Room logs	
A.2	Equipment Control	2.2.12	Knowledge of surveillance procedures. (3.0	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	5/2.9)
		JPM:	Determine appropriate RWP and take action Radiation alarm	n for High Area
A.4	Emergency Plan	2.4.43	Knowledge of RO responsibilities in E-Plan (3.3/3.1)	implementation.
		Question	Duties of operations department person accountability is required	nel when site
		2.4.29	Knowledge of the Emergency Plan. (2.6/4.0	))
		Question	Emergency Response Facilities activated in Emergency	n a Site Area

Appendix C	Job Performal Works	Form ES-C-1	
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 Perform	ance:	Actual Perform	ance: X
Classr	oom 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

\*

\*

## Page 2 of 5 PERFORMANCE INFORMATION

## (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:	
Parformanca Stan: 3	Record date time, and average reactor nower
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:	

Appendix C		Page 3 of 5 PERFORMANCE INFORMATION	Form ES-C-1
* Performance Step: 6 Standard:		Calculate Quadrant Power Tilt for top and bottor Performs calculation	n detectors
	Comment:		
	Performance Step: 7 Standard:	Record Highest Quadrant Power Tilt and approp Records and signs DSR-4B	oriate signatures
	Comment:		
	Performance Step: 8 Standard:	Document results Enters data on DSR-1	
	Comment:	Cue: DSR-1 entry will be made later	
*	Performance Step: 9 Standard:	Determine QPTR is greater than 1.02. Inform C Refer to procedure and determine that QPTR > supervision	RS/SM 1.02. Inform
	Comment:		
Terminating Cue:		When the candidate has determined QPTR and CRS/SM, the evaluation for this JPM is complete	notified e

Appendix C	Ap	pendix	С
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# Page 4 of 5 VERIFICATION OF COMPLETION

Form ES-C-1

				11.1
Job Performance Measure No.:	<u>IP2 2003 NRC A</u>	<u>1a RO</u>		
Examinee's Name:				
Date Performed:				
Facility Evaluator:				
Number of Attempts:				
Time to Complete:				
Question Documentation:				
Question:				
Response:				
Result:	SAT	UNSAT		
Examiner's Signature:			Date:	

Appendix C	Page 5 of 5 JPM CUE SHEET	Form ES-C-1
INITIAL CONDITIONS:	The plant is at 100% power. NIS power range channel N-41 is out of service	
	The Shift manager has directed you to calculate using the given detector currents in accordance wappropriate procedure	QPTR manually vith the

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	U	NIT TWO QI DSF	UADRANT POWE	R TILT CALCUL Rev. 73	ATION SHEET	DATE. 5	ፖራ ስ ሉ ነ
Previou	IS SNSC #2545	1/5/98		(QT-16	5-6)	TIME:	Now
SNSC	refine 1/13	703			AVE REACTOR	PWR:	/00.0
APPR	VED (RE) DA	<u>3-03</u> US	ING DETECTOR	OUTPUT CURR	ENT		
APPR	OVED DATE	-		· · · · · · · · · · · · · · · · · · ·			
*	Current QT num	ber and Nor	malization Factors	provided by Hea	actor Engineer.		fal
1.	Determine norm	alized ratios	by dividing indica	ted detector curr	ent by normaliza	tion tacto	
Char	nei Det C	urrent	Nor Ratio	Channel	Det Curren	t	Nor F
41 T	op = 41T =	r /*_114	1.6 = r(A)	41 Bottom = 4	18= <u>~~</u> A	/*_112.6=	<u>-</u>
42 T	op = 42T = 87.	0/*88	3.3_=	42 Bottom = 4	2B = 111.1	/*_111.8_=	≠
43 T	op = 43T = <u>/04</u>	<u>. [</u>	8.9_=	43 Bottom = 4	3B = 1(8.(	/* <u>118.9</u> :	=
	$c_{00} = 44T = 166$	. ໆ /*_10!	5.9 =	44 Bottom = 4	4B = 117.0	/*_118.3	=
	<u> </u>		melined ratio for th	ton and hotton	1		
2.	Determine the l	average nor			" T : 44T-		
	Average Norma	alized Ratio	Top = ANHI =	$=\frac{411+421+45}{4}$			
	Average Norm	alized Ratio	Bottom = ANRB =	<u>41B + 42B + 43</u>	<u>B + 44B=</u>	. <u></u>	
	,			4			
з.	Determine The	quadrant p	ower tilt ratio for the	ne top and botton alv by their respe	n by dividing the ctive average no	highest n	ormali ratio.
	Oundrast Bow	er Till Top –	OPTT = Highest	value of 41T. 42	T. 43T. or 44T		
	QUALIANT FOW	er nik rop –		ANRT			
		<u>e</u> =					
	QP[] = ANH	1 =					
	Quadrant Pow	er Tilt Botto	m = QPTB = <u>Hig</u> i	nest value of 41B	. 42B. 43B. or 4	<u>4B</u>	
	Valu	<u>e</u> =		ANNE	<b>)</b>		
	QPTB = ANR	B =	· =				
4.	The higher of Limit of 1,020	<u>the two qua</u> 0.	drant power tilts s	hould be less the	n or equal to the		
		21					
	Enter the Higher (	PT(Top or	Bottom) =	$\overline{2}\overline{0}\overline{0}$			
	recimical op						
			1	NOTES:			
1.	If the quadra	nt power tilt	exceeds the Tech	. Spec. limits, the	SM, OM, RE a	nd GM-NI	PG sha
	informed AS/	<b>чР.</b>			فالمحدد حط الأمد مد		a tha r
2.	If one detector normalized re	or is out of s atios (ensure	ervice, the three is e denominators in	n service detecto step 2 are chan	ged from 4 to 3).		ອ ແກອ 8
	BO			SM:			
	, 10, <u></u>						

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HASWER KEY

UNIT TWO QUADRANT POWER TILT CALCULATION SHEET DSR-4B Rev. 73

	Da	NH-48	Hev. /	3	
Previous SNSC	#2545 11/5/98	···· <b>·</b>	(QT-1	6-6) DAT	E: TODAY
SNSC REVIEW	DATE		•	TIN	IE: Now
ADDOVED	$\sim 1/13/05$			AVE REACTOR PW	R:_/00.0
APPROVEDIN		SING DETECTOR		ENT	
APPROVED D	DATE	Sind Detector			
<ul> <li>Current</li> </ul>	t QT number and No	malization Factors	s provided by Rea	actor Engineer.	
d Datawa					
1. Determ	ine normalized ratio	s by dividing indica	ted detector curr	ent by normalization f	actor as follows:
			T <sub>a</sub> ,		
Channel	Det Current	Nor Hatio	Channel	Det Current	Nor Ratio
41  Top = 41  T	= NA /* 11	46 = MA	41 Bottom - 4	1B- NA #11	26- NA
			41 000011 - 4		2.0 = /1//
42 Top = 42T	= <u>87.0</u> / <u>8</u>	<u>8.3 = 0.9853</u>	42 Bottom = 4	2B = <u>\\\.\</u> / <u>11</u>	1.8 = 0.5937
10 T (0T	1041				66.4.2
43 IOP = 431	= 10 1. [ . 10	8.9 = 0.7351	1 43 Bottom = 43	3B ≕ \\& • \ /*11	$8.9 \pm 0.7735$
				the second se	
44  Top = 44  T	= /66.9 /* 10	5.9 = 1.0094	44 Bottom - 4	AB- 113.0 #11	83-05890

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

Average Normalized Ratio Top = ANRT = 41T + 42T + 43T + 44T = 0.9835Average Normalized Ratio Bottom = ANRB = 418 + 42B + 43B + 44B= 0 9920 K 3

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

$$QPTT = ANRT = 0.9835 = 1.0263$$

Quadrant Power Tilt Bottom = QPTB = Highest value of 41B, 42B, 43B, or 44B ANRB

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

Enter the Higher QPT(Top or Bottom) = -1: 0 2 0 0Technical Specification Limit = 1: 0 2 0 0

#### 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:

Page 1 of 1

Appendix C	Page 1 c PERFORMANCE IN	of 5 NFORMATION	Form ES-C-1
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 Performa	ance:	Actual Performa	ance: X
Classro	oom SimulatorX	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

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Ap	ppendix C	Page 3 of 5 Form ES-C-1 PERFORMANCE INFORMATION
(D	enote Critical Steps with a	n asterisk)
NC	DTE: Candidate may ident	ify 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
Те	rminating Cue:	When logs are complete, the evaluation for this JPM is complete.

Appendix C	)
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# Page 4 of 5 VERIFICATION OF COMPLETION

Form ES-C-1

Job Performance Measure No.:	<u>IP2 2003 NRC A</u>	<u>16 RO</u>		
Examinee's Name:				
Date Performed:				
Facility Evaluator:				
Number of Attempts:				
Time to Complete:				
Question Documentation:				
Question:				
Response:				
Result:	SAT	UNSAT		
Examiner's Signature:			Date:	

Appendix C	Page 5 of 5 JPM CUE SHEET	Form ES-C-1
INITIAL CONDITIONS:	You are on shift prior to 0700. DSR-1 log ent completed	ries are partially
INITIATING CUE:	Perform the remainder of the log entries takes shift for DSR-1	n on the 1900-0700

SNSC Review: Prior SNSC Mtg. 2531 Approved:	DATE: <u>9/17/98</u> DATE: <u>1/16/02</u>		END DATE
1900 - 0700 REMARKS (USE attached sheet for additional s	space.)	0700 - 1900 <u>REMARKS</u> (USE attached sheet for additional	space.)
See Attal al			
RO SIGNATURE: Mut	OAD 3 Middle of watch Key Chart Recorder	RO SIGNATURE:	OAD 3 Middle of watch Key Chart Recorder walkdown completed by at least two of the
2ND RO SIGNATURE:(+1)	SM, CRS, <u>OR</u> WE <u>AND</u> RO review checked on page 15.	2ND RO SIGNATURE: (+1)	SM, CRS, <u>OR</u> WE <u>AND</u> RO review checked on page 15.
CRS SIGNATURE: 7 2	SM: 62 WE:	CRS SIGNATURE:	SM: WE:
	CRS:	L	DSR 1 Rev 91.wp

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# ALARMS (at the end of 1900 - 0700 watch)

NOTE (denoted b	ν <u>Υ</u>	<u>+)</u>
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- IF log readings are taken by an Operator other than the person assigned the watch, the 2nd Operator SHALL sign the additional signature 1.
- 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. <u>WHEN</u> a reading is <u>NOT</u> applicable, MARK N/A in box. USE O/S <u>AND</u> COMMENT on the reason <u>OR</u> SEC <u>WHEN</u> applicable. Any readings outside of Normal range for a Non-Tech Spec item SHOULD be questioned, logged first, <u>THEN</u> corrected <u>IF</u> feasible. 2.
- Any readings which exceed a Min/Max value SHALL be logged first, red circled, corrected AND explained in the Remarks Section.

terns that have the parameter section shaded with white typeset have Technical Specification <u>C</u> [Fire Protection ) controlled parameters within the shaded area. Any Tech Spec <u>OR</u> SAC-700 S put of MinMax SHALL be logged first, red circled <u>AND</u> SM notified <u>IMMEDIATELY</u>. The parameter put of MinMax SHALL be logged first, red circled <u>AND</u> SM notified <u>IMMEDIATELY</u>. 3 :6 10: m. 1.20 

- This log is to be used whenever TAVE is greater than 200°F. 5.
- Recorder charts SHALL be updated each shift. 6.
- LIST all alarm windows that are indicating at the end of 1900-0700 watch in space provided above <u>OR</u> on an attached sheet. EXPLAIN the reason for the alarm occurring; CONTINUE explanations on back of sheet <u>IF</u> more space is needed. 7.
- IF either 12 hr. <u>OR</u> 24 hr. comparison indicates a count rate increase that can <u>NOT</u> be explained by planned changes in RCS conditions (eg. dilution, heatup etc.), <u>THEN</u> OBTAIN an RCS Boron sample ASAP. IF the calculated ratio is less than 0.8 <u>OR</u> greater than 1.2, <u>THEN</u> RESET the HIGH FLUX SHUTDOWN alarm per SOP 13.2, Setting of High Flux at Shutdown Alarm. IF the Reactor is shutdown <u>AND</u> either of the two HIGH FLUX AT SHUTDOWN alarms are blocked <u>OR</u> out of service <u>THEN</u> RCS Boron sampling frequency SHOULD be increased to at least by the per day. 8 increased to at least twice per day.
- 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. 9.

10. Deleted

- <u>IF</u> river water temperature recorder is <u>NOT</u> recording temperatures continuously, RECORD all operable inlet <u>AND</u> outlet temperatures on CCR display, at hourly intervals on supplemental log.
- An increase in RCS leakage may be indicated by either an increased activity noted during the 12 hour log interval <u>QR</u> by receipt of the Warn Alarm. IF an unexplained, increasing trend is noted <u>QR</u> the Warn Alarm annunciates, <u>AND</u> the alarm is <u>NOT</u> due to a known evolution, PERFORM an RCS leakage rate calculation per SOP 1.7, Reactor Coolant System Leakage Surveillance. 12.

- 14. The calculated average steam generator level is for normal, steady-state conditions. Only use 2 channels <u>WHEN</u> 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).
- <u>IF</u> containment temperature exceeds 118°F, CONSULT SM for guidance. <u>IF</u> temperature exceeds 125°F. LOG VC Temps on hourly Supplemental Log <u>AND</u> CONSULT System Engineering to determine at what indicated temperature to begin a reactor shutdown per T.S. 3.3.F.4.
- USE ARP SBF-1, window 3-2 alarm to verify less than 19'3". <u>IF</u> alarm is up, log >19'3" until indication can be used to give actual level. <u>IF</u> the indicated level reaches 20 ft. EL action should be taken to determine whether water is in the sump <u>OR</u> whether an instrument problem exists. <u>IF</u> 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:
  - This range is used WHEN Reactor Power is less than OR equal to 2%. Range A)
    - This range is used <u>WHEN</u> Reactor Power is greater than 2%. Range B)
- 22. Condensate Storage Tank Level, Tech. Spec. requirement applies to the Low Level. Tech Spec. 3.4.A.3.

Martin C 2000

### END DATE

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

- Charcoal filter hours SHALL be calculated on the 1900 0700 watch at midnight. ENSURE start <u>AND</u> stop times are logged in the CCR Log. <u>WHEN</u> charcoal is replaced <u>OR</u> 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. 25.
- Testing of this Fire Alarm panel will illuminate only the trouble light, <u>NOT</u> the alarm light <u>AND</u> the panel buzzer should sound. Testing of this panel will also bring up an alarm on CCR panel SD, window 1-5. 26.
- WHEN filter reaches 600 hours, WRITE a Work Order to the Performance Monitoring Group to obtain sample per Technical Specification 4.5.E.3. 27.
- WHEN filter reaches 600 hours, WRITE a Work Order to the Performance Monitoring Group to obtain sample per Technical Specification 4.5.G.2. 28.
- 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. 29.
- Radiation Monitor purges SHALL be done on the 1900 0700 watch. <u>WHEN</u> logging process Radiation Monitor data, VERIFY monitor is active (indication <u>NOT</u> locked onto a single value).
- 31. CHECK Alarm Panel Annunciator Lights <u>AND</u> Alarm Horns (<u>IF</u> equipped). Any Alarms that do <u>NOT</u> clear as a result of this test SHALL be explained in the Remarks section. <u>IF</u> any Alarm Cans require change out, REFER to OASL 15.81, Annunciator Can Change Out <u>AND</u> ENSURE appropriate attachment is completed.
- 32. Testing of this Fire Alarm Panel will illuminate only the Trouble Light, <u>NOT</u> the Alarm light <u>AND</u> the panel buzzer should sound. Testing of this panel will <u>NOT</u> bring up an alarm on CCR Panel SD <u>OR</u> SM.
- 33. During startup <u>OR</u> 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.
- 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. 34.
- 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).
  - IF the bar graph AND digital display are blank THEN one of the following has occurred: C.
    - 1. The indicator OR transmitter has failed.
    - Power has been lost. ( Transmitter Ckt 13 / Indicator Ckt 11 both on L&P Panel PH ) 2.
- 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:
  - CONNECT DVM to TP/P412A 'Turbine Press" (Channel 412A) in Rack A1 AND RECORD Reading. 1.
    - CONNECT DVM to TP/P412B "Turbine Press" (Channel 412B) in Rack A9 AND RECORD Reading. 2.
    - 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).

- VERIFY that reading is <u>ABOVE</u> "Min. Value". Readings of "0.00E+0" that are <u>NOT</u> accompanied by a "No CPM" condition <u>OR</u> periodic fluctuations below "Min Value" are acceptable. 42.
- RECORD Alarm setpoint, <u>THEN</u> COMPARE the recorded Alarm setpoint value to the value given in the Operator Aid "Monitor Backgrounds, Calibration Constants <u>AND</u> 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 <u>ONLY</u>. The 2 m/sec, does <u>NOT</u> 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  $\times$  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 <u>LESS THAN</u> 4 miles/hr) the direction difference may <u>EXCEED</u> 150 Deg due to meander. Emergency Planning section is to be contacted for parameter verification.

45. OBTAIN Vent Flow from R-27 Monitor <u>AND</u> from magnahelic in alleyway <u>AND</u> COMPARE the two readings. NPO will give reading in SCFM as long as their hand held computer is functioning. Otherwise Convert in. H₂O Magnahelic reading as follows: SCFM=7.12 x 10,000 √in. H₂O

#### 46. Deleted

- 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, <u>OR</u> 6-5 as appropriate to convert FCU condensate level to flow rate. 47.
- The Discrete, Redundant, AND Continuous levels SHALL be consistent with each other AND be within 1 ft EL difference.
- 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 48. 49.
- 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. WR channel. 50.
- 51. <u>IF</u> the Plant Computer System is unavailable for QPTR calculations, PERFORM a manual QPRT calculation per DSR 4B, Unit 2 Quadrant Power Tilt (Det. Curr.). <u>IF</u> required to log detector output voltages, ATTACH printed report from plant computer system to this DSR.
- 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. 52.
- 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. 53.
- VERIFY that the Plant Computer System autologging comparison <u>AND</u> 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 <u>NOT</u> agree within a programmed deadband). <u>IF</u> the Plant Computer System autologging <u>OR</u> IRPI Alarm Function is <u>NOT</u> operable, COMPLETE DSR 3, Unit 2 Rod Position Verification. 54.
- 55 The Plant Computer System will generate a report displaying current Rod status, Position, etc. Attach this report to this DSR.
- 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. 56
- IF less than three off site power supplies aligned to U1 L&P busses, REFER to U1 TS 2.5.1.1.
- 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. 57 58
- 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. 59
- IF Station Auxiliary Transformer (SAT) Tap Changer unable to operate in Automatic, GO TO SOP 27.1.4, 6900 Volt System.
- following limits apply:

60

	Croup Step Counter Demand	Maximum Po:	sitive Deviation	Iviaximum regente		
Above 85 Percent Power	Resition (Steps)	Steps	Inches	Steps	inches	
(TS Table 3.10-1)	Fosition (etope)	42	7.5	-12	7.5	
	< 209	12	1.0	.12	7.5	
	210 to 221	16	10	-12	9 1 2 5	
	21010221	16	10	-13	0.125	
	222		10	-14	8.75	
	223		10	-15	9.375	
	224	16	10	16	10	
	225	16	10	-10		
	2 223					
		+/- 15 inches.				
At or Below 85 Percent Pow	er. +)- 24 steps: 11.0 equation		an Counters			

These comparisons are between the analog RPI and their associated

# 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 y 6 2008

END DATE

						TI	ME
PARAMETER			UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900
	Per Second	CPS	Variable	3 / 1E5	See	ser	
	Ten M		Counts	Valiable		Sel	Ser
N31	Curre	nt Counts/				See	Sec
(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	6 HR F Curre	nt Counts/	Calc	< 1.2	0.8 / 1.2	Sec	see
	24 HR	Prev Counts	CPS		3 / 1E5	Set.	Su
	Top M	inute Count	Counts	Variable	-	Sel	See
N32	Curre	ent Counts/				Se	See
	Curre	ent Counts/	Calc	< 1.2	0.8 / 1.2	sec	Sec
	24 HR	Prev Counts				1.6E-4	1.6E-4
INTERMEDIATE RANGE	-	N - 36	AMPS	Variable	Variable	1.9E-4	1.97-01
		N-41				99.9	100.0
					MAX DIFF 2% WHEN	100	100.0
POWER			%	( 🕈 68 )	POWEK 212%	100	99.9
		N -43			( + 53 )	100	100.0
i de la companya de Esta de la companya d Esta de la companya d	e <u>ave</u> sted						
STEPTEN 114 offeite foer	ara.	134492 do14707	NVA				
supplying U1 L&P bus	S63	131133					
		21				130	130
			Volts DC			130	130
DC BUS VOLTAGE				Volta DC	130 - 131	125/136	130
		24				130	130
	MANCEOD				AUTO		
STATION AUX TAP CH	ANGER			( + 60 )	alitica ( ◆ 60 ) - 144		119
		21	_			110	118
WOTTH MENT PUS VOI	TAGE	22	Volts	117 - 120	117 / 122	118	118
INSTRUMENT BUS VOL		23	-			119	1/20
		24				34.5	37,7
		11	Inches	416 - 466	300 / 481	34.4	37.6
Unit 1 CS1 ( ◆ 36 )		12	(Feet)	(34.7 - 38.8)	(25 - 40)	34.5	37.7
	RIVER	WATER TEMP		Operable	Operable		
	OPE	RABLE (+ 11 )			( + 20 )	32.5	22,17
	Un	it 1 Inlet (01)		N/A		319	2194
	Un	(+9)				29.3	29,09
SERVICE WATER TEMP	Un	it 3 Inlet (03)				1,0.9	60,74
(TR - 6281)	Sou	uth Disch (04)		N/A	( + 38 )	61.1	60.74
	Mid	dle Disch (05)	-			61.7	61.50
	No Unit 1	, 2 & 3 Ave Inlet		- / 77	- / 92	32.2	32.06
		Temp (26)		April 15 t	June 30 < 90 °F	در ۱٫۱ ۲	61,02
	Site A	(27)		July 1 to	April 14 < 107 °F		

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		PARAM	ETER			UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900
[		Cold (	Gas Cooler {point 1}	21		<u></u>	35 - 45	30 / 46	44.8	43.1
G E		Cold Gas Cooler 22 {point 3} Cold Gas Cooler Delta T		22					45.8	44.8
				er		°C	0 - 5	0 / 10	1.0	1.7
		Stator C	ooling Wat (point 7)	er In			41 - 45	38 / 46	44,9	45.0
	Ě	Stator Co	oling Wate	er Out			41 - 73	38 / 75	63.9	63.6
		FIREWATER ST	ORAGE T	NK		NCHES	380 - 389	365/395	388.1	<u> XXXXX</u>
F	۲	41 MONITOR ( + 41 )	P	VC Air articulate ( ◆ 12 )		µCi/cc	Variable	Variable	5.64E-10	5.72.10
		CONDENSER	R SALINITY	(		PPB	0 - 2	- / 4.9	0.2	0
		HIGHEST S/	G SODIUM		#	PPB	0 - 1	0/5	24 0.4	24.37
				R-28					16	()
MAA	IN	STEAM LINE RADIA		R-29		CPM	(+50)	N/A	13	-14
	10.1	MONITORS		R-30	_	01 111			43	-dL G
				R-31					15	
Ŧ		Channel		AIT-5092 NH3			0 - 5	0 / 10	0	0
		1		AIT-5093 Cl <sub>2</sub>		0011	0 - 0.5	0 / 0.8	0	0
Ġ		Changel		AIT-5095 NH3		РРМ	0 - 5	0 / 10	2	2
S S	R	Channel 2		AIT-5096 Cl <sub>2</sub>			0 - 0.5	0 / 0.8	0	0
сс	R II	NTAKE VENT. RADI	ATION	R-38-1	_	mR / hr	( + 50 )	N/A	0.2	
	C۲	IIGH RANGE RADIA MONITORS	TION	R-25	_	R / hr	(+50)	N/A	<u> </u>	</td
	NIC	E RANGE PLANT V	'ENT	R-27		µCi/sec	( + 50 )	N/A	104	115
		MONITOR		MAGNAHELI	c –		( , 50 )	MAX DIFF	44,464	
U2 F	⊃LA	NT VENT FLOW M	ONITOR	R-27, MI-29		SCFM	(+50)	(+45)	47,000	
	C	CONTAINMENT SUN	1P T	LI - 3303		EL	N/A	( + 48 )	39	396
	. <b>1</b> .5 . 1			LI - 3304			<1.02	s <b>1.02</b>	1.005	1,005
	Ċ	ANT POWER TILT R TR TILT REVIEW (	TILT)	Rottom		N/A	≤1.02	<1.02	hod 3	1.003
	VERIFY PICS DELTA FLUX (DF) display is operable and updating properly. (Data is green)			nd	1		1	L		
	د مـــــ	(*)	52)						28	27.9
G		S Ci	itator urrent		B	K-Amps	Variable	- / 29.8	27.5	27.4
) ШN I		A N	mps leter		c				27	127.3
R Stator Voltage				K-Volts	20 - 23	19.8 / 23.1	2.2.2	121.2		
C Hydrogen Pressure			PSIG	60 - 75	30 / 79	44	$\frac{65}{2600}$			
R			- Field Amps			AMPS	< 6000	- / < 6000	4800	15900
		LMAIN UN				1/14/			1005	$\left  \begin{array}{c} 100 \\ 0 \\ \end{array} \right $
		NET	LOAD			1/1/1/	Various	N/A	484	1983
		GENERAT	OR MVARS	3		MVAR		1	1 210	<u>1/_/</u>

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PARAMETER		UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900	
			<del></del>	40 - 45	35 / 50	42.3	42.1
GOVERNOR	UNTRUL 		PSIG	Governor	Governor	(40.6)	(10.7
	 IT # 2			Oil Pressure +1 psi	+5 psi	91.1	GI.D
		=	PSIG	625 - 995	0 / 1005	720	720
		412A			MAX DIFF	490.3	490.5
TURBINE 1 <sup>st</sup> STAGE PRESS Computer System)	JRE (Plant	412B	PSIG	Variable	(+39)	A.91.8	441.6
	P1-4	119A				7645	My 140
21 STEAM LINE PRESSURE	PI-4	198	PSIG	N/A	112 PSIG	7040	720
	PI-4	19C				710	740
	Pl-4	129A	:		MAX DIFF	780	520
22 STEAM LINE PRESSURE	Pl-4	129B	PSIG	N/A	112 PSIG	730	730
	PI-4	129C			and a second	730	73()
	PI	439A	5010	NUA	MAX DIFF	745	740
23 STEAM LINE PRESSURE	PI	439B	PSIG	IN/A	The Pails	725	720
	PI-	4390		· · · · · · · · · · · · · · · · · · ·		730	730
DA STEAM LINE	PI-	449A	PSIG	N/A	MAX DIFF 112 PSIG	730	730
PRESSURE	PI-	449B	1 010			725	730
	ATOR POW		1	LIT	LIT		
						50	50
21 STEAM GENERATOR LEVEL ( + 14 )	LI-	417A	0/	46 / 52	MAX DIFF 8%	46	46
		4178	70		48/52	51	51
	Ave	rage of	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	49	49
	Operab		%		MAXDIEF	51	51
	11	-427B		46 / 52	8%	46	47
22 STEAM GENERATOR	LI	-427C			46 / 52	49	49
(+14)	Ave	rage of le channels	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	48.7	14
	LI	-437A	1		MAX DIFF	51	50
23	LI	-4378	%	46 / 52	8%	47	4/
STEAM GENERATOR	LI	-437C	]		101.02	4/	4/
( + 14 )	Ave Operab	erage of le channels	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	48.3	78
	LI	-447A			MAX DIFF	<u> 48</u>	18
24		-447B	%	46 / 52	45152	<u> </u>	41
STEAM GENERATOR	L	-447C				<u> </u>	110
( + 14 )	Av Operat	erage of ble channels	%	3: 47.6/52.7 2: 48.2/52.1	3: 47.6/52.7 2: 48.2/52.1	47	$\frac{1}{1}$
		91-455				7250	17235
PRESSURIZER		7-456	PSIG	2208 - 2258	2208 / DIF 2258 60	2735	1)78
PRESSURE ( + 15)		7457			PSI	2135	2239
		PI-474			4- 2208/2258	0.00	12129
	Av Operal	erage of ble channels	PSIG	4: 2208/2258 3: 2212/2255	4, 2208/2236 3, 2212/2255	- J2-3/18	47
		LI-459	-		MAX DIFF 8 %	ul.	46
PRESSURIZER		L1-460	%	33 / 49	33/49	42	42
( <b>+</b> 16 )	LI-461			3: 37.9/45.9	430	44	
	Av Opera	verage of ble channels	%	2: 37.1/45.	1 2: 37.1/45.1		

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		1			TIME			
PARAMETER		UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900		
Attach the Plant Computer System Control Report (+ 55)	Rod Auto Log	N/A	1	1				
VERIFY Plant Computer System Alarm Operable (+ 56)	Functions	N/A	1	1	~			
PERFORM PC Heat Balance on S	unday	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	301,15		
Analog RPI:	High				144	144		
Shutdown Bank A	Low				139	138		
Analog RPI:	High				144	199		
Shutdown Bank B	Low				140	190		
Analog RPI:	High				149	7199		
Shutdown Bank C	Low				179	1901		
Analog RPI:	High				149	199		
Shutdown Bank D	Low	inches	N/A	(+ 61)	140			
Analog RPI:	High	manea			199	199		
Control Bank A	Low				14/	141		
Analog RPI	High				144	144		
Control Bank B	Low				144	144		
	High				144	144		
Control Bank C	Low	_					139	155-
Applog RPI:	High				135	135		
Control Bank D	Low				132	132		
Rod Ros Sten Counters	U0053				223	223		
Shutdown Bank A, Group 1	FLT Pnl				223	223		
Red Res Step Couptors	U0053				243	223		
Shutdown Bank A, Group 2	FLT Pnl				223	223		
Pod Poo Stop Counters	U0054				223	223		
Shutdown Bank B, Group 1	FLT Pni				223	223		
Red Dee Step Counters	U0054				223	223		
Shutdown Bank B, Group 2	FLT Pnl				223	223		
	U0055				223	223		
Shutdown Bank C	FLT Pnl				223	223		
	U0056				223	223		
Rod Pos Step Counters Shutdown Bank D	FLT Pnl				223	223		
	U0049	Steps	N/A		213	223		
Rod Pos Step Counters Control Bank A, Group 1	FLT Pnl				223	223		
	U0049				213	223		
Rod Pos Step Counters Control Bank A, Group 2	FLT Pnl				323	223		
	U0050				223	223		
Rod Pos Step Counters Control Bank B, Group 1	FLT Pnl				223	223		
	U0050				223	223		
Rod Pos Step Counters Control Bank B, Group 2	FLT Pni				223	223		
	U0051				223	223		
Rod Pos Step Counters Control Bank C, Group 1	FLT Pnl				223	223		
	U0051				223	223		
Rod Pos Step Counters					223	23		

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PARAM	ETER		UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900	
U0052					207	207		
Control Bank D, Gro	up 1	FLT Pnl		5.17 <b>8</b>		30)	207	
Red Per Step Coup	tors	U0052	Steps	N/A		201	207	
Control Bank D, Gro	up 2	FLT Pnl				207	207	
	TI -	411A				52	5/	
DOC TEMP	TI -	421A	1	<b>N1</b> (A	MAX DIFF	62	62	
T INDICATORS		431A		N/A	13°F	55.5	55.5	
	TI -	441A				54,5	54.5	
	Ťl-	412C				557.5	557.0	
	T1	422C	]		WAX DIFF	563	562.5	
T - AVERAGE	T1-4	432C	°F	Variable		56.0	560.0	
	TI-4	442C			Variable	559	559.0	
	Avg -	T Avg				559.9	559.6	
	21	RCP				1.7	111	
REACTOR	22	RCP	CDM	10.30	02/5	2:3	2.41	
PUMP No. 1 SEAL RETURN	23	RCP	GPM	1.0 = 5.0	0.270	1, 8	2.21	
NE FORM	24	RCP				2.0	2.15	
		FI - 414	%	95-102	93/120	99	99	
	<b>LOOP</b> 21 -	FI - 415	- %	N/A	MAX DIFF of all	102	102	
		Fl - 416			THEE 9%	102	101	
		FI - 424		95 - 102	93 / 120	101	100	
	100P	FI - 425		61/6	MAX DIFF of all	101	101	
REACTOR		Fl - 426	- %	IN/A	three 9%	101	10/	
LOOP FLOW		F1 - 434	%	95 - 102	93 / 120	- 19	99	
	LOOP	FI - 435	%		NI/A	MAX DIFF of all	101	1012
		FI - 436		10/0	three 9%	102	101	
		FI-444	* %	95 - 102	93 / 120	79	99	
	LOOP	F1 - 445	0/	NZA	MAX DIFF of all	99	49	
		FI - 446	70	11/2	three 5%	100	100	
	· 21	RCP				5900	390	
REACTOR	22	RCP		380 - 410	350 / 450	380	380	
	23	RCP		300-410		390	395	
	24	RCP				390	590	
	21	RCP				42	44	
REACTOR COOLANT	22	RCP	INCHES	30 - 100	5/-	<u> </u>	51	
	23	RCP	WATER			47		
DELTAP	24	RCP				21	Sb	
	21	RCP	<b>J</b> ,			7400	2400	
REACTOR COOLANT PUMP	22	RCP	PSID	> 400	326 / -	- 1/00	7400	
NO.1 SEAL	23	RCP				7400	> 401/	
	24	RCP				1100	110	
······································	21	RCP				140		
REACTOR COOLANT PUMP	22	RCP	- ∘⊧	80 - 150	70 / 159	(32	12d 121h	
SEAL OUTLET	23	RCP	- °F	80 - 150	101138	142	140	
	24	RCP	<u> </u>			1412		
VESSEL FLAN	IGE LEAKOF	-	•F	60 - 130	50 / 140	14	<u> </u>	

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PARAMI	ETER		UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900		
		L BCP				-7.5			
REACTOR COOLANT					0,100	7.2			
PUMP SEAL			GPM	6 - 12	2720	7.5			
INJECTION FLOW	23 RCP					7,2			
·····································	2				21+2	0.3			
C	( NR		<b>├</b> 1						
N N		EST	# PSIG		MAX DIFF	Az 1			
	( WF	?)		N/A					
N .	LOWE VC Pre	ST ssure	#		(+49)	C2 0			
E. N	(WF				95 ( 13)	126			
	Tempe (+1	aiure 8)		8/ - 110					
	l	EVEL	%	69 - 75	67 / 77	71			
PRESSURIZER RELIEF	PR	ESSURE	PSI	1-5	0.5/7	20			
TANK		TEMP.	°F	90 - 120	- / 130				
DY CAVITY S	UMP (+1			Vadable	1-1<193	< 14-3			
CONTRINIENT SUI	P		<b>. E</b> L	<b>Agilane</b>		41'3"			
LEVEL CONTINUOU	Ŝ					<u>۲ ۲ ۲ ۲ ۲ ۲ ۲ ۲ ۲ ۲ ۲ ۲ ۲ ۲ ۲</u>			
CONTAINMENT SUM	лР -	Li - 940	- EL	· N/A	( + 48 )	40'9"			
LEVEL DISCRETE		LI - 941		1 Manlahla	-1 < 35 <sup>1</sup>	< 35'			
RECIRCULATIO	N SUMP (4	20)	e el	Vanalus			KXXXXX		
RECIRCULATION SU	MP	LR - 3301						35,2	
		LI - 938	EL	N/A	(+ 40)	535, 3			
RECIRCULATION SUMP D	ISCRETE	LI - 939	-			235'	<u> XXXXXXXX</u>		
	TENAD		۰F	50 - 90	44 / 95	89			
		11.920			37.01	2 7 Y			
		(CCR)			A SILO		222222222		
	( L	_R - 5751 ( CCR )	FEET						
		11-921	-	N/A	N/A N/A	NOT TAKÉN			
	(	(LOCAL)			MAX DIFF	-4			
		LI - 934A		40 - 60	<b>8%</b>	57			
ACCUMULATOR L	EVEL	LI - 935A			35/65				
		LI - 934B			MAX DIFF 8 %	56			
22 ACCUMULATORL	ave s	11-0158	***		35/65	56			
					MAX DIFF	SL			
		Lost4C	***	40 - 60		</td <td></td>			
		LI-935C							
		LJ.934D			B M				
2 ACCUMULATOR		LI - 935D			36/85	55			
		PJ -936A			MAX DIFF	640			
TACEUMULATOR PRI	BRGURE			635-680	630 - 680	635			
		1- 05/A			MAX DIFF	640			
		P1-936B	PSIG	635-680	42 PSIG				
STATE HUNDACOLDI		PI - 937B			630-680	640			
		PI - 936C			MAX DIFF 42 PSIG	645			
23 ACCUMULATOR PR	ESSURE	PI - 927C	PSIG	615 - 650	630 - 680	640			
					MAX DIFF	650			
	BOOMPE	<b>PI - 935</b> 9	PSIG	635 - 680	42 PSIG	(060			
		PI - 937D			630-680				

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PARAMETER			UNITS	NORMAL	MIN / MAX	TIME	
						1900 - 0700	0700 - 1900
FAN COOLER UNIT SERVICE WATER OUTLET FLOWS 24 25		21	GPM	1200 - 1600	1000 / 1800	1060	
		- 22				1160	
		23				1100	
		24				(100	
		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				2.5 <b>-</b> 3.5	2.5 / 3.9	3.3	
PRIMARY WATER TANK LEVEL		LI-1131-1 (CCR)	FEET	12 - 28	11.25 / 30 MAX DIFF	27.5	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
		LIC-1101-S (Local)		N/A	N/A 2	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		
	PRESSURE		PSI	225 - 275	225 / 400	2,30	
VOLUME CONTROL TANK	PF	PRESSURE		15 - 25	15 / 65	28	
	LEVEL		%	21.4 - 35	21/91	40	
	21	LEVEL		42 - 80 ( + 53 )	39 / 80	58	
BORIC ACID STORAGE TANK	22 21 22 22 22					64	
			•F	160 - 174	155 / 200	121	
						167	
COMPONENT COOLING SYSTEM (+23)	Heat Exchanger Outlet Temp		°۴	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 F	LOW	FI - 3401	GPM	N/A	( + 50 )	0	
SUPERVISORY PANEL ANNUNCIATOR POWER LIGHTS			1			<u> </u>	
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				1)	
LOWEST 480 BUS VOLTAGE			# Volts	<b>475</b> 490	460 495	2A 480	
SERVICE WATER	21-22-23 HDR		PSI	60 - 80	58 / 125		
PRESSURE	24-25-26 HDR			65 - 80	- / 95		
		HIGH				74	
DEW POINT LOW		LOW					1

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						TIME		
PARAMETER			UNITS	NORMAL	MIN / MAX	1900 - 0700	0700 - 1900	
		21				-6	-6.0	
		22	1			-0.1	$O_{1}$	
FAN COOLER UNIT		23	INCHES	-6 / +1.8	-6 / +2	-5.9	-0.4	
WEIR LEVEL		24				-0.1	0.1	
		25				0.9	0.6	
		Ind.				Ð	$\overline{O}$	
	21	RCS-6-1	-			0	$\bigcirc$	
		Ind.				Û	$\overline{O}$	
	22	RCS-6-2			MAX DIFF	Ö	<u> </u>	
FAN COOLER		Ind.			6 GPM	D	0	
UNIT WEIR FLOW	23	RCS-6-3	GPM	N/A		D	0	
		Ind.			1 + 47 1	Û	0	
	24	RCS-6-4	1			0	0	
		Ind.				D	0	
	25	RCS-6-5				D		

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PARAMETER	MAX DIFF	MIN VALUE	UNITS	CHANNEL	ALARM SETPOINT	190	0 - 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	0.75	Ü	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	SATY UNSAT
Sampling Room Area Radiation	N/A	N/A	mR/hr	R-6	50	1	SATY 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	(+43)	7.28E	SAD/ UNSAT
CCW Hx 22 SW Outlet Activity	N/A (+41)	1.00E-09 ( + 42 )	uCi/cc	R-40	6,00E-6 (+43)	0/5	SAT
Containment Air Particulate Activity	N/A (+41)	1.00E-14 ( + 42 )	uCi/cc	R-41	9.40E-10 (+43)	5.75E	SAD/ UNSAT
Containment Air Radio gas Activity	N/A (+41)	1.00E-09 ( + 42 )	uCi/cc	R-42	1, 20 E-2 (+43)	1.16E-4	SA) / UNSAT
Plant Vent Particulate Activity	N/A ( + 41 )	1.00E-14 ( + 42 )	uCi/cc	R-43 (Part.)	シンシューフ (+43)	8.102-11	SAT UNSAT
Plant Vent Iodine Activity	N/A ( + 41 )	1.00E-14 ( + 42 )	uCi/cc	R-43 (lodine)	1.36E-8 (+43)	2.37="1	SAT) UNSAT
Plant Vent Gaseous Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-44	3.75E-4 (+43)	4.32E-6	SADI UNSAT
Discharge Condenser SJAE Gaseous Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-45	3,00E-3 (+43)	1.296-50	SAT / UNSAT
FCU Service Water Outlet Activity	N/A (+41)	1.00E-09 (+42)	uCi/cc	R-46	3.20E-6 (+43)	1.04E-B	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)	75	SAT (UNSAT
SG Blowdown Effluent Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-49	1.00E-4 (+43)	1.30E-6	SAD/ UNSAT
Large Gas Decay Tank Activity	N/A ( + 41 )	1.00E-04 (+42)	Ci	R-50	6.60EZ (+43)	1.01	SAT / UNSAT
SBBPS Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-51	1.00E-4 (+43)	sec.	SAD UNSAT
SBBPS Cooling Water Activity	N/A ( + 41 )	1.00E-09 (+42)	uCi/cc	R-52	3,00E-6 (+43)	SCe	SAT / UNSAT
FCU Service Water Outlet Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-53	3,00E-C: (+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)	9.55E-4	SAT / UNSAT
SG 21 Blowdown Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-55A	1.66 E 4 (+43)	0/5)	SAT WUNSAT
SG 22 Blowdown Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-55B	(+ 43)	(F)	SAT / UNSAT
SG 23 Blowdown Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-55C	1:00E-4 (+43)	5	SAT / UNSAT
SG 24 Blowdown Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-55D	(+43)	03	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

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# END DATE

PARAMETER	MAX DIFF	MIN VALUE	UNITS	CHANNEL	ALARM SETPOINT	1900	0 - 0700
House Service Boiler Condensate Activity	N/A ( + 41 )	1.00E-09 (+42)	uCi/cc	R-59	3. cro E-6 (+43)	C/S	SATIUNSAT
Stack Vent Particulate Activity	N/A ( + 41 )	1.00E-13 ( + 42 )	uCi/cc	R-60 (Part.)	1, CO E -8 (+43)	9.81E-10	SAL UNSAT
Stack Vent Iodine Activity	N/A ( + 41 )	1.00E-14 ( + 42 )	uCi/cc	R-60 (lodine)	1.50 E-8 (+43)	1.41E-11 4.50CR	SAT) / UNSAT
Stack Vent Noble Gas Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-60 (Gas)	6 POE-5 (+43)	4.85E-8	SAT / UNSAT
Sphere Foundation Sump Activity	N/A ( + 41 )	1.00E-09 ( + 42 )	uCi/cc	R-62	1. CC = -5 (+43)	2.12E-6	A) 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)	1:0005	1.735-6	SAT) / UNSAT

PARAMETER	MAX DIFF	UNITS	CHANNEL	1	900 - 0700	RESULTS
			122m	1016	5,7	(SAT) UNSAT
			122m	CCR	5.)	
			60m	1016	4.9	SAT / UNSAT
Wind Speed	2	M/sec	60m	CCR	4.9	
	(+44)		10m (pri)	1016	7.4	SATY UNSAT
			10m (pri)	CCR	2.4	
			10m (B/U)	B/U Tower	1.8	SAT / UNSAT
		. <u></u>	122m	1016	195	SATUNSAT
			122m	CCR	195	
	00	0.5	60m	1016	213	SAT UNSAT
Wind Direction	90 (+44)	Deg	60m	CCR	213	
			10m	1016	193	SAT / UNSAT
•			10m	CCR	192	<b>•</b>
			10-122m	1016	Þ	SAT / UNSAT
Delta T Pasquill	1 letter		10-122m	CCR	D	<u>ب</u>
	( + 44 )	Category	10-60m	1016	É	SAT / UNSAT
			10-60m	CCR	Ē	_

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DAN 20 2003

END DATE

PARAMETER		1		MIN (		
		UNITS	NORMAL	MAX	1900 - 0700	0700 - 1900
	CHART WORKING	N/A	1	1		
	INKING	N/A	1	1		<u> </u>
KEY CHART	PEN(S) ALIGNED	N/A	1	1		<u> </u>
RECORDERS	TIME STAMPED	N/A	1	1		<u> </u>
	DATED	N/A	1	/		



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	-1720	0.03	208.59=	208.62	
PACV( + 28 )	Hours	0 - 600	-1720	0.	. 0 =	Ċ	
FSB ( + 29 )	Hours	-/-	-/-	JY .	. >720 =	>720	
TSC	Hours	0 - 600	- / 720	0.	. Ó =	õ	

	MONITOR	PURGE	(+30)
, NADIA II VII	monusis		And and a state of the local division of the local division of the local division of the local division of the

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

# JAN 2 0 2003

# END DATE

		Ī	SH	IFT
EQUIPMENT	STATUS / UNITS	NUMBER	1900 - 0700	0700 - 1900
		21	4745-	4753
MAIN BOILER FEED PUMP SPEED	RPM ,SEC, O/S	22	4720	4720
		21	ser	Ser
CHARGING	% SPEED, SEC, O/S	22	45	40
PUMP SPEED		23	Sa	Sel
		21		
PRIMARY WATER PUMPS	I/S(✓), STBY, SEC, O/S	22	STBY	STBY
		21	STBY	STBY
		22		
	I/S (✓) . STBY, SEC, O/S	23	STBV	STBY
		24	STBY	STBV
		25		
		21	60	60
HEATER DRAIN TANK PUMPS	AMPS, SEC, O/S	22	67	67
		21	175	175
	AMPS, STBY, SEC, O/S	22	220	220
CONDENSATE FORM O		23	208	208
		29	AUTO	Actu
CONTAINMENT SUMP PUMPS	HAND	210	STBY	STISY
		21	STBY	STOY
COMPONENT COOLING	I/S (✔) , STBY, SEC, O/S	22		
WATER PUMPS		23	STBY	STBY
	/	-	1.2.3 4,5,6	1,2,3 4,5,6
ESSENTIAL S.W. HEADER		21		
		22		
		23	- er	Sel
SERVICE WATER PUMPS	I/S (✓) , STBY, SEC, O/S	24	518:1	STRY
		25		
		26		
		11	57.0	515
LOW PRESSURE	AMPS, STBY, SEC, O/S	12	STBY	STAN
		21	54	54
		22	51	5
		23	5-	51
	AMPS, SEC, O/S	24	50	570
		25	51	51
		26	51	57)
		21	V	
COMPONENT COOLING	I/S (✓) , SEC, O/S	22	Sel	Ser
	SED / DW/ST	SFP / RWST	SFP	SFR
PURIFICATION LINE UP			DEGAS PUMP	Degns, Pump
LIFTING JETS	DEGAS POWE / AUX STM	21	16	
HOUSE SERVICE BOILER	I/S(✓) , SEC, O/S	22	(0/5)	$\left( 0/s \right)$
		21	STB Y	STBY
	WE (A) STRY SEC OVS	11		
STATION AIR COMPRESSORS	1/3 (V), 3101, 3EU, 0/3	12	Sel	ser
ļ	<u> </u>	21	STBY	STA/
INSTRUMENT AIR	I/S (1), STBY, SEC, O/S	22	STRY	STB

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# 12.82 6 ñ **2003**

END DATE

ALARM PANEL TEST (	<b>+</b> 31)		
	UNITS	TIME	
		1900 - 0700	0700-1900
TA EDISON MONITOR FOR UNIT 1 RIVER WATER PUMPS			
UNIT 1 SUPERVISORY PANEL			
HP & LP TURBINE SOFT SIDE VIBRATION MONITOR (Bentley Nevada)		<u> </u>	
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)		~	<u> </u>
G.E. GENERATOR PANEL		<u> </u>	
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)	Alarm Panei Tested ( ✓ )		
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)		U	/
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)		<u> </u>	
WELD CHANNEL (SLF)			
CCR SAFETY INJECTION (SMF)		i	/
ELECTRIC HEAT TRACING AND DELUGE (SOF)		0	1
CCR SEQUENCE OF EVENTS REVIEWED ( + 34 )	(√)	$\sim$	$\langle \rangle$

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Appendix C	Job Performanc Worksho	Form ES-C-1	
Facility:	Indian Point Unit 2	Task No.:	N/A
Task Title:	Determine Appropriate RWP And Take Action For High Area Radiation Alarm.	JPM No.:	<u>2003 NRC A3 RO</u>
K/A Reference:	2.3.2 (2.5)		
			·
Examinee:		NRC Examine	<b>.</b>
Facility Evaluator:		Date:	
Method of testing:			
Simulated Perform	ance: X	Actual Perform	ance:
Class	room 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

A	opendix C	Page 2 of 4 Form ES-C-1 PERFORMANCE INFORMATION
 (C	enote Critical Steps with a	n asterisk)
N	ote: Hand the candidate th	e 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:	
Те	rminating Cue:	When the candidate leaves the area of high radiation and informs HP, the evaluation for this JPM is complete

Appendix C	Page 3 of 4 VERIFICATION OF COMPL	Form ES-C-1	·1
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:			
Deput	047		
Kesult:	SAT UNSAT		
Examiner's Signature:		Date:	

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Appendix C	Page 4 of 4 JPM CUE SHEET	Form ES-C-1
INITIAL CONDITIONS:	You are an extra operator on shift. You have perform a valve alignment in the 59' Ion Excl	e been directed to nange Valve Gallery
INITIATING CUE:	Choose the correct RWP to perform the task	required

Indian Point 2	BADIOLOGICAL V		RWP Number			
BWP Title: Operations Activition Indian Bain			<u>(</u>	32002 Rev.	00	
		ROS	S 0.02			
Requesting Department:		RWP Type: Routine	Start Date 12/27/02	Closed Date 01/01/04	Review Da	
Job Description: Operations Unit 2 Support						
Job Location:						
R	ADIOLOGICAL CONDITIONS			LIMITING	CONDITIO	
See current surveys for radiological conditions	associated with your entry are	a.				
	GENERAL RE	QUIREMENTS				
Pre-job Briefing: NOT Required		Post Job Review: NC	T Required			
	ACTIVITY RE	QUIREMENTS				
<ul> <li>PER HP / SINGLE SET PROTECTIVE CLONNOTIFY HP TO MOVE EQUIP FR C/A, Dose</li> <li>02 Task- Trainees RP Coverage: Intermittent coverage, Dos PER HP, Exposure Control: CONTACT HP F Dose Alarm: 25, Rate Alarm: 100, Stay Time</li> <li>03 Task-Mentors and Peer Checkers RP Coverage: Intermittent coverage, Dosi PER HP, Exposure Control: CONTACT HP F Dose Alarm: 25, Rate Alarm: 100, Stay Time</li> <li>22 Task - Unit 2 Ops Support RP Coverage: Intermittent coverage, Dosi PER HP / SINGLE SET PROTECTIVE CLOT NOTIFY HP TO MOVE EQUIP FR C/A, Dose</li> </ul>	THING , Exposure Control: CO Alarm: 25, Rate Alarm: 100, imetry: TLD AND DRD REQUI PRIOR TO ENTRY / MUST SL e: 14:00, Chirp Rate: .1 mrem imetry: TLD AND DRD REQUI PRIOR TO ENTRY / MUST SL e: 14:00, Chirp Rate: .1 mrem imetry: TLD AND DRD REQUI THING , Exposure Control: COI Alarm: 10, Rate Alarm: 50, S	NTACT HP PRIOR TO Stay Time: 14:00, Chirp RED , Clothing: PARTI/ JRVEY OVERHEAD AF RED , Clothing: PARTI/ JRVEY OVERHEAD AF RED , Clothing: PARTI/ NTACT HP PRIOR TO tay Time: 12:00, Chirp i	AL PC'S <20,000 ENTRY / MUST D Rate: .1 mrem AL PC'S <20,000 EAS / NOTIFY I AL PC'S <20,000 EAS / NOTIFY I AL PC'S <20,000 ENTRY / MUST Rate: 10 mrem	dpm/100cm2 / PC SURVEY OVERH dpm/100cm2 / PC HP TO MOVE EQU dpm/100cm2 / PC HP TO MOVE EQU dpm/100cm2 / PC SURVEY OVERH	CHANGES / EAD AREAS JIP FR C/A, CHANGES / JIP FR C/A, CHANGES / EAD AREAS	
Protective Clothing for Contaminated Areas or catch container when venting / opening wet sy PC's shall be used when reaching into or touc with HP. M-G setpoints may be adjusted or	wORKER SPECIAL I nlyDouble protective clothin stem_DVerhead areas must hing Contaminated Areas or E a case by case basis.	NSTRUCTIONS (SI) ng required for general a t be surveyed by HP pri iquipment⊡⊡Do not wo	areas greater that or to work.⊡⊡Ch k with M-G in ala	n 100,000 DPM/10 eck your M/G frequ irm mode. Back ou	0cm2□□Use uently□□Parti and check	
	RP TECHNICIAN SPE	CIAL INSTRUCTIONS				
Air sampling as per HP-SQ-3.012 "Airborne Ra Monitior/Guard required for LHRA.□□Unit 1 R worked on a Unit 1 RWP which has a 1000 se	adioactivity Sampling and Anal outines, and steps taken to De ries number	lysis"00Pre-Job ALAR/ con, Dismantle, or work	A Brief required for on equipment the on equip	or LHRA- Control F at is exclusivley fo	Point or Unit 1 will b	
RP Technician ZOLOTAS, WILLIAM E		RP Supervisor RICHARDS, ROBERT	н			
For off shift RP co	overage contact the	RP Watch at 7	734-5272, o	r 734-5424.		

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Indian Point 2 RADIOLO	GICAL WORK PERMIT	RWP Number	20204 Rev.	03
RWP Title: Operations Activities - Indian Point 2	NRC Code: ROS			
Requesting Department:	RWP Type: Routine	Start Date 12/20/01	0 2 0 2 0 4 Closed Date 01/01/03	Review Da
Job Description: Operations Non Outage Activities				1
Job Location:Unit 1 & 2				
	ONDITIONS		LIMITING	CONDITIO
See current surveys for radiological conditions associated with yo	our entry area.			······
CI				
Pre-iob Briefing: NOT Required	Post Job Review: N	OT Required		
Α		•		
00 Task - Planned Entry, <5 mRem Accumulated Dose RP Coverage: Intermittent coverage , Dosimetry: TLD AND PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 5, Rate A	DRD REQUIRED , Clothing: PART Control: CONTACT HP PRIOR TC Iarm: 10, Stay Time: 14:00, Chirp	IAL PC'S <20,000 ENTRY / MUST Rate: .1 mrem	)dpm/100cm2 / P0 SURVEY OVERI	C CHANGES
01 Task - Planned Entry, >5 mRem Accumulated Dose RP Coverage: Intermittent coverage , Dosimetry: TLD AND PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate	DRD REQUIRED, Clothing: PART Control: CONTACT HP PRIOR TO Alarm: 100, Stay Time: 14:00, Chi	IAL PC'S <20,000 DENTRY / MUST rp Rate: .1 mrem	0dpm/100cm2 / P0 SURVEY OVER	C CHANGES HEAD AREAS
02 Task- Trainees RP Coverage: Intermittent coverage, Dosimetry: TLD AND PER HP, Exposure Control: CONTACT HP PRIOR TO ENTRY Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Ra	DRD REQUIRED , Clothing: PART / / MUST SURVEY OVERHEAD A te: .1 mrem	IAL PC'S <20,000 REAS / NOTIFY	)dpm/100cm2 / P0 HP TO MOVE EC	C CHANGES UIP FR C/A,
03 Task-Mentors and Peer Checkers RP Coverage: Intermittent coverage, Dosimetry: TLD AND PER HP, Exposure Control: CONTACT HP PRIOR TO ENTRY Dose Alarm: 25, Rate Alarm: 100, Stay Time: 14:00, Chirp Ra	DRD REQUIRED , Clothing: PART Y / MUST SURVEY OVERHEAD A ate: .1 mrem	'IAL PC'S <20,000 REAS / NOTIFY	0dpm/100cm2 / P4 HP TO MOVE EC	C CHANGES NUP FR C/A,
04 Task - Labeling RP Coverage: Intermittent coverage , Dosimetry: TLD AND PER HP / SINGLE SET PROTECTIVE CLOTHING , Exposure NOTIFY HP TO MOVE EQUIP FR C/A, Dose Alarm: 25, Rate	DRD REQUIRED , Clothing: PART Control: CONTACT HP PRIOR TO Alarm: 100, Stay Time: 14:00, Chi	IAL PC'S <20,000 DENTRY / MUST rp Rate: .1 mrem	Ddpm/100cm2 / P SURVEY OVERI	C CHANGES HEAD AREAS
WORKE	R SPECIAL INSTRUCTIONS (SI)			
Protective Clothing for Contaminated Areas only DDouble pro- catch container when venting / opening wet system DOverhea PC's shall be used when reaching into or touching Contaminate	tective clothing required for genera ad areas must be surveyed by HP p ed Areas or Equipment	l areas greater that prior to work.□□C	an 100,000 DPM/1 heck your M/G free	00cm2⊡⊟Us quently⊡⊡Pai
RP TECH Air sampling as per HP-SQ-3.012 "Airborne Radioactivity Samp Monitior/Guard required for LHRA.	INICIAN SPECIAL INSTRUCTION	S RA Brief required	for LHRA- Control	l Point
RP Technician MISKIMEN, MARIE L	RP Supervisor	ан		
For off shift RP coverage co	ntact the RP Watch at	734-5272.	or 734-5424	ļ <u>.</u>

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Indian Point 2 RADIOLOGICAL WORK PERMIT		RWP Number 031002 Rev. 00			
RWP Title: Operations Unit 1 Support		NRC Code: RPM			
Requesting Department:		RWP Type: Routine	Start Date 12/27/02	Closed Date 01/01/04	Review Dat
Job Description: Operations Unit 1 Suppo	prt		<b>.</b>	<b>.</b>	
Job Location:				1	
Coo compations for redictorial condition	RADIOLOGICAL CONDITIONS				CONDITIO
See current surveys for radiological conditio	ns associated with your entry area	l.			
	GENERAL REG	UIREMENTS		L	
Pre-job Briefing: NOT Required		Post Job Review: NO	T Required	· · · · <del>-</del> · · .	
	ACTIVITY REC	UIREMENTS			
<ul> <li>01 Task - Nuclear Watch RP Coverage: Intermittent coverage, D PER HP / SINGLE SET PROTECTIVE CL NOTIFY HP TO MOVE EQUIP FR C/A, Dc</li> <li>02 Task- Trainees RP Coverage: Intermittent coverage, D PER HP, Exposure Control: CONTACT HI Dose Alarm: 25, Rate Alarm: 100, Stay Ti</li> </ul>	osimetry: TLD AND DRD REQUIF OTHING , Exposure Control: CON se Alarm: 25, Rate Alarm: 100, \$ osimetry: TLD AND DRD REQUIF PRIOR TO ENTRY / MUST SU me: 14:00, Chirp Rate: .1 mrem	RED , Clothing: PARTIA NTACT HP PRIOR TO Stay Time: 14:00, Chirp RED , Clothing: PARTIA RVEY OVERHEAD AR	AL PC'S <20,000 ENTRY / MUST Rate: .1 mrem AL PC'S <20,000 EAS / NOTIFY I	dpm/100cm2 / PC SURVEY OVERH dpm/100cm2 / PC 1P TO MOVE EQ	CHANGES / IEAD AREAS CHANGES / UIP FR C/A,
03 Task-Mentors and Peer Checkers RP Coverage: Intermittent coverage, D PER HP, Exposure Control: CONTACT Hi Dose Alarm: 25, Rate Alarm: 100, Stay Ti	osimetry: TLD AND DRD REQUIF P PRIOR TO ENTRY / MUST SU me: 14:00, Chirp Rate: .1 mrem	RED , Clothing: PARTIA RVEY OVERHEAD AR	AL PC'S <20,000 IEAS / NOTIFY I	dpm/100cm2 / PC HP TO MOVE EQ	CHANGES / UIP FR C/A,
22 Task - Unit 1 Ops Support RP Coverage: Intermittent coverage , D PER HP / SINGLE SET PROTECTIVE CL NOTIFY HP TO MOVE EQUIP FR C/A, Do	osimetry: TLD AND DRD REQUIF OTHING , Exposure Control: CON se Alarm: 10, Rate Alarm: 50, Si	RED , Clothing: PARTI/ NTACT HP PRIOR TO lay Time: 12:00, Chirp	AL PC'S <20,000 ENTRY / MUST Rate: 10 mrem	dpm/100cm2 / PC SURVEY OVERH	CHANGES
					w
Protective Clothing for Contaminated Areas catch container when venting / opening we PC's shall be used when reaching into or to with HP. DM-G setpoints may be adjusted	s only Double protective clothin t system COverhead areas must buching Contaminated Areas or E on a case by case basis.	g required for general a be surveyed by HP pri quipment DDo not wo	areas greater tha or to work.□□Ch rk with M-G in ala	n 100,000 DPM/10 eck your M/G freq arm mode. Back o	00cm200Use juently00Part ut and check
	RP TECHNICIAN SPE	CIAL INSTRUCTIONS	· · · · · · ·	·	
Air sampling as per HP-SQ-3.012 "Airborne Monitior/Guard required for LHRA.	Radioactivity Sampling and Anal	ysis"⊡⊡Pre-Job ALAR.	A Brief required f	or LHRA- Control	Point
RP Technician	[	RP Supervisor		···· · · ·	
For off shift RP	coverage contact the	RICHARDS, ROBERT	н 734-5272, с	or 734-5424	•

Indian Point 2	RADIOLOGICAL	WORK PERMIT	RWP Number	32028 Rev.	00
RWP Title: Vapor Containment Entries - Indian	Point 2	NRC Code: RPM		8	
Requesting Department:		RWP Type: Routine	Start Date 01/01/03	Closed Date 01/01/04	Review Dat
Job Description: Non-Outage Vapor Containr	nent Entries all groups				
Job Location:Unit 2 Vapor Containment					
RA	DIOLOGICAL CONDITION	IS		LIMITING	CONDITIO
See VC historical surveys for the corresponding	power level and location.				
	GENERAL F	REQUIREMENTS			
Pre-job Briefing: Required		Post Job Review: N	OT Required		
		REQUIREMENTS			
<ul> <li>RP Coverage: Intermittent coverage, Dosin PROTECTIVE CLOTHING, Exposure Control: GUARD / NOTIFY HP TO MOVE EQUIP FR C</li> <li>01 Task - Planned Entry up to 25 mRem Accur RP Coverage: Constant Coverage, Dosime CLOTHING, Exposure Control: ALARA BRIEF NOTIFY HP TO MOVE EQUIP FR C/A, Dose A</li> <li>02 Task - Planned Entry up to 100 mRem Accur RP Coverage: Constant Coverage, Dosime CLOTHING, Exposure Control: ALARA BRIEF NOTIFY HP TO MOVE EQUIP FR C/A, Dose A</li> <li>03 Task - Planned Entry up to 350 mRem Accur RP Coverage: Constant Coverage, Dosime CLOTHING, Exposure Control: ALARA BRIEF NOTIFY HP TO MOVE EQUIP FR C/A, Dose A</li> <li>03 Task - Planned Entry up to 350 mRem Accur RP Coverage: Constant Coverage, Dosime CLOTHING, Exposure Control: ALARA BRIEF NOTIFY HP TO MOVE EQUIP FR C/A, Dose A</li> <li>10 Task - Preoutage work RP Coverage: Constant Coverage, Dosime CLOTHING, Exposure Control: ALARA BRIEF NOTIFY HP TO MOVE EQUIP FR C/A, Dose A</li> </ul>	netry: TLD AND DRD REQU ALARA BRIEFING RQ'D F 2/A, Dose Alarm: 5, Rate A mulated Dose stry: TLD AND DRD REQUI FING RQ'D FOR LHRA / C Alarm: 25, Rate Alarm: 100 umulated Dose stry: TLD AND DRD REQUI FING RQ'D FOR LHRA / C Alarm: 100, Rate Alarm: 3/ umulated Dose stry: TLD AND DRD REQUI FING RQ'D FOR LHRA / C Alarm: 350, Rate Alarm: 4 etry: TLD AND DRD REQUI FING RQ'D FOR LHRA / C Alarm: 25, Rate Alarm: 10	UIRED , Clothing: PC Cl FOR LHRA / CONTACT Marm: 10, Stay Time: 14 IRED , Clothing: PC CH/ ONTACT HP PRIOR TC 0, Stay Time: 14:00, Ch ONTACT HP PRIOR TC 00, Stay Time: 14:00, Cl IRED , Clothing: PC CH/ CONTACT HP PRIOR TC 000, Stay Time: 14:00, Cl IRED , Clothing: PC CH/ CONTACT HP PRIOR TC 000, Stay Time: 14:00, Cl IRED , Clothing: PC CH/ CONTACT HP PRIOR TC 000, Stay Time: 06:00, Ch	HANGES AS PER HP PRIOR TO E 1:00, Chirp Rate: 1 ANGES AS PER H D ENTRY / LHRA irp Rate: 1 mrem ANGES AS PER H D ENTRY / LHRA hirp Rate: 1 mrem ANGES AS PER H D ENTRY / LHRA Chirp Rate: 1 mrem	HP / SINGLE SE NTRY / LHRA CO mrem IP / SINGLE SET CONTROL POIN IP / SINGLE SET CONTROL POIN 1P / SINGLE SET CONTROL POIN 1P / SINGLE SET CONTROL POIN	T PROTECTIVE T GUARD / T GUARD / T GUARD / T GUARD / T GUARD / T GUARD /
<u></u>	WORKER SPECIA	L INSTRUCTIONS (SI)			
Protective Clothing for Contaminated Areas or Approval required prior to brushing, welding, g work. □ □ All non-repetitive jobs shall be evalua Air sampling as per HP-SQ-3.012 "Airborne Ra required for LHRA.HP to complete HP-SQ-3.1 approval and if included in the brief.	IIyDouble protective clothi rinding, or use of compress ted to determine RWP requ RP TECHNICIAN S adioactivity Sampling and A 02 "VC Pre-Entry Checklist"	ing required for general sed air or solvents. Ove irements SPECIAL INSTRUCTION Analysis"Pre-Job ALARA " prior to entry. ] Individ	areas greater than prhead areas must NS Brief required for dual entry MG setp	100,000 DPM/10 be surveyed by H LHRA- Control Po points may be adju	0cm2⊡HP IP prior to bint Monitior/G isted with prior

Indian Point 2 RADIOLOGICAL WORK PERMIT			RWP Number 032006 Rev. 00		
RWP Title: Program & Component Engineeri	WP Title: Program & Component Engineering NRC Code: ISI				
Requesting Department:		RWP Type: Routine	Start Date 12/20/02	0 3 2 0 0 6 Closed Date 01/01/04	Review Da
Job Description: Program & Component E	ngineering (ERG)				
Job Location:Units 1 & 2					
F	RADIOLOGICAL CONDITIONS	<u> </u>		LIMITING	CONDITIO
See Posting Surveys for Current Data					
	GENERAL RE	EQUIREMENTS			
Pre-job Briefing: NOT Required		Post Job Review: NC	T Required		····
PER HP / SINGLE SET PROTECTIVE CLO NOTIFY HP TO MOVE EQUIP FR C/A, Dose	Simetry: ILD AND DRD REQU THING , Exposure Control: CC e Alarm: 25, Rate Alarm: 100,	IRED , Clothing: PARTI/ INTACT HP PRIOR TO Stay Time: 14:00, Chirr	AL PC'S <20,000d ENTRY / MUST S Pate: .1 mrem	pm/100cm2 / PC SURVEY OVERH	CHANGES A
Protective Clothing for Contaminated Areas of Approval required prior to brushing, welding, work.□□Do not work with M-G in alarm mode	WORKER SPECIAL only Double protective clothin grinding, or use of compressed a. Back out and check with HP.	INSTRUCTIONS (SI) ng required for general a d air or solvents.□□Over □□M-G setpoints may b	areas greater than head areas must he adjusted on a ca	100,000 DPM/10 be surveyed by H ase by case basis	00cm2⊡□HP IP prior to 3.
	RP TECHNICIAN SPE	CIAL INSTRUCTIONS	<u> </u>		• • • • • •
Air sampling as per HP-SQ-3.012 "Airborne R Monitior/Guard required for LHRA.	tadioactivity Sampling and Ana	lysis"⊡⊡Pre-Job ALAR/	A Brief required for	r LHRA- Control F	Point
RP Technician ZOLOTAS, WILLIAM E		RP Supervisor RICHARDS, ROBERT	Н		
For off shift RP c	overage contact the	RP Watch at 2	734-5272, 01	734-5424.	

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(	Con Edisc Indian Poi	n nt Station			Attacl Pag	nment 7.4 e 1 of 1			HP-SQ	-3.701
<u> </u>	Health Phy	vsics		R	ADIOLOG	ICAL SURVEY			л	ev. 1: Man # 46
Bγ	Friest				Area / Iter	1: 58' CVCS	PUMP PI	Τ	Su	rvev Category
Date:	1-13-	3	Time: 14	?05	Type of St	Irvey: Radiatio			Routine:	
Meter /	/Serial #: R	JI IC.	q :- Z	8-3	Counter /	Serial # RM14 - F	1 BC4 -	SAC4 -	New RW	 /₽ ≠
Survey	/ Key:	= DoseRate .	* = Contact , $\beta$	= 8eta , 0 = 9	Smear , H = I	lead , C = Chest , k	K = Knee . FL	= Floor	Support	#
Area P	osted As :	R R	CA 🗌 VHRA	SLHRA	💹 LHRA		D <b>W</b> adioa	active Materials	Cther : (	732016
			Contar	ninated 🗌 F	Particle 🔲	Airborne 🔤 Resp	piratory Protec	tion	Co	ontamination
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			-	<u> </u>		C-GAS STRIPP D-WASTE XFER	ER FEED PI	JMP 22		
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Surveyo	ors 0.6	(mRad/)	nr) Exposure (	mRem / hr )	Cont	amination ( dpm / 10	00 cm <sup>2</sup> )	Airbo	orne ( µCi / c	c)
Exposu		Beta	Gamma	Hot Spot	Bet	a - Gamma	Alpha	Radiogas	Particulate	Charcoal
Genera	II Area	NA_	10	NA	20	0,000	- NA	NA	NA	NA
Maximu	1 <b>U</b> U		300		40	0,000				
Comme	ents: OP:	value	line up 2.	maint	enance	- lighting	walk	dowin .		
	Head	8	Body	F	eet	Han	ds	Dosimetrv	Respir	atory Protection
🔲 На	bod	1 pr. Co	veralls	Shoe C	overs	Cotton Inse	erts	TLD		Face N/P
21	Hoods	2 pr. Co	veralis	🗖 High	Low	1 pr. Rubbe	er Gloves	Electronic DRD	Filter	rs:
	irgeon Cap	Disp. C	overalls	2 pr. Hig	h & Low	2 pr. Rubbe	er Gloves			Particulate
	aterproof	Plastic	Suit	Rubber	Boots	Surgical Gl	oves	Extremity		Charcoal
	ace Shield		sonal		ots	Work Glove	es	Multi - Badge	🗖 Full I	Face A/S
	ahea		louning					Special: See		Hood
<u></u>		<u> </u>		<u> </u>	P -1			Attachment		<u>н</u>
HEALT	TH PHYSICS	SUPERVISOR	: REVIEW / DA	TE	N/3	tim	1	1/14/07		



Con Edison Indian Point :	Station		At	ttachment 7.4 Page 1 of 1			HP-SQ-3.701
Health Physic	cs		RADIO	LOGICAL SURVE	EY		Man # 7
3y: Kübin W	i. Tam	bull ,	Area	/Item: 15' #22	RHR PUMP	-	Survey Catego
Date: 2 - 7 - 0.	3	Time: 1400	Туре	of Survey: KRadia	ation Contamin	ation Airborne	Routine:
Neter / Serial # : RD-	ZICIC	1 -12-1	D Z Cour	nter / Serial # RM14 -	BC4-99	1 SAC4 -	New RWP #
Survey Key: =	DoseRate .*	= Contact $\beta$ = Be	ta . O = Smear .	H = Head C = Ches	t.K=Knee FL=F		- Support #
vea Posted As :	RC/		SLHRA	HRA HRA	RAD <b>Ka</b> Radioacti	ve Materials	Other: POSTA
		Contaminate	ed 🗌 Particle		espiratory Protectio	n	Contamination
BC4 - CDI	5 - 36	03					Results
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Exposure : • 8	Beta	Gamma	Hot Spot	Beta - Gamma	Alpha	Radiogas   F	me (μCi/cc·) Particulate   Charc
General Area	N	8-12		4121		N	
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vaximum	<u> </u>	100 04 /	<b>y</b>				
Comments :							Respiratory Brot
Maximum Comments : Head		Yochy I	Foot	1	Landa 1	Decime attraction (	
Maximum Comments : Head	E 1 pr. Co	3ody veralis	Feet Shoe Covers	Cotton	Hands Inserts		Full Face N/P
Head Head Hood 2 Hoods	□ 1 pr. Co □ 2 pr. Co	3ody veralis veralis	Feet Shoe Covers	Low 1 pr. Ri	Hands Inserts ubber Gloves	Dosimetry     TLD     Electronic DRD	Fill Face N/P
Head Hood 2 Hoods Surgeon Cap	E 1 pr. Co 2 pr. Co Disp. Co	Body veralis veralis veralis	Feet Shoe Covers High 2 pr. High & L	Low 1 pr. Ru	Hands Inserts ubber Gloves ubber Gloves	Dosimetry TLD Electronic DRD DRD	Full Face N/P Filters:
Head Head Hood 2 Hoods Surgeon Cap Waterproof	E 1 pr. Co 2 pr. Co Disp. Co Plastic S	Body       veralls       veralls       overalls       Suit	Feet Shoe Covers High 2 pr. High & L Rubber Boots	Low Cotton Low 1 pr. Ru ow 2 pr. Ru Surgice	Hands Inserts ubber Gloves ubber Gloves al Gloves	Dosimetry TLD Electronic DRD DRD Extremity	Full Face N/P Filters: Charcoa
Head Hood Hood 2 Hoods Surgeon Cap Waterproof Face Shield	1 pr. Co     2 pr. Co     Disp. Co     Plastic S     No Pers	Body veralis veralis Suit Suit	Feet Shoe Covers High 2 pr. High & L Rubber Boots PVC Boots	Low Cotton Low 1 pr. Ri ow 2 pr. Ri Surgica Work G	Hands Inserts ubber Gloves ubber Gloves al Gloves àloves	Dosimetry Dosimetry TLD Electronic DRD DRD Extremity Multi - Badge	Full Face N/P Filters: Charcoal
Maximum Comments : Head Hood 2 Hoods Surgeon Cap Waterproof Face Shield Taped	E 1 pr. Co 2 pr. Co Disp. Co Plastic S No Pers Outer C	Body veralls veralls overalls Suit sonal lothing	Feet Shoe Covers High 2 pr. High & L Rubber Boots PVC Boots Taped	Low Cotton Low 1 pr. Ri ow 2 pr. Ri Surgica Work G	Hands Inserts ubber Gloves ubber Gloves al Gloves àloves	Dosimetry Dosimetry TLD Electronic DRD DRD Extremity Multi - Badge Special: See	Full Face N/P Filters: Charcoal Full Face A/S

HEALTH PHYSIC	S SUPERVISOR	: REVIEW /	DAT
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Con Ed	son	Attachr	nent 7.4		HP-SQ-3
Indian F	oint Station	Page	1 of 1		Rev
		RADIOLOGI	CAL SURVEY		M
sv: I, WI	ITEMORE	Area / Item:	35 SERVICE WATER	CHASE	Surv
Date: 12-	5-02 lime: 03	20 Type of Sur	vey: Radiation	Contamination Airborne	Routine:
Meter / Senal #	Rod #IC-50	Counter / S	erial # RM14 - FSC BC	C4-972 SAC4-	New RWP
Survey Key:	= DoseRate , * = Contact ,	S = Beta , O = Smear , H = H	ead , C = Chest , K = Knee	e, FL = Floor	Support #
Area Posted As	: 👧 RCA 🗌 VHRA	SLHRA LHRA		Radioactive Materials	Other @
	Conta	minated 🗌 Particle 🔲 A	Airborne Respiratory I	Protection	Con
cal. du	e date: 4-9-03/4	1.15-03/12-21-0.	え		، [
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Surveyors	(mRad/hr) Exposure	(mBem / hr) Cont	amination ( dom / 100 cm <sup>2</sup>	A:	
Exposure :	3 Beta Gamma	Hot Spot Be	ta - Gamma   Ai	pha Radiogas	Particulate
General Area	N/ 12-40	SH	2000 *	17	
Maximum	10 +420	1/3 2	1003	NT NI	NI
Comments :			(		
Head	Bochy	Feet	Line de	De star star	- 1 - 2
Hood	1 pr. Coverails	Shoe Covers			Hespira
2 Hoods	2 pr. Coveralis	High Low	1 pr. Rubber Glov		Filter
	ap Disp. Coveralls	2 pr. High & Low	2 pr. Rubber Giov		
Waterpro	of Plastic Suit	Rubber Boots	Surgical Gloves	Extremity	
	Id No Personal	PVC Boots	Work Gloves	Multi - Badge	🔲 Full F
Face Shie				-	
Face Shie	Outer Clothing	Taped	Taped	Special: See	ASH

Con Ediso	Attachment 7.4	HP-SQ-3.701
Health Phy		Man # 7
T 1.)	Area / Item: 98 VOLUME CONTROL TK & VALVE CORRIDOR	Survey Categ
	Type of Survey: Readiation Contamination Airborn	e Routine:
Actor / Sorial # :	A D T T C IOC Counter / Serial # BM14- E/4C BCA- 16 2 SACA- 1 DC	New RWP #
	ROD TE-106 Counter Series # niver 7 96 Dor 162 Shot 129	
urvey Key:	$\mu$ = DoseRate, " = Contact, $\beta$ = Beta, $O$ = Smear, H = Head, C = Chest, K = Knee, FL = Hoor	Support #
rea Posted As :		
	Contaminated Particle Airborne Respiratory Protection	Contaminati
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T	V40/100 LHRA	MDA / SAC4 = _
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	Beta Gamma Hot Spot Beta Gamma Alpha Badiogas	Particulate Ch
General Area		
Maximum	NU 7200 IN 200 NT	NT .
Comments	NB 000 WN 2000 270.6	
Head	Body Feet Hands Dosimetry	Respiratory P
Hood	1 pr. Coveralis Shoe Covers Cotton Inserts TLD	
2 Hoods	L 2 pr. Coveralls High Low I 1 pr. Rubber Gloves Electronic D	RD Filters:
L Surgeon Cap	DISp. Coverails	
Waterseef		
Waterproof	No Personal DVC Pania I Mark Glavos I Multi Pada	
Waterproof Face Shield	No Personal     PVC Boots     Work Gloves     Multi - Badg       Outer Clothing     Tanget     Tanget     Special: See	
Waterproof Face Shield Taped	No Personal     PVC Boots     Work Gloves     Multi - Badg       Outer Clothing     Taped     Taped     Special: See	

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Con Edison Indian Point Station		Attachment 7 Page 1 of 1	.4	١	HP-SQ-3.7	01 11
Health Physics	RADI	OLOGICAL S	URVEY		Mar	p#6
By C Dectrolis	Ar	rea / Item: 80° SP	PENT FUEL HEAT EXCHU	NGER	Survey	Category
Date: 3-12-02 Time:	1620 T)	/pe of Survey:	Radiation Contami	nation Airborne	Routine: 🔀	ł
Meter / Serial # ROQ IC 10	×6 Cr	ounter / Serial #	RM14 : FY6 BC4 . 90	71 SAC4-658	New RWP #	
Survey Key: = DoseRate , * = Contac	ct , $\beta$ = Beta , O = Sme	ar, H = Head, C	= Chest , K = Knee , FL =	Floor	Support #	0104
Area Posted As : DX RCA DV	HRA 🗌 SLHRA 🚺		A <b>X</b> RAD <b>M</b> Radioad	tive Materials	Other : 105	ANP
<u> </u>	iontaminated [] Parti		Hespiratory Protect	on	Contar Re	mination isults
					dpm /	100 cm <sup>2</sup>
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Surveyors (mRad / hr ) Exp	osure (mRem / hr)	Contamina Beta - Ga	tion (dpm / 100 cm²)	Airbo Radiogas	/ne(μCi / cc) Particulate	) Charcoal
General Area UI (1	- (0) 121		$\wedge  < 13$			
Maximum IR	2 NIA	24	0 <17	NIT A	sπ	DIT
Comments :						
Head Body	CLASSIN) <		Hands	Dosimetry	Respirat	tory Protectio
Hood I pr. Coveralls	Shoe Co	vers	Cotton Inserts	TLD	🔲 Full Fa	ace N/P
2 Hoods 2 pr. Coveralls	High		-1 pr. Rubber Glovec	Electronic DRD	Filters	: 
U Surgeon Cap Disp. Coveralls	2 pr. High	n & Low	Apr. Rubber Gloves	DRD Extremity		Particulate
Face Shield No Personal		ots	] Work Gloves	Multi - Badge	-Full Fe	ace A/S
Taped Outer Clothing	Taped		] Taped	Special: See		ood
	<u> </u>		]	Attachment		l
HEALTH PHYSICS SUPERVISOR : REV	IEW / DATE	V 83a	///////	8/13/02		

Appendix C	·····	Job Performanc Worksh	e Measure eet	Form ES-C-1
Facility:	Indian Point Unit	2	Task No.:	N/A
Task Title:	<u>Perform the RCS</u> <u>Surveillance</u>	<u>Leak Rate</u>	JPM No.:	2003 NRC A2 RO
K/A Reference:	2.2.12 (3.0)			
Examinee:			NRC Examiner:	
Facility Evaluator:			Date:	
Method of testing:				
Simulated Performa	ance:		Actual Performa	ance: X
Classro	oom X Sirr	nulator	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

Ap	pendix	С

\*

# Page 2 of 6 PERFORMANCE INFORMATION

Form ES-C-1

(D	(Denote Critical Steps with an asterisk)				
No	lote: Hand candidate attachment 1 with initial and final data				
	Performance Step: 1 Standard:	Transfer data to attachment 2 Refer to attachment 1 and place data in appropriate blocks on attachment 2			
	Comment:				
	Performance Step: 2 Standard:	Calculate total surveillance period time Calculates 240 minutes			
	Comment:				
	Performance Step: 3 Standard:	Calculate total volume diverted 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 Standard:	Calculate total volume diverted from total makeup Calculates 460 gallons			
	Comment:				
	Performance Step: 6 Standard:	Calculate change in VCT volume and convert to gallons Calculates 38.6 gallons			
	Comment:				

A	opendix C	Page 3 of 6 PERFORMANCE INFORMATION	Form ES-C-1
*	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 level	e in pressurizer
	Standard:	Calculates 519.9 lbm	
	Comment:		
	Performance Step: 9	Calculate the change in RCS mass due to Ta	ve
	Standard:	Calculates (-) 784 lbm	
	Comment:		
	Performance Step: 10	Sum the mass changes due to level and temp	erature changes
	Standard:	Calculates (-) 264.1 lbm and converts to (-) 3	1.95 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 eva	aluation
	Standard:	Subtracts 1.7 gpm to arrive at 0.24 GPM total leakage	unidentified
	Comment:		

Appendix C	Page 4 of 6 PERFORMANCE INFORMATION	Form ES-C-1
Performance Step: 14 Standard:	Record the total unidentified leak rate on atta Locates attachment 5	chment 5
Comment:		
Terminating Cue:	When RCS leak rate calculation is complete, this JPM is complete	the evaluation for

-----

Appendix	С

### Page 5 of 6 VERIFICATION OF COMPLETION

Form ES-C-1

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 UNSA	.Т
Examiner's Signature:		Date:

Appendix C	Page 6 of 6 JPM CUE SHEET	Form ES-C-1
INITIAL CONDITIONS:	A manual RCS leak rate calculation was started accordance with SOP-1.7.	d 4 hours ago in
INITIATING CUE:	Using the final values below, manually calculate accordance with SOP-1.7, section 4.2.2.1, RCS Balance.	e RCS leak rate in Inventory
Final Values:		

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

### HANDONT

### REACTOR COOLANT SYSTEM LEAKAGE SURVEILLANCE

SOP 1.7 Rev. 35 N-1

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

DATI	E TO	DAT

PARAME	TER	PLANT COMPUTER SYSTEM	INDICATION PREVIOUS (Initial) DATA <sup>1</sup>		Present (Final) DATA	
Time		Clock	Panel 1FAF	Tto	T+4 Hoves	
RCS Activity (µC	Ci/cc)		Sample	2.2E-6	7.26-4	
Kr88 Activity (µC	Ci/cc)		Sample	1.6 6-7	1.6E-7	
R-41 Activity (µ	Ci/cc)			3.18-6	3.18-6	
R-41 Backgroun	d (µCi/cc)			4.2 = - 4	4.28-6	
BA Integr	rator	-	Panel FBF	66	100	
PW Integ	rator	-	Panel FBF	24	450	
VC Sump Flow Integrator		-	Panel SFF	006624	006626	
VCT Level		L0112	LI-112	LI-112 ZG		
Average PZF	R Level <sup>2</sup>	U0483	-	45	44	
Ch.1 PZR I	Ch.1 PZR Level <sup>2</sup>		LI-459 4 S		44	
Ch.2 PZR I	Level <sup>2</sup>	L0481	LI-460	45	よよ	
Ch.3 PZR I	_evel <sup>2</sup>	L0482	LI-461	45	よし	
VC Sump	Level	L6055	Panel SBF-1	40'0"	40'0"	
T <sub>ave</sub>		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	<b>-</b> .	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	

SOP 1.7 Rev. 35 N-1

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

DATE TODA

PARAMETER	PLANT COMPUTER SYSTEM	INDICATION	PREVIOUS (Initial) DATA <sup>1</sup>	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		
BA makeup to RWST		CRS Log	0	0	
PW makeup to RWST	-	CRS Log	0	0	
Let Down Integrator <sup>2</sup>		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	1.7672	
VC Sump Temperature	•	WDS Panel	106°F	106°F	
VC Sump Boron	-	Chemist Sample <sup>3</sup>	NA	NA	
VC Sump Sodium Chloride	•	Chemist Sample <sup>3</sup>	NA	MA	
VC Sump Molybdenum	-	Chemist Sample <sup>3</sup>	MA	MA	
VC Sump Ph @ 25°C	-	Chemist Sample <sup>3</sup>	NA	NA	
VC Sump Activity	-	Chemist Sample <sup>3</sup>	NA	NA	
VC Sump Conductivity	-	Chemist Sample <sup>3</sup>	MA	NA.	

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

SOP 1.7 Rev. 35 N-1

#### 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)



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SOP 1.7 Rev. 35 N-1

					Rev. 35 N-1
REAL		IACHM	ENI 2		
MANUAL RCS WATER INVENTORY BALANCE WORK SHEET					
	· (	PAGE 2	of 3)		
•					DATE
D. Net MU - Divert	nal		aal	_	
	gui	-	yai		() gai
	. (0)		(D)		(D)
E Change in VC	Tvolumo				
Initial VCT Level	i volume.				
Final VCT Level	%				
Difference	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
	()%	Х	<u>19.3 gal / %</u>	Ξ	( )gal
					(E)
E Net VCT plus					
MU/Divert	()gai	( )	gal	=	( ) gal
	(D)		(E)		(F)
C Change in PC	C manage due to show a				
Initial Par Level	S mass due to chang	e in PZR	level		
Final Pzr Level	%				
Find F21 Level	%				
Difference	()%	X	<u>126.2 gal / %</u>	. =	( ) gal
					(g1)
Change in Par					
Mass	( ) gal	X	<u>4.12 lb / gal</u>	=	( )lbm
	(g1)				(G)
	5 mass due to 1 ave				
rinal i <sub>ave</sub>	F°				
Difference	– – F°				
Difference	() F°	Х	<u>784 lb / F°</u>	=	( )lbm
					(H)
I. I otal change in	NKCS Mass				
(Pzr Level plus T)	( )lbm	()	lbm	=	() Ibm
• ave/	(G)		(H)		(1)
J. Total change in RCS Volume					
(Referenced to	( )lbm	Х	0.121 gal / lb	=	() cal
vor temp.)	(!)				(J)

SOP 1.7 Rev. 35 N-1



### <sup>1</sup> A positive number indicates a net removal of mass from the system Page 30 of 59

ANSLER

SOP 1.7 Rev. 35 N-1

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

KEY

DATE TODAY

### CAUTION

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



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SOP 1.7 Rev. 35 N-1

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

· · ·					DATE TODAY	
<b>D.</b> Net MU - Divert	<u> </u>	-	gal (B)	=	(+) <u>460</u> gai (D)	
E. Change in VC Initial VCT Level Final VCT Level	T volume. $\frac{26}{24} \%$	· ·				
Difference	(+) %	<b>X</b>	<u>19.3 gal / %</u>	=	(+ <u>) 38.6</u> gal (E)	
F. Net VCT plus MU/Divert	(+) <u> </u>	(+)	<u>_38.6</u> gal (E)	z	( <del>+) <u> </u></del>	
<b>G.</b> Change in RC Initial Pzr Level Final Pzr Level	S mass due to chang $\frac{45}{6}$ %	je in PZR	level		· .	
Difference	- <u> %</u> (+) <u> </u>	x	<u>126.2 gal / %</u>	. =	( <u>4) 12C. 2</u> gal (g1)	
Change in Pzr Mass	(+) <u>126.2</u> gal (g1)	<b>X</b>	4.12 lb / gal	=	(+ <u>) 519,94</u> lbm (G)	
H. Change in RC Final Tave	S mass due to $T_{ave}$			·		
Difference	- <u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	X	784 lb / F°	=	(– <u>) 7タイ</u> Ibm (H)	
I. Total change in (Pzr Level plus T <sub>ave</sub> )	n RCS Mass (+). <u>Si9.99</u> lbm (G)	(-)	<u> つ名イ</u> Ibm (H)	=	(- <u>) کردر ا</u> bm _ (ا)	
J. Total change in RCS Volume						
(Referenced to VCT temp.)	(-) <u>264. (</u> 1bm (1)	X	<u>0.121 gal / lb</u>	=	(-) <u>31.95</u> gal (J)	

SOP 1.7 Rev. 35 N-1

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

$$DATE \underline{TODAY}$$
K. Change in System Volume  

$$(RCS plus VCT) (+) \underline{499.6} gal (-) \underline{31.95} gal = (+) \underline{466.7} gal$$
L. Total System  

$$\underline{466.7} gal \div \underline{240} min = \underline{1.94} gpm$$
L. Total System  

$$\underline{466.7} gal \div \underline{240} min = \underline{1.94} gpm$$
M. Previously  
Identified leakage  

$$\underline{1.7} gpm$$
M. Unidentified  

$$\underline{1.34} gpm$$
M. Unidentified  

$$\underline{1.34} gpm - \underline{(.7)} gpm = \underline{0.24} gpm$$

<sup>1</sup> A positive number indicates a net removal of mass from the system Page 30 of 59
Appendix C		Job Performance Workshe	e Measure et	Form ES-C-1
Facility:	Indian Point Unit	2	Task No.:	N/A
Task Title:	Review Control F	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 Performa	ance:		Actual Performa	ance: X
Classro	om X Sin	nulator	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

Appendix C	ppendix C Job Performance Measure Worksheet		Form ES-C-1
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 Perform	ance: X
Classr	oom 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

## Page 2 of 6 VERIFICATION OF COMPLETION

## 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

## Page 3 of 6 VERIFICATION OF COMPLETION

## 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)
- o Joint News Center

20% each for a maximum of 100%

#### **REFERENCE:**

E-Plan

## Page 4 of 6 VERIFICATION OF COMPLETION

Form ES-C-1

# 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?

## Page 5 of 6 VERIFICATION OF COMPLETION

Form ES-C-1

## 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.

Appendix C	Page 6 of 6 Verification of Completi	Form ES-C-1
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: