

TMI DOCUMENTS

DOCUMENT NO: TM-0652

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METROPCLITAN EDISON COMPANY.

RJH  
Supervisor, Document Control, NRC

7906180706

229 281

**SHIFT AND DAILY CHECKS**

**GENERATION MAINTENANCE SYSTEM  
MANUAL PERFORMANCE FORM**

294

DATE ISSUED \_\_\_\_\_

SCHED. DATE \_\_\_\_\_

REFERENCE MANUAL \_\_\_\_\_

DEPT RESP - \_\_\_\_\_

TASK NO. - \_\_\_\_\_

WORK ORDER NO. - \_\_\_\_\_

ACCOUNT NO. - \_\_\_\_\_

GC CODE - \_\_\_\_\_

COMPONENT NO. - \_\_\_\_\_

COMPONENT DESC - \_\_\_\_\_

PLANT CONDITION (MODE) SU(2) OP(1) HD(4) CD(5) RF(6) HS(3) LR(1)

FREQUENCY \_\_\_\_\_ COMPONENT STATUS \_\_\_\_\_

SPECIFIC DAY \_\_\_\_\_ INTERFERENCE \_\_\_\_\_

PRIORITY \_\_\_\_\_

COMP. LOCATION - BDG \_\_\_\_\_ LVL \_\_\_\_\_ GRID \_\_\_\_\_

PROCEDURE NO.

**2301-51**

PART NO QUAN SPEC EQUIPMENT

DEPENDENT TASKS ASSIST DEPT

SHIFT FOREMAN APPROVAL TO COMMENCE WORK

QC NOTIFIED BEFORE STARTING WORK (IF APPLICABLE ONLY)

COMPONENT RETURNED TO SERVICE (SHIFT FOREMAN)

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

RWP NO TAG NO

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

TXN. CO.	A C F.	COMPONENT NUMBER					LOCATION/UNIT	TYPE TASK	TASK IDENTIFICATION	NL				
		SYS.	COMP. TYPE	COMP. ID.	Lp	16								
4	0	0	A	T	M	I	23015	1	03600	2TS2301-5	179	08	7	M

RESULTS (51) COMPLETE THIS SECTION (401A)

DATE PERFORMED (39)

03	28	17
MONTH	DAY	YEAR

- 1 PERFORMED OK
- 2 EXCEPTIONS
- 3 DEFICIENCIES
- 4 BOTH E S AND D S
- 5 NOT PERFORMED

ACTUAL MANHOURS (45) \_\_\_\_\_  
ACTION TAKEN CODE (52) \_\_\_\_\_  
REASON NOT PERFORMED (54) \_\_\_\_\_

0000031.01  
L L I  
L L I

PERFORMED BY EMPLOYEE NUMBER (50)

**LO58L731**  
**LO58L731**

SIGNATURE - \_\_\_\_\_

APPROVED BY EMPLOYEE NUMBER (65)

SIGNATURE - \_\_\_\_\_

WITNESSED BY EMPLOYEE NUMBER (70)

L L L L L I

SIGNATURE - \_\_\_\_\_

CORRECTIVE MAINTENANCE JOB TICKET NUMBER (75) L L L L L I

03A (1) DUPLICATE AS ABOVE (5-38)

402 (1) DUPLICATE AS ABOVE (5-38)

RESULTS DESCRIPTION

ASSISTING DEPARTMENTS

01L I (39)

L I (61)

04A (1) DUPLICATE AS ABOVE (5-38)

01L I (39)

L I (61)

CODE (39) L L L L L I

HOURS(44) L L L L L I L I

CODE (50) L L L L L I

HOURS(59) L L L L L I L I

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SURVEILLANCE PROCEDURE NAME

Shift & Daily Checks

SURVEILLANCE PROCEDURE NUMBER

2301-S1

DATE DATA TAKEN 3-28-79

THIS SURVEILLANCE IS REQUIRED FOR MODE(S) 1,2,3,4

MODE(S) DATA TAKEN IN 3

Notes: Use a Schedule Form for E/D's if D. associated.

COMPONENT DESIGNATOR				LOCATION UNIT	TYPE TASK	TASK I.D.	SCHEDULE NO
SYS	TYPE	I.D.	LD				
5			15 16 17		23 24 25		32 33 34
TMI	2301S	1		036002	TS	2301-S	179087M

E/D NUMBER/PARAGRAPH OR Sect. / Description (If Appl.)

403A	01	Old Avtrips ES activation following Rx Avtr
404C	01	caused plant to be put in very unusual
403A	02	positions - resulting various readings
404C	02	have not within normal limits
403A		
404C		
403A		
404C		

RESOLUTION DESCRIPTION (If Appl.)

TXN No.	Seq No.	Description
403A	03	Plant will be placed in normal
404C	03	limits following recovery from the ES
403A	04	activation.
404C		
403A		
404C		

SHIFT SUPERVISOR COMPLETE SECTION BELOW:

TEST COORDINATOR COMPLETE BELOW:

YES	NO	QUESTION
<input checked="" type="checkbox"/>		1. This E or D placed the Unit into an action statement.
<input checked="" type="checkbox"/>		2. This E or D was caused by Equipment Failure.
<input checked="" type="checkbox"/>		3. This E or D has caused the performance of this Surveillance to be unsatisfactory for Mode(s) <u>ALL</u> with regard to satisfying the intent of the Tech Spec.

The Resolution column has fully explained what has been done to close out this item. (If App.)

This E or D is closed:

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Shift Supervisor Initials & Date:

Bow 3-28-79  
Initials Date

Signature of the Test Coord.

Figure 1001 - 5

Three Mile Island Nuclear Station  
Temporary Change Notice (TCN)

SIDE 1

TCN NO. 2-77-030  
(From TCN Log Index)  
Unit No. 2  
Date 2/11/79

NOTE: Instructions and guidelines in AP 1001 must be followed when completing this form.

1. Procedure 2301-51 Shift & Daily Checks  
No. Title

2. Change (Include page numbers, paragraph numbers, and exact wording of change.)  
Page 140 Section 3.2.5 (total flow) from Enclosure 1

3. Reason for Change: Addition of Appendix I & Figure 3 (See Attached)

To incorporate best balance calculation for RCS flow determination

4. Recommended by ML Benson 1/31/79 5. ML Benson 1/31/79  
Date Supervisor's Signature Date

6. Duration of TCN - No longer than ninety days from effective date of TCN or as in (a) or (b) below whichever occurs first.  
(a) TCN will be cancelled by a procedure revision issued as a result of a Procedure Change Request to be submitted by ML Benson (Submit PCR as soon as possible)   
Supervisor Submitting TCN  
(b) TCN is not valid after \_\_\_\_\_ (fill in circumstances which will result in TCN being cancelled)

7. (a) Is the procedure on the Nuclear Safety Related Procedure List? (Sec. AP 1001 - Appendix B)  
If "Yes", complete Nuclear Safety Evaluation. (Side 2 of this Form) Yes  No   
(b) Is the procedure on the Environmental Impact Procedure List? (Sec. AP 1001 - Appendix B)  
If "Yes", complete Environmental Evaluation. (Side 2 of this Form) Yes  No   
(c) Does the change effect the intent of the original procedure? Yes  No

NOTE: If all answers are "no" the change may be approved by the Unit Supervisor. If question (c) is answered "yes", the change must be reviewed by the PORC and approval by the station Unit Superintendent prior to implementation. If the answer to question (c) is "no" the change may be approved by two members of the plant management staff at least one of whom holds a senior reactor operators license on the unit affected in accordance with paragraph 3.6.4.2 of AP 1001.

8. Review and Approval  
Block (c) "yes" Approved \_\_\_\_\_ Date \_\_\_\_\_  
Shift Supervisor/Foreman  
Reviewed \_\_\_\_\_  
Members \_\_\_\_\_  
Of PORC \_\_\_\_\_  
Contacted \_\_\_\_\_ Date \_\_\_\_\_  
PORC Members  
Approved \_\_\_\_\_ Date \_\_\_\_\_  
Unit Superintendent  
Block (c) "no" Approved [Signature] 2/11/79 Date \_\_\_\_\_  
SRO License  
Reviewed [Signature] 2/11/79 Date \_\_\_\_\_  
Member Plant Mrg. Staff  
Reviewed \_\_\_\_\_ Date \_\_\_\_\_  
Chairman of PORC  
Approved \_\_\_\_\_ Date \_\_\_\_\_  
Unit Superintendent

NOTE: The block (c) "Yes" review and approval chain may be followed at anytime.

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9. Approval  
Manager, Generation Quality Assurance \_\_\_\_\_ Date \_\_\_\_\_

NOTE: M/G Q.A. approval required only on certain Administrative Procedures listed in Enclosure 7 of AP 1001

10. TCN is Cancelled \_\_\_\_\_ Date \_\_\_\_\_  
Shift Supervisor/Shift Foreman

SHIFT AND DATE SURVEILLANCE REPORT  
MISCELLANEOUS SURVEILLANCE ITEMS

2301-S1  
Revision 12  
01/09/78

TECH SPEC ACTION NO.	DATA DESCRIPTION	PRESENT MODE			REQUIRED		
		E MODES: 1			RCP's OPERATING		
		1	2	3	4	3	2
3.2.5	<u>DNB PARAMETERS:</u>	/	/	/			
3.2.5	RC Pressure NR Loop "A" (PSIG)						
3.2.5	RC Pressure NR Loop "B" (PSIG)						
3.2.5	RC Pressure NR Loop "A" (PSIG)						
3.2.5	RC Outlet Temp (°F) Loop "A" TT1				>2062 PSIG	>2058 PSIG	> 2052 PSIG
3.2.5	RC Outlet Temp (°F) Loop "A" TT4						
3.2.5	RC Outlet Temp (°F) Loop "B" - TT1				609° F	609° F	609° F
3.2.5	RC Outlet Temp (°F) Loop "B" - TT4				< 609° F	< 609° F	< 609° F
3.2.5	RCS Total Flow <del>(gpm) (1000-111120 gpm)</del> Refer to APPENDIX I for Calcu.				See Appendix I		
	Number of RC Pumps Operating				Rev. for above TS 3 2.5 Reg 'M' Per Compt Gp. 5 YES/NO		
3.2.1 *	Axial Pwr Imb Within Limits?						
	NI Calibration						
3.1.1	Perform Heat Balance Calibration per 2302-S1						Rx > 5% F.P.
	NOTE: Attach completed Data Sheet(s) for NI calibration.						
	* Required when >40% RTP						
SURVEILLANCE CHECKS ARE AS REQUIRED? (YES/NO)							
Performed By:	3	TIME 1	TIME 2	TIME			229 285
							YES-NO FOLLOWUP NO-FOLLOWUP PE

# APPENDIX I

## REACTOR COOLANT FLOW CALCULATIONS

NOTE: ~~IF~~ AN ABBREVIATED FLOW METHOD PER SECTION I <sup>OR</sup> IS ~~UNSUCCESSFUL~~, THEN A DETAILED CALCULATION MAY BE PERFORMED PER SECTION II.

### I. GENTILE TUBE FLOW DETERMINATION

A. Obtain the following computer points

- |     |                                   |       |                     |
|-----|-----------------------------------|-------|---------------------|
| (1) | 1750 Core Power                   | _____ | MWt                 |
| (2) | 1715 RC Flow Loop A               | _____ | $\times 10^6$ lb/hr |
| (3) | 1716 RC Flow Loop B               | _____ | $\times 10^6$ lb/hr |
| (4) | 0392 RC Inlet Temp A <sub>1</sub> | _____ | °F                  |
| (5) | 0393 RC Inlet Temp A <sub>2</sub> | _____ | °F                  |
| (6) | 0395 RC Inlet Temp B <sub>1</sub> | _____ | °F                  |
| (7) | 0396 RC Inlet Temp B <sub>2</sub> | _____ | °F                  |

B. CALCULATE THE AVERAGE RC INLET TEMPERATURE

$$(Pt\ 392 + Pt\ 393 + Pt\ 395 + Pt\ 396) \div 4 = \text{_____ } ^\circ F$$
$$(\text{_____} + \text{_____} + \text{_____} + \text{_____}) \div 4 = \text{_____ } ^\circ F$$

C. Obtain the value for specific volume ( $v$ ) for the average RC Inlet Temp. calculated in step B. See Figur. 3A or 3B.

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D. SUBSTITUTE VALUES INTO THE FOLLOWING FORMULA BELOW TO DETERMINE RC FLOW IN "GALLONS PER MINUTE".

$$\text{FLOW (GPM)} = (Pt 1715 + Pt 1716) \left( \frac{7.4805 \text{ gal/ft}^3}{60 \text{ min/hr}} \right) \left( \frac{\text{ft}^3}{\text{lb}} \right)$$

$$\text{FLOW (GPM)} = \left[ \frac{\text{---} \times 10^6 \text{ lb/hr}}{\text{---}} \right] \left[ \frac{7.4805 \text{ gal/ft}^3}{60 \text{ min/hr}} \right] \left[ \frac{\text{ft}^3}{\text{lb}} \right]$$

Flow = \_\_\_\_\_ GPM.

E. MULTIPLY UNCORRECTED GPM (STEP D) BY 0.985 TO COMPENSATE FOR INSTRUMENT ERROR.

$$\text{(STEP D) GPM} \times 0.985 = \text{_____ GPM}$$

\* CORRECTED TECH SPEC FLOW = \_\_\_\_\_ GPM

F. THE TOTAL RC FLOW MUST MEET THE FOLLOWING ACCEPTA CRITERIA FROM T.S. 3.25 (TABLE 3.2-2)

FOUR RC PUMPS OPERATING:

≥ 370,496 GPM with Thermal Power ≤ 2717 MWt

≥ 373,120 GPM with Thermal Power ≤ 2744 MWt

≥ 377,000 GPM with Thermal Power ≤ 2772 MWt

THREE RC PUMPS OPERATING:

≥ 280,400 GPM

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TWO RC PUMPS OPERATING:  
≥ 182,800 GPM.

IF UNABLE TO MEET ACCEPTANCE  
CRITERIA, PROCEED WITH ACTION STATEMENT  
FROM T.S. 3.2.5

## II. DETAILED HEAT BALANCE FLOW CALCULATION

A. TYPE "RC FLOW" into the programmers  
typewriter

B. Printout Operator Group B

C. The program requires 30 minutes to  
calculate RC Flow (see EXAMPLE 1)

D. (1) CHECK APPROPRIATE LINE FOR T.S. FLOW

ACCEPTABILITY

(2) CRO initial

(3) SRO signature

E: SEE SECTION I STEP F FOR T.S.

ACCEPTANCE CRITERIA.

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F. SEND (2) COPIES OF RC FLOW DATA TO  
NUCLEAR ENGINEER (TMI-2)



STOP 0

!rcflow

interrupt at location 00000761  
execution terminated

!rcflow

RCS FLOW DETERMINATION

DATE: 1/31/79

TIME: 23:46: 0

NOTE: IC AND PV PRESS ARE ASSUMED VALUES

	TEMPERATURE	PRESSURE	ENTHALPY
THA	597.172	2150.	609.734
THB	597.237	2150.	609.906
TCA	565.977	2150.	567.609
TCB	566.039	2150.	567.688
TSA	594.250	899.984	1255.938
TSJ	594.695	901.609	1256.141
TFA	417.375	1000.	394.676
TFB	415.855	1000.	390.859

AVERAGE RC TCOLD = 566.01 DENSITY= 45.708

LOOP A FDW FLOW (KPPH)= 3350.22

LOOP B FDW FLOW (KPPH)= 3401.94

\*\*\*FC FLOW VALUES\*\*\*

LOOP A(MPPH)	LOOP B(MPPH)	TOTAL(MPPH)	MEASURED(MPPH)
68.494	69.722	138.215	138.307

RCS FLOW(GPM) 377000.

PERCENT OF DESIGN FLOW = 107.101

\*\*\* TECH SPEC GPM (CORRECTED) =371344.

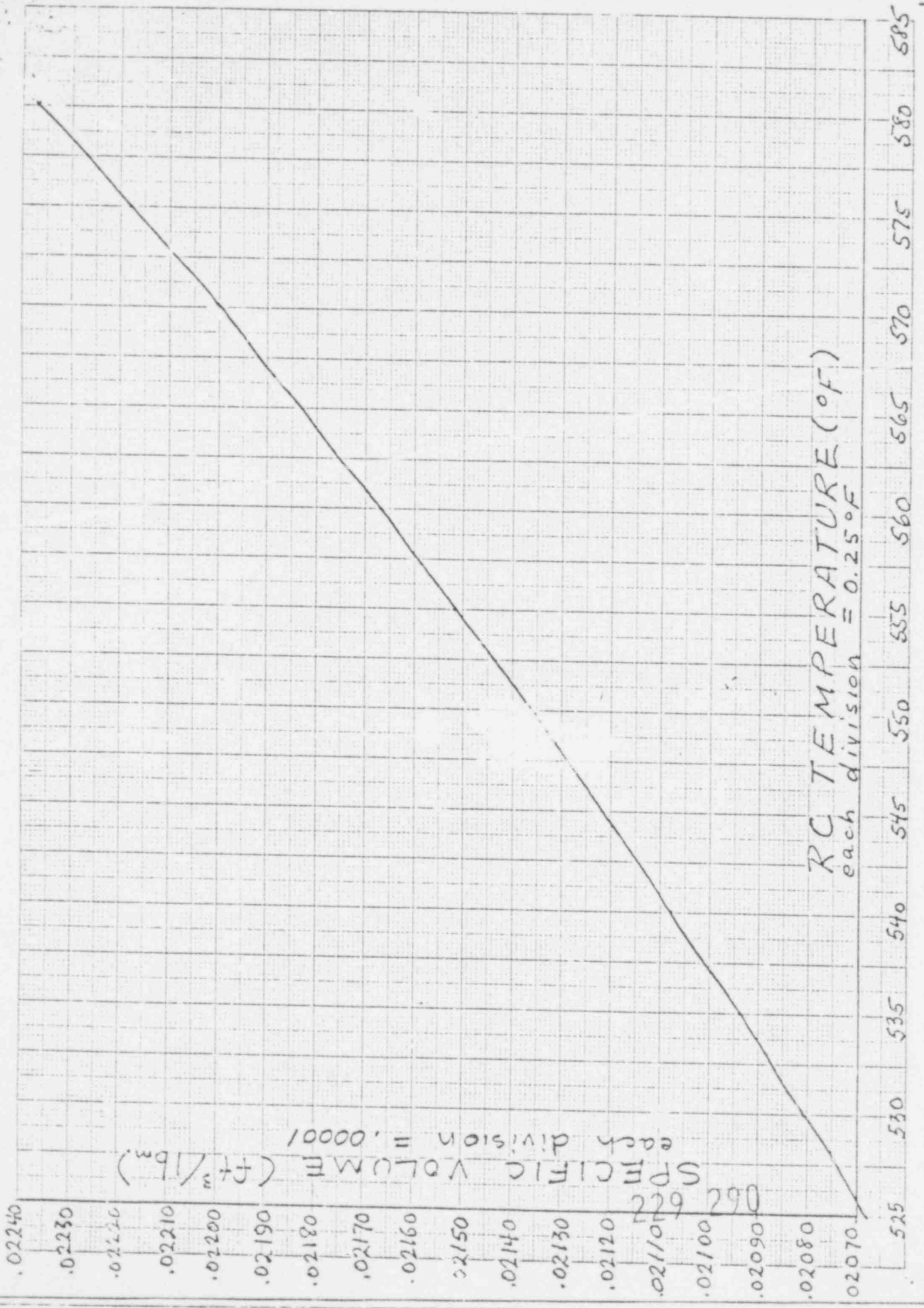
AVERAGE CORE THERMAL POWER (MWT) = 1694.

DOES FLOW FOR PRESENT POWER/PUMPS MEET SPEC YES \_\_\_\_\_ NO \_\_\_\_\_

PERFORMED BY \_\_\_\_\_

APPROVED BY \_\_\_\_\_

STOP 0

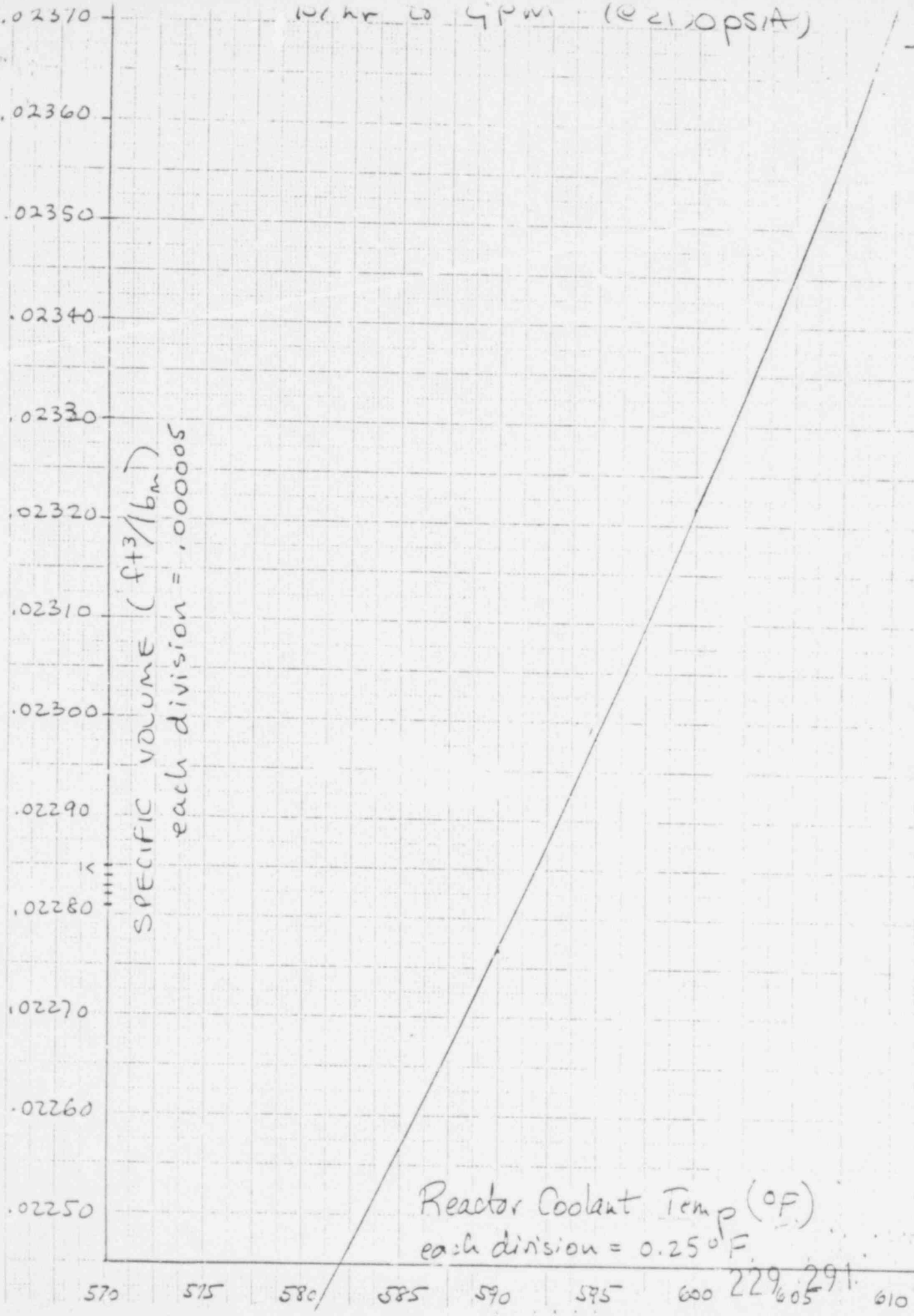


SPECIFIC VOLUME (ft³/lbm)  
each division = .0001

RC TEMPERATURE (°F)  
each division = 0.25°F

062622

107 hr @ 4 PM @ 21.0 psia



SPECIFIC VOLUME (ft<sup>3</sup>/lb<sub>m</sub>)  
each division = .00005

Reactor Coolant Temp (°F)  
each division = 0.25 °F

570 575 580 585 590 595 600 229.605 291 610

CONTROLLED COPY  
CONTROL ROOM  
WORKING COPY

THREE MILE ISLAND NUCLEAR STATION  
UNIT #2 SURVEILLANCE PROCEDURE 2301-S1  
SHIFT AND DAILY CHECKS

Table of Effective Pages

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3.0	08/15/77	0	27.0	12/22/77	2			
4.0	08/15/77	0	28.0	08/15/77	0			
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6.0	02/05/79	14	31.0	08/15/77	0			
7.0	09/01/78	10	32.0	08/15/77	0			
8.0	08/15/77	0	33.0	05/24/78	7			
9.0	12/22/77	2	34.0	12/22/77	2			
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21.0	06/12/78	2						
22.0	11/09/78	12						
23.0	12/22/77	2						
24.0	08/15/77	0						

Unit 1 Staff Recommends Approval Approval <u>NA</u> Date _____ Cognizant Dept. Head	Unit 2 Staff Recommends Approval Approval <u>NA</u> Date _____ Cognizant Dept. Head
Unit 1 PORC Recommends Approval <u>NA</u> Date _____ Chairman of PORC	Unit 2 PORC Recommends Approval <u>[Signature]</u> Date <u>3/10/79</u> Chairman of PORC
Unit 1 Superintendent Approval <u>NA</u> Date _____	Unit 2 Superintendent Approval <u>[Signature]</u> Date <u>3/14/79</u>
Manager Generation Quality Assurance Approval <u>NA</u> Date _____	

THREE MILE ISLAND NUCLEAR STATION  
UNIT #2 SURVEILLANCE PROCEDURE 2301-51  
SHIFT AND DAILY CHECKS

1.0 PURPOSE

- 1.1 To perform the required Shift and Daily Checks in compliance with the TMI Unit 2 Technical Specifications.
- 1.2 To review and implement Event Related Surveillance Requirements in compliance with the TMI Unit 2 Technical Specifications.

2.0 MODE/FREQUENCY REQUIREMENTS:

- 2.1 Refer to applicable attachments, Mode and frequency requirements of a given surveillance item.

3.0 LIMITS AND PRECAUTIONS

- 3.1 Each hourly log entry shall be recorded within one hour and 5 minutes of the previous entry.
- 3.2 Each bi-hourly log entry shall be recorded within 2 hours and 10 minutes of the previous entry.
- 3.3 Each shiftly log entry shall be recorded within 13 hours of the previous entry.
- 3.4 Each daily log entry shall be recorded within 26 hours of the previous entry.
- 3.5 Refer to the MODE applicability on each enclosure/appendix data sheet when recording data and implementing Tech Spec ACTION requirements.

1.0

4.0 LOCATION

PARAMETER		INST. NO.	READOUT DESIGNATOR	LOCATION
RC Outlet Temp.	Loop A	RC-4ATT1	Loop A Th - (TT1)	Panel 4
		RC-4ATT4	Loop A Th - (TT4)	Panel 4
	Loop B	RC-4BTT1	Loop B Th - (TT1)	Panel 4
		RC-4BTT1	Loop B Th - (TT4)	Panel 4
RC Unit Outlet Temp.	Loop A	Selected Loop "A" TH	Loop A Th	RC-4TR Pnl. 4
	Loop B	Selected Loop "B" Th	Loop B Th	RC-4TR Pnl. 4
	Unit	Average Sel. Loop A & Loop B Th	Unit Th	RC-4TR-Pnl. 4
R. C. Press	Wide Range	RC-3A PR2	RC Press. W.R.	Panel 4
		RC-3A PR1	RC Press NR-A	Panel 4
	Narrow Range	RC-3B PR1	RC Press NR-B	Panel 4
		SFAS		
R.C. Press	Ch. 1	RC-3A PT3	RCS Press.	SFAS Cab. 124
	SFAS			SFAS B/X
	Ch. 2	RC-3A PT4	RCS Prsss.	Cab. 125
	SFAS			SFAS B/S
	Ch. 3	RC-3B PT3	RCS Press.	Cab. 126
R.C. Flow	Loop A	RC-14A-FI	R.C. Flow Loop A	Panel 4
	Loop B	RC-14B-FI	R.C. Flow Loop B	Panel 4
	Total	RC-14A + RC-14B FT	R.C. Flow Total	Panel 4
R.B. ; (ote)	Wide Range	BS-PT43882	R.B. WR Prsss	BS-PR4339 Pnl 3
		BS-PT1412-2	R.B. WR Press	BS-PR1412 Pnl 3
	Narrow Range	BS-PT1412-1	R.B. NR Press	BS-PR1412 Pnl 3
		BS-PT4330-1	R.B. NR Press	BS-PR4338 Pnl 3
R.B. Pressure (Local Ind)	ESFAS	BS-PS-3260	R.B. Press Ch. A	Rack 455
	ESFAS	BS-PS-3988	R.B. Press Ch. A	Rack 455
	RPS	BS-PS-3571	R.B. Press Ch. A	Rack 455
	ESFAS	BS-PS-3987	R.B. Press Ch. B	Rack 472
	ESFAS	BS-PS-3259	R.B. Press Ch. B	Rack 472
	RP	BS-PS-3570	R.B. Press Ch. B	Rack 472
	RF	BS-PS-3572	R.B. Press Ch. C	Rack 467
	ESFAS	BS-PS-3261	R.B. Press Ch. C	Rack 467
	ESFAS	BS-PS-3989	R.B. Press Ch. C	Rack 467
	RPS	BS-PS-3573	R.B. Press Ch. D	Rack 452
BUS 2-1E U.V.		Relay 27XA/27XB	White Ind. Light	Panel 6A
BUS 2-2E U.V.		Relay 27XA/27XB	White Ind. Light	Panel 6B
BUS 2-3E U.V.		Relay 27X	White Ind. Light	BUS 2-3E ( )
BUS 2-4E U.V.		Relay 27X	White Ind. Light	BUS 2-4E ( )

PARAMETER	INST. NO	READOUT DESIGNATOR	LOCATION
Chlorine Monitor	AH-CIS-5484	Chl. Monitor - Air Intake Tunnel	281' Elev. of Serv. Bldg.
	AH-CIS-5188	Chl. Monitor-Control Room Supply Air	351' Elev. of Cont. Bldg.
ECCS Valves	NA	BS-V3A	MCC 2-11EA
		BS-V3B	MCC 2-21EA
		CF-V1A	MCC 2-11EB
		CF-V1B	MCC 2-21EB
		CF-V3A	MCC 2-32B
		CF-V3B	MCC 2-42B
Condensate Storage Tanks	CO-LI-072	CST 1A Level	Panel 5
	CO-LI-072	Local LI	At "A" CST
	Comp Pt. #93	CST 1A Level	Computer
	CL-LI-073	CST 1B Level	Panel 5
	CO-LI-073	Local LI	At "B" CST
	Comp Pt. #94	CST 1B Level	Computer
C.R. Air Temp.	AH-YMTR-5193	CR Air Temp.	Panel 25
BWST Temp.	DH-4TI	BWST Temp.	Panel 8
River Water Temp.	SR-TE1083	River Water Temp.	Comp Pt. #1031
	NR-TI2017	River Water Temp.	Riverwater Pump House
	NR-TI2018		Unit 1
River Water Level	NA	NA	Screen House
Outside Air Temp.	AH-YMTR-1923	Air Temp.	Panel 10
Wind Speed & Direction	Recorder	W.S. W.D.	Panel 10
Control Rod Position	Absolute	API	Panel 14
	Relative	API	Panel 14
	Group Avg.	Gp. Avg. PI	Panel 4
Axial Power Imbalance	NI-5	$\Delta$ Flux NI-5	Panel 4
	NI-6	$\Delta$ Flux NI-6	
	NI-7	$\Delta$ Flux NI-7	
	NI-8	$\Delta$ Flux NI-8	
Core Flood Tank Level	CF-2 LI1	CFT "A1" Level	Panel 8
	CF-2 LI2	A2 Level	
	CF-2 LI3	B1 Level	
	CF-2 LI4	B2 Level	

PARAMETER	INST. NO	READOUT DESIGNATOR	LOCATION
Core Flood Tank Pressure	CF-PI1	A1 Press	Panel 8
	CF-PI2	A2 Press	
	CF-PI3	B1 Press	
	CF-PI4	B2 Press	
Pressurizer Level	RC-1 LT1	LT1 (RC-1LR)	Panel 4
	RC-1 LT2	LT2 (RC-1LR)	
	RC-1 LT3	LT3 (RC-1LR)	
OTSG Level (Operating Range)	SP-1A LT2	SP-1A LR	Panel 4
	SP-1A LT3	SP-1A LR	
	SP-1B LT2	SP-1B LR	
	SP-1B LT3	SP-1B LR	
RB Temp.	AH-YMTR-5017	Recorder Pt. 11 Recorder Pt. 12 Recorder Pt. 13 Recorder Pt. 14 Recorder Pt. 15 Recorder Pt. 16	Panel 25
Reactor Power	NI-5	Total Flux	RPS Cab A
	NI-6	Total Flux	RPS Cab B
	NI-7	Total Flux	RPS Cab C
	NI-8	Total Flux	RPS Cab D
Delta Flux	NI-5	Buffered Delta Flux	RPS Cab A
	NI-6	Buffered Delta Flux	RPS Cab B
	NI-7	Buffered Delta Flux	RPS Cab C
	NI-8	Buffered Delta Flux	RPS Cab D
RCS Flow	RC-14 DPT 1,2,3 & 4	Total Flow	RPS Cab A, B
RCS Press	RC-3A PT1 & 2 RC-3B PT1 & 2	Pressure	RPS Cab B, C & D
RC Pumps		Pump/Flux Contact Monitor	RPS Cab A, B, C & D
Intermediate Range Power	NI-3 & 4	IR Flux	RPS Cab C & D
Intermediate Range Rate	NI-3 & 4	IR Rate	RPS Cab C & D
Source Range Flux	NI-1 & 2	SR Flux	RPS Cab A & B
Source Range Rate	NI-1 & 2	SR Rate	RPS Cab A & B
RB Sump Level	WDL-LI1316	RB Sump Level	Rad Waste Pnl. 301A



OTSG "A" Outlet Press	SP-6A-PT1	OTSG "A: Press	Panel 4
	SP-6A-PT2	OTSG "A" Press	Panel 4
OTSB "B" Outlet Press	SP-6B-PT1	OTSG "B" Press	Panel 4
	SP-6B-PT2	OTSB "B" Press	Panel 4
Radiation Monitoring System	HP-R-215	Fuel Handling Bride Area	Panel 12
	HP-R-221B F	Fuel Handling Bldg Exh.	Panel 12
	HP-R-221B G	Duct-Downstream of Filter	
	HP-R-227 P and G	R.B. Air Sample Line	Panel 12
	HP-R-229 P and G	R.B. Hydrogen Purge Duct	Panel 12
	HP-R-225 P, I and G	R.B. Purge Exhaust Duct "A"	Panel 12
	HP-R-226 P, I and G	R.B. Purge Exhaust Duct "B"	Panel 12
	HP-R-219 P, I and G	Station Vent Monitor	Panel 12

5.0 ATTACHMENTS

5.1 Enclosures:

1. Miscellaneous Surveillance Items.
2. Rod Position Instrumentation.
3. RPS Instrumentation Channel Checks.
4. RMS Instrumentation Channel Checks.
5. Event Related Surveillance Requirements.

5.2 Appendix: (Event Related Data Sheets).

- A. OTSG Press/Temp Limitations.
- B. Flood Protection.
- C. Asymmetric Rod Monitor Inoperable.
- D. Regulating Rod Insertion Limits/Sequence.
- E. Axial Power Imbalance Monitor Inoperable.
- F. NSRW Source to Aux FW Pumps.
- G. Quadrant Power Tilt Monitor Inoperable.
- H. Boron Reduction in RCS.

5.3 Figures:

1. Control Rod Position vs Power Level.
2. Axial Power Imbalance Envelope.

6.0 PROCEDURE:

Data Sheets in this procedure are separated into ENCLOSURES and APPENDICES:

- a. "Enclosure" data sheets are to be completed each shift as specified by MODE applicability identified on each individual data sheet.

- ~~TRD~~  
~~TRD~~  
~~TRD~~  
e
- b. "Appendix" data sheets are EVENT RELATED and shall on y be completed whenever an EVENT-RELATED-SURVEILLANCE-REQUIREMENT exists per Enclosure 5 (Event Related Surveillance Requirements).
  - c. Enclosure 5 - Event Related Surveillance Requirements - shall be used to determine if an EVENT-RELATED condition exists by reviewing unit conditions as described under "EVENT DESCRIPTION" column. Parameter data is NOT to be logged on this data sheet. However all parameters shall be monitored throughout shift and no entries made on this sheet until the end of the shift or until the event has occurred.

Surveillance requirements are listed with the appropriate items on data sheet attachments to this procedure. Follow up each item NOT meeting requirements per applicable TECH SPEC ACTION Number.

- 6.1 Record appropriate data per Enclosure 1, MISCELLANEOUS SURVEILLANCE ITEMS, per MODE applicability identified on each data sheet. Follow up per applicable Tech Spec ACTION Number if required data : within acceptance criteria.
- 6.2 Record control rod positions per Enclosure 2, ROD POSITION INSTRUMENTATION, and refer to Figure 1, as necessary, to ensure that required rod positions are satisfied. Follow up per applicable Tech Spec ACTION Number if required data is not within acceptance criteria.
- 6.3 Record appropriate data per Enclosure 3, RPS INSTRUMENTATION CHANNEL CHECKS, and determine channel OPERABILITY by comparison of the channel indication and/or status derived from independent instrument channels measuring the same parameter (i.e. Tech Spec definition of CHANNEL CHECK). Follow up per applicable Tech Spec ACTION Number if any channel is determined INOPERABLE.

- 6.4 Record appropriate data per Enclosure 4, RMS INSTRUMENTATION CHANNEL CHECKS, and determine channel OPERABILITY by satisfactory performance of a CHANNEL CHECK. Follow up per applicable Tech Spec ACTION Number if any channel is determined INOPERABLE.
- 6.5 Complete Enclosure 5, EVENT RELATED SURVEILLANCE REQUIREMENTS, each shift, by reviewing Unit status in relation to the "EVENT DESCRIPTION" column of the data sheet and determine if an event requiring further surveillance exists:
- a. If an event, as listed, does not exist, no followup action is required.
  - b. If an event, as listed, does exist, follow up per noted Tech Spec ACTION statement and/or appropriate Surveillance Procedure.
  - c. Log time and conditions of existing events requiring further surveillance in the Control Room Operators Log.
  - d. Notify Shift Supervisor/Foreman upon determination of an event related requirement.
  - e. Each subsequent shift shall document the initiation/continuation of all EVENT-RELATED surveillance activities in the Control Room Operators Log at the beginning of each shift.

NOTE: Event related surveillance requirements are to be implemented upon each event occurrence. Enclosure 5 should be referred to as often as necessary each shift to ensure that proper Tech Spec surveillance is being maintained.

7.0 ACCEPTANCE CRITERIA












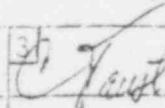
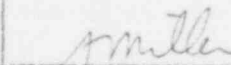
- 7.1 Readings are acceptable if within normal expected range for various plant conditions.
- 7.2 Appropriate Tech Spec ACTION paragraphs are implemented for items not meeting surveillance requirements.
- 7.3 Entries are made in the Control Room Operators Log of all implemented Event Related surveillance requirements and all out-of-spec items identifying subsequent followup action.
- 7.4 All data sheets are completed, as applicable, by the data taken and approved by the Shift Supervisor/Foreman each shift.
- 7.5 Log entries are recorded within the time limits specified in section 3, Limits and Precautions.

ENCLOSURE 1  
SHIFT AND DAILY SURVEILLANCE CHECKS  
MISCELLANEOUS SURVEILLANCE ITEMS

2301-S1  
Revision 2

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APPLICABLE MODES: 1,2,3,4,5,6 		PRESENT MODE	/ 1 D   3			DATE
TECH SPEC ACTION No.	DATA DESCRIPTION	ACTUAL			REQUIRED	
		3	1	2		
3.3.3.4	100 Ft Wind Speed Recorder	✓			Sufficient Paper & Ink (✓)	
3.3.3.4	100 Ft Wind Direction Recorder (From Unit I)	✓				
3.3.3.4	33-150 Ft Air Temp Delta T Recorder	✓				
3.1.2.8 3.1.3.9 3.5.4	BWST Temp	65			>40°F	
3.7.6.1	River Water Level		279.1		<301 Ft.	
SURVEILLANCE CHECKS ARE AS REQUIRED? (YES/NO)					yes	YES-No Followup NO-Followup per I.
Performed by:			Time 0123	1	Time 2045	
Approved by:						

ENCLOSURE 1  
SHIFT AND DAILY SURVEILLANCE CHECKS  
MISCELLANEOUS SURVEILLANCE ITEMS

2301-S1  
Revision 12  
11/09/78

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DATE MAR 28 1978

APPLICABLE MODES: 1, 2, 3, 4 Sh 1 of 2		PRESENT MODE 1 3 3			REQUIRED
TECH SPEC ACTION NO.	DATA DESCRIPTION	ACTUAL			
		3	1	2	
3.3.3.6	Chlorine Det - Air Intake Tunnel, Conc.	G	<del>B</del>	<del>166</del>	In Green or Yellow Band
3.3.3.6	Chlorine Det - Control Room Supply, Conc.	G	<del>B</del>	<del>166</del>	In Green or Yellow Band
3.4.5	OTSG (A) Startup Level (In.)	160	D	2250	OTSG water level is less than 390 on the full range. less than 99% on the operating range and greater than 18 inches on the Startup Range.
3.4.5	OTSG (B) Startup Level (In.)	165		2250	
3.4.5	OTSG Level (A) Full Range (In.)	252		480	
3.4.5	OTSG Level (B) Full Range (In.)	252		400	
3.4.5	OTSG Level (A) LT-3 Oper. Range (%)	56		90	
3.4.5	OTSG Level (B) LT-3 Oper. Range (%)	56		90	
3.4.5	OTSG Level (B) LT-2 Oper. Range (%)	56		95	
3.4.5	OTSG Level (A) LT-2 Oper. Range (%)	57		91	
3.6.1.4	RB Press WR (Red)	0		0	RB Internal Pressure is between -2 and +3 PSIG
3.6.1.4	RB Press NR (Green)	0		0	
3.6.1.4	RB Press WR (Red)	0		0	
3.6.1.4	RB Press NR (Green)	0		0	
3.6.1.5	RB Average Air Temp.				The arithmetical average RB air temperature shall not exceed 130°F.
3.6.1.5	Location a. EL 353-1 AMB Rec. Pt. 11 Panel 25			120	
3.6.1.5	Location b. EL 353-2 AMB Rec. Pt. 12 Panel 25			118	
3.6.1.5	Location c. EL 330-1 AMB Rec. Pt. 13 Panel 25	124		118	
3.6.1.5	Location d. EL 330-2 AMB Rec. Pt. 14 Panel 25	123		119	
3.6.1.5	Location e. EL 310-1 AMB Rec. Pt. 15 Panel 25	133		118	
3.6.1.5	Location f. EL 310-2 AMP Rec. Pt. 16 Panel 25	112		105	
3.6.1.5	AVERAGE = $\frac{a+b+c+d+e+f}{6}$ =	124	✓	114	

SURVEILLANCE CHECKS ARE AS REQUIRED? (YES/NO)

YES-NO FOLLOW UP  
NO-FOLLOW UP PER

Performed By:	3   C Faust   Time 0700	1     Time	2   A Miller   Time 1945
Approved By:	A Miller		A Miller

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APPLICABLE MODES: 1.2.3.4 Sh 2 of 2		PRESENT MODE	1   3			DATE
TECH SPEC ACTION NO.	DATA DESCRIPTION	ACTUAL			REQUIRED	
		3	1	2		
3.7.5.1	River Water Level	/	271	/	>271 ft.	
3.7.5.1	River Water Temp	/	44	/	≤90°F	
3.7.7.1	Control Room Air Temp	70	70	70	<100°F	
3.5.2 3.5.3	DHR "A" Pump Suct. Vlv (DHV-102A) OPEN	✓	✓	✓	Valve and breakers are positioned as indicated (✓). NOTE: In Mode 4, only one ECCS Subsystem is required	
3.5.2 3.5.3	Valve DHV-102A Breaker (MCC2-11EA) OPEN	✓	✓	✓		
3.5.2 3.5.3	DHR "B" Pump Suct. Vlv (DHV-102B) OPEN	✓	✓	✓		
3.5.2 3.5.3	Valve DHV-102B Breaker (MCC2-21EA) OPEN	✓	✓	✓		
3.5.2 3.5.3	BWST to S.F. Valve (DHV-157) CLOSED	✓	✓	✓		
3.5.2 3.5.3	Valve DHV-157 Breaker (MCC2-32B) OPEN	✓	✓	✓		
3.4.6.2	RB Sump Level	E-1	E-1	E-1		Within Operational Leakage Limits of T.S. 3.4.6.2
3.4.6.2	RB Sump Level Change Since Last Shift	↓	↓	↓		
3.4.6.2	*No. of RB Sump Pump Starts Since Last Reading	↓	↓	↓		
3.4.6.2	RB Sump Discharge. (Gals) Gals = (28 ft <sup>3</sup> x 7.48 gal/ft <sup>3</sup> x #Sump Pump Starts)	↓	↓	↓		
*No. of RB Sump Pump starts since last reading. If computer is O.O.S, Place Control Switches for R.B. Sump pumps in OFF. Monitor R.B. Sump Level every 4 hrs. (Log level in JRO Log every time reading is taken) If level gets to 4ft, start a R.B. Sump Pump and reduce level by 16". (Record starts and use formula as if R.B. Sump Pumps started in AUTO) - in AUTO sump level varies by 16" - (16"=209 gal.)						
3.6.1.7	Accumulated RB Purge time while in Modes 1-4	10:59	10:59	10:59	< 90 hrs. in proceeding 365 days	
3.6.5	AH-E-52A in operation (MCC-2-35) Yes/No	Yes	Yes	Yes	At least one Reactor vessel skirt fan shall be in operation	
3.6.5	AH-E-52B in operation (MCC-2-47) Yes/No	No	No	No		
*Ref. Computer Alarm Printout (pts. 2726 and 2727)						
SURVEILLANCE CHECKS ARE AS REQUIRED? (Yes/NO)					YES-NO FOLLOWUP NO-FOLLOWUP PER	
PERFORMED BY:	3 E Faust	TIME 1230	1	TIME 2 Amiller	TIME 1600	
APPROVED BY:	Amiller		Amiller			



APPLICABLE MODES: 1,2,3		PRESENT MODE			1	2	3	DATE		
TECH SPEC ACTION NO.	DATA DESCRIPTION	ACTUAL			REQUIRED					
		3	1	2						
3.4.4	Pressurizer Level LT-1	230		400	PZR Level is between 45 and 385 in.					
3.4.4	Pressurizer Level LT-2	230		400						
3.4.4	Pressurizer Level LT-3	235		400						
3.5.1	Core Flood Tank "A" Level LT-1A1	13.1		7.6	CF Tank Level is between 2.55' and 3.45'					
3.5.1	Core Flood Tank "B" Level LT-1B1	12.9		7.2						
3.5.1	Core Flood Tank "A" Level LT-2A2	13		7.14						
3.5.1	Core Flood Tank "B" Level LT-2B2	13		10.9	CF Tank Nitrogen Pressure is between 575 and 625 (PSIG)					
3.5.1	Core Flood Tank "A" Pressure PT-1A1	565		600						
3.5.1	Core Flood Tank "B" Pressure PT-1B1	606		600						
3.5.1	Core Flood Tank "A" Pressure PT-1A2	545		600						
3.5.1	Core Flood Tank "B" Pressure PT-2B2	600		590						
3.5.1	CF Tk "A" Isol Vlv (CF-V1A)	OPEN	OP	OP				Valves are Positioned as indicated (✓). NOTE: Required when RCS Pressure is >750 PSIG		
3.5.1	CF Tk "B" Isol Vlv (CF-V1B)	OPEN	OP	OP						
3.7.1.3	Condensate Storage Tank Level:				Combined Level >27.5 ft required whenever CSTS are source to the Aux FW Pumps					
3.7.1.3	LT A Console Level Indicator	21.5		16.5						
3.7.1.3	LT A Local Level Indicator	21.6		16.5						
3.7.1.3	LT B Console Level Indicator	21.5		16						
3.7.1.3	LT B Local Level Indicator	21.5		16						
3.3.2.1	4KV Emerg Bus 2-1E Under Voltage	✓		✓	White Ind. Light (27xA/27xB) Lit					
3.3.2.1	4KV Emerg Bus 2-2E Under Voltage	✓		✓						
3.3.2.1	4KV Emerg Bus 2-3E Under Voltage	✓		✓						
3.3.2.1	4KV Emerg Bus 2-4E Under Voltage	✓	✓	✓						
SURVEILLANCE CHECKS ARE AS REQUIRED? (YES/NO)		APR			YES-NO FOLLOWUP NO-FOLLOWUP PER T					
Performed By:	<i>[Signature]</i>	TIME 1	<i>[Signature]</i>	TIME 2	<i>[Signature]</i>	TIME				
Approved By:	<i>[Signature]</i>			<i>[Signature]</i>						

SHIFT AND DAILY SURVEILLANCE CHECKS  
MISCELLANEOUS SURVEILLANCE ITEMS

03/09/78  
2301-S1  
Revision 4  
DATE **MAR 28 1979**

APPLICABLE MODES: 1, 2, 3		PRESENT MODE			3	REQUIRED
TECH SPEC ACTION NO.	DATA DESCRIPTION	ACTUAL			3	
		3	1	2		
3.3.2.1	RCS Press Chan 1. (ES Cab No. 124)	D	D	1350	Channel check satisfactory by comparison of Readings. log indicated value.	
3.3.2.1	RCS Press Chan. 2 (ES Cab No. 125)	1	1	1350		
3.3.2.1	RCS Press Chan. 3 (ES Cab No. 126)	1	1	1350		
3.3.2.1	RB Press (BS-PS-3261) Instrument Rack 457			0	Each Channel Reading is to be compared with other channels indicating the same parameter and any deviations evaluated for malfunction of instrument or sensors.  In general, deviations >10% warrant further investigation and/or corrective action.	
3.3.2.1	RB Press (BS-PS-3989) Instrument Rack 467			0		
3.3.2.1	RB Press (BS-PS-3987) Instrument Rack 472			0		
3.3.2.1	RB Press (BS-PS-3259) Instrument Rack 472			0		
3.3.2.1	RB Press (BS-PS-3260) Instrument Rack 455			0		
3.3.2.1	RB Press (BS-PS-3988) Instrument Rack 455	✓	✓	0		
SURVEILLANCE CHECKS ARE AS REQUIRED? (YES/NO)						YES-NO FOLLOWUP NO-FOLLOWUP PER T
Performed By:	3		2	TIME	Miller	2005
Approved By:					Miller	

SHIFT AND DAILY SURVEILLANCE CHECKS  
MISCELLANEOUS SURVEILLANCE ITEMS

2301-S1  
Revision 15  
03/14/79 MAR 28 1979

APPLICABLE MODES: 1		PRESENT MODE	1	3			
TECH SPEC ACTION NO.	DATA DESCRIPTION	ACTUAL			REQUIRED		
		1	2	3			
3.2.5	<u>DNB PARAMETERS:</u>	/	/	/	RCP's OPERATING		
3.2.5	RC Pressure NR Loop "A" (PSIG)	914		N/A 4700	4	3	2
3.2.5	RC Pressure NR Loop "B" (PSIG)	2155		N/A 4700	PSIG		
3.2.5	RC Pressure WR Loop "A" (PSIG)	2700		N/A 1300			
3.2.5	RC Outlet Temp (°F) Loop "A" TT1	605		N/A 520	>2062	>2058	>2092
3.2.5	RC Outlet Temp (°F) Loop "A" TT4	605		N/A 520	>2062	>2058	>2092
3.2.5	RC Outlet Temp (°F) Loop "B" - TT1	606		N/A 520	609° F	609° F	609° F
3.2.5	RC Outlet Temp (°F) Loop "B" - TT4	606		N/A 520	609° F	609° F	609° F
3.2.5	RCS Total Flow (%) (100% = 144.1E6 #/HR) See Appendix I	TCU - 2 - 79-30			See Appendix I		
	Number of RC Pumps Operating	4		N/A	95%	70.1%	43.1%
3.2.1 *	Axial Pwr Imb Within Limits?	Y		N/A	Rev. for above TS 3.2.5 Reg 'Mt. Per Compt Gp. 55 YES/NO		
NI Calibration							
3.3.1.1	Perform Heat Balance Calibration per 2302-S1	✓			Rx >15% F.P.		
	NOTE: Attach completed Data Sheet(s) for NI calibration.						
* Required when >40% RTP							
SURVEILLANCE CHECKS ARE AS REQUIRED? (YES/NO)					Y	YES-NO FOLLOWUP NO-FOLLOWUP PER	
Performed By:	3/14/79	TIME 1	TIME 2	TIME			
Approved By:							

14.0

229 307

ENCLOSURE 1  
 SHIFT AND DAILY SURVEILLANCE CHECKS  
 MISCELLANEOUS SURVEILLANCE ITEMS

2301-S1  
 Revision 9  
 08/15/78

MAR 28 1979

APPLICABLE MODES:		<input checked="" type="checkbox"/> PRESENT MODE	3		
TECH SPEC ACTION NO.	DATA DESCRIPTION	ACTUAL			REQUIRED
		3	1	2	
Applicable Modes: 3, 4, 5	<input checked="" type="checkbox"/> Present Mode	/			
Tech Spec. Action No.		ACTUAL			
		3	1	2	
3.1.1.1	Determine SD Margin to be > 1% Δk/k per S.P. 2311-F3	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	

Complete 2311-F3  
 sd margin must  
 be ≥ 1% Δ k/k

SURVEILLANCE CHECKS ARE AS REQUIRED? (YES/NO) *Yes*

YES-NO FOLLOWUP  
 NO-FOLLOWUP PER

Performed By: *[Signature]* TIME 11:00 TIME 1 TIME 1 TIME

Approved By: \_\_\_\_\_ 14.1 \_\_\_\_\_

229 308

DATE **MAR 28 1979**

APPLICABLE MODES: 1,2		PRESENT MODE												3			1			3		
Gp-Rd	1-1	1-2	1-3	1-4	2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-8	3-1	3-2	3-3	3-4	3-5	3-6	3-7			
3	API	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100			
	RPI	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100			
1	API																					
	RPI																					
2	API	N/A																				
	RPI	N/A																				

Gp-Rd	3-3	4-1	4-2	4-3	4-4	4-5	4-6	4-7	4-8	5-1	5-2	5-3	5-4	5-5	5-6	5-7	5-8	5-9	5-10
3	API	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	RPI	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1	API																		
	RPI																		
2	API	N/A																	
	RPI	N/A																	

Gp-Rd	5-1	5-12	6-1	6-2	6-3	6-4	6-5	6-6	6-7	6-8	6-9	6-10	6-11	6-12	7-1	7-2	7-3	7-4	7-5
3	API	100	100	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
	RPI	100	100	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98
1	API																		
	RPI																		
2	API	N/A																	
	RPI	N/A																	

Gp-Rd	7-6	7-7	7-8	7-9	8-1	8-2	8-3	8-4	8-5	8-6	8-7	8-8	Performed By:	Approved By:
3	API	98	98	98	98	98	98	98	98	98	98	98	3	Miller
	RPI	98	98	98	98	98	98	98	98	98	98	98		
1	API													
	RPI													
2	API													
	RPI													

GROUP	1	2	3	4	5	6	7	8
3	100	100	100	100	100	98	98	98
1								
2								

COMMENTS:

TECH SPEC ACTION NO.	IS REQUIREMENT:	'YES' answer - No Further Action Req'd. 'NO' answer - Followup per T.S. Action No.	YES/NO
3.1.1.1 **	S/D Margin $\geq 2$ $\Delta k/k$ (Reg Rods within limits of Fig. 1)? when Keff $\geq 1$ .	(Applicable)	3
3.1.3.1	All Safety & Reg Rods agree within $\pm 6.5\%$ of Gp AVG?		Yes
3.1.3.2	All APSR AGREE within $\pm 6.5\%$ of Group AVG?		Yes
3.1.3.3	Each Rod API & RPI agrees within $\pm 6.5\%$		Yes
3.1.3.6 *	All Safety Rods Fully Withdrawn?		Yes
3.1.3.7 *	Reg Rod Groups Positioned Per Fig 1 with $25 \pm 5\%$ Gp Overlap?		Yes

\*\* NOTE: Attach completed Data Sheet from Shutdown Calculations

\*Keff  $\geq 1.0$

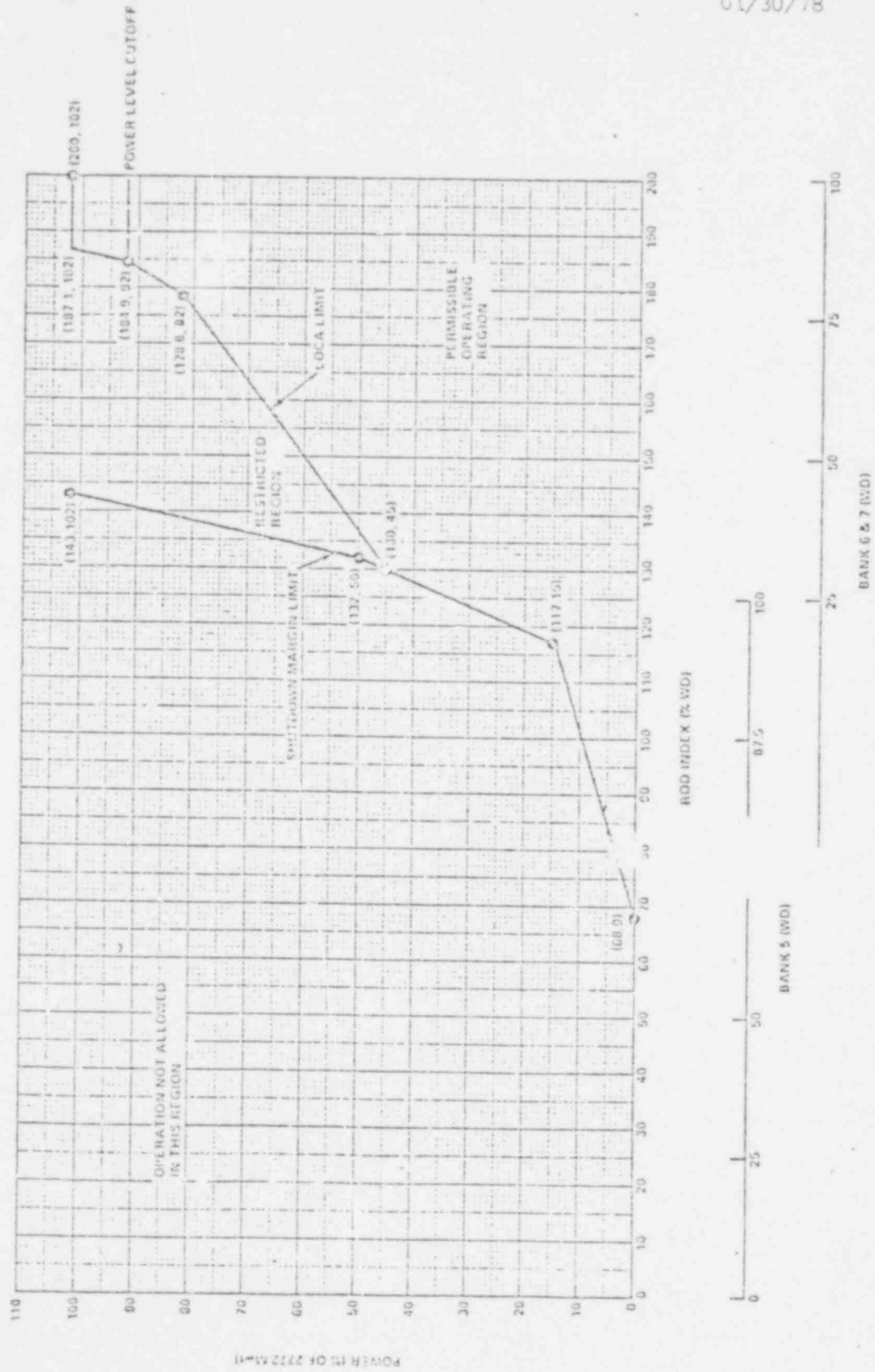


Figure 1a  
 Regulating Rod Group Insertion Limits  
 (0-200 ± 10 EFPD's) 4 Pump Operation

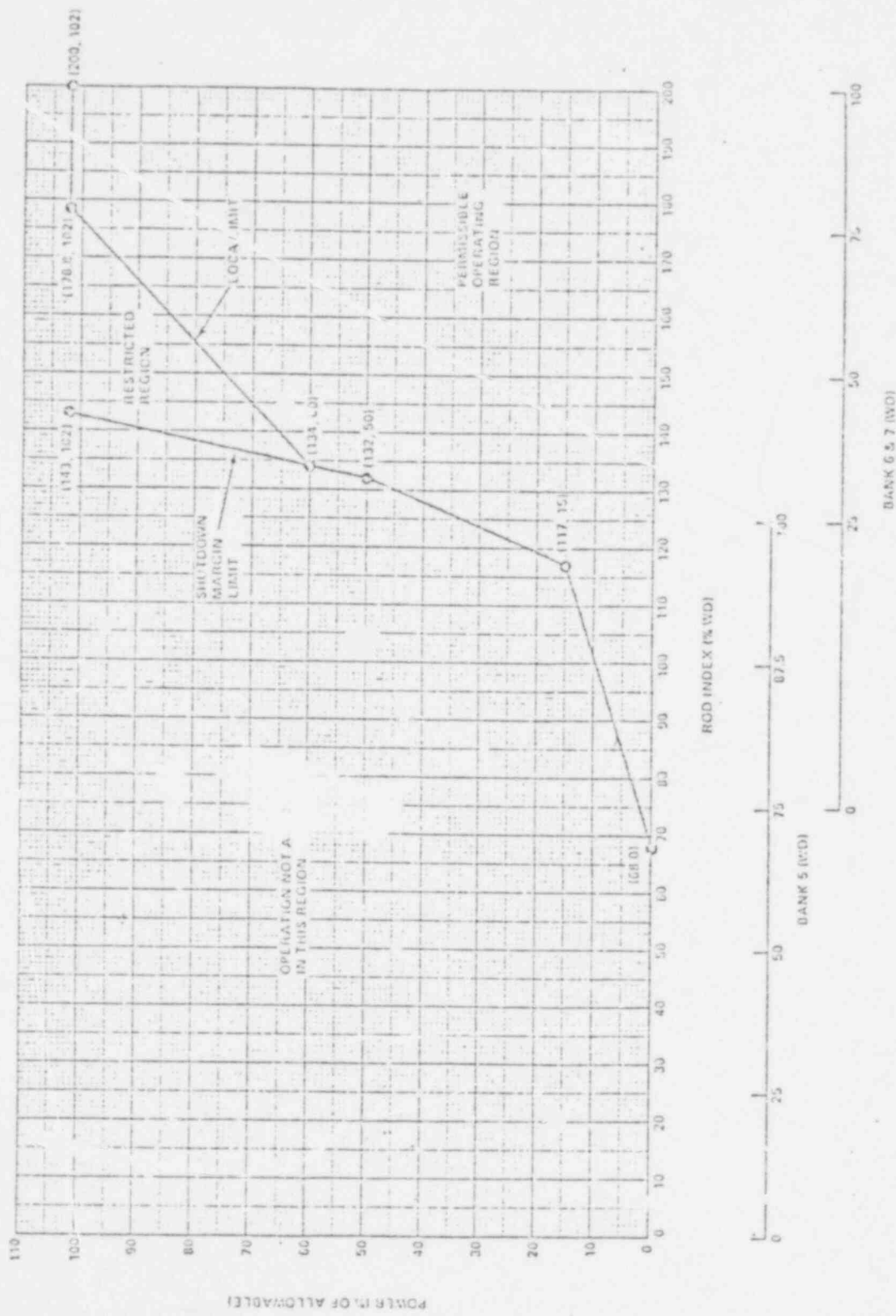


Figure 1-b Regulating Rod Group Insertion Limits  
(0-200 ± 10 EFD's) 3 Pump Operation

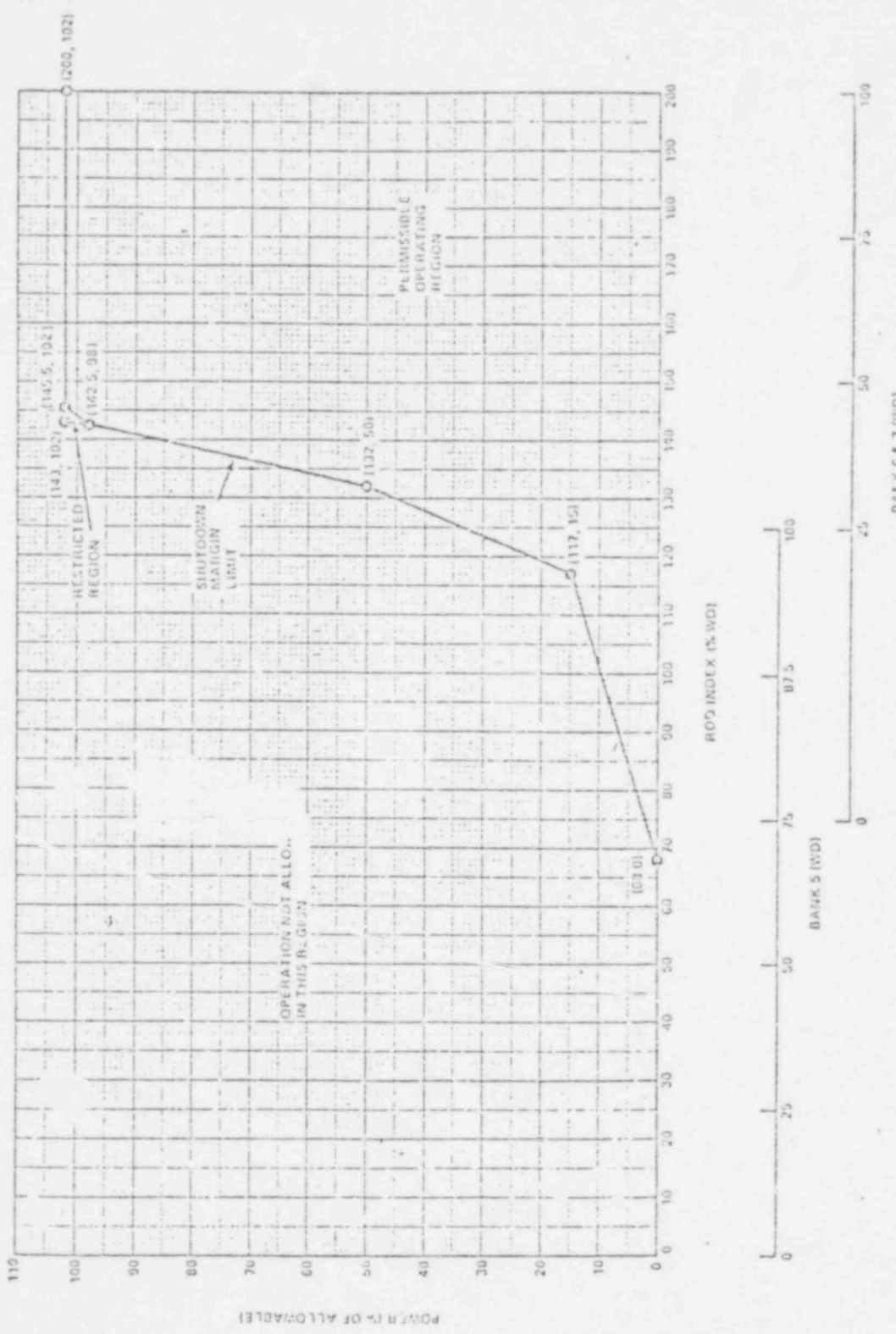


Figure 1c Regulating Rod Group Insertion Limits  
 (0-200 ± 10 EFPD's) 2 Pump Operation



ENCLOSURE 3

2301-S1  
Revision 4  
03/09/78

SHIFT A/D DAILY SURVEILLANCE CHECKS  
RPS INSTRUMENTATION CHANNEL CHECKS

APPLICABLE MODES: 1, 2		PRESENT MODE: 3   1   1   2   3											
PARAMETER	RPS Cab.	A			B			C			D		
	Shift	3	1	2	3	1	2	3	1	2	3	1	2
TOTAL N Flux (% Power)		100	N/A	100	N/A	100	N/A	100	N/A	100	N/A	100	N/A
Buffered Delta Flux (% Power)		3	1	-4	1	-4	1	-4	1	-4	1	-4	1
TOTAL RC Flow (Lbs/Hr x 10 <sup>6</sup> )		216		195		116		144		144			
RC Pressure (PSIG)		216		215		214		214		215			
Reactor Coolant Pressure/Temperature Comparitor	Temp (°F)	618		609		611		611		611			
	Press (PSIG)	202		203		203		203		203			
RB Press-Local Ind. (Ref. Sect. 4.D)													
Pump/Flux Contact Monitor: (Circle the number corresponding to the bright lights)	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	2	2	2	2	2	2	2	2	2	2	2	2
	3	3	3	3	3	3	3	3	3	3	3	3	3
	4	4	4	4	4	4	4	4	4	4	4	4	4
Required whenever the CRD Bkrs are CLOSED	IR Flux (Amps)	/						1.5		1.5		N/A	
	IR Rate (DPM)	/						0		0		0	

MODES 3,4,													
Shutdown Bypass (N - Normal) (B - Bypass)		N	N	N	N	N	N	N	N	N	N	N	N

MODES 2,3,4, & 5					
Source Range Flux (CPS)		N/A	500	N/A	80
Source Range Rate (DPM)		N/A	0	N/A	0

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

TECH SPEC. ACTION NO.	TECH SPEC REQUIREMENT:	'YES' - No further action req'd.	'NO' - Followup per T.S. Action No.	3	1	2
3.3.1.1	RPS Channels OPERABLE* per CHANNEL CHECK (yes/no)					N/A

\*Each Channel Reading is to be compared with other channels indicating the same parameter and any deviations evaluated for malfunction of instrument or sensors. In general, deviations >10% warrant further investigation and/or corrective action. DATE: **MAR 28 1978**

SHIFT:	- 3 -	- 1 -	- 2 -
Performed By:			
Approved By:			

*A Miller*  
229 313

ENCLOSURE 4  
RMS INSTRUMENTATION CHANNEL CHECKS

201-51  
Revision 2  
12/22/77

Applicable Modes	Instrument	Source	Check	Sat	T/S Action	Comments	
		1st Shift	2nd Shift	3rd Shift			
All	HP-R-219 (P) Stat. Vent	D <sup>Am</sup> D	D	Sat	2.3.2(ETS) 3.3.3.1		
	HP-R-219 Stat. Vent (I)			Sat	3.4.6.1 3.4.6.2		
	HP-R-219 Stat. Vent (G)			Sat	3.4.6.1 3.4.6.2		
	HP-R-225 R.B. Purge (P)			Sat	3.4.6.1 3.4.6.2		
	HP-R-225 R.B. Purge (I)			Sat	3.4.6.1 3.4.6.2		
	HP-R-225 R.B. Purge (G)			Sat	3.4.6.1 3.4.6.2		
	HP-R-226 R.B. Purge (P)			Sat	3.4.6.1 3.4.6.2		
	HP-R-226 R.B. Purge (I)			Sat	3.4.6.1 3.4.6.2		
	HP-R-226 R.B. Purge (G)			Sat	3.4.6.1 3.4.6.2		
	1,2,3,4	HP-R-227 RCS Leakage (P)			Sat	3.3.3.1 3.4.6.1	
		HP-R-227 RCS Leakage (G)			Sat		
		Note (1) HP-R-221B F.H. Bldg Vent (P)	N/A	N/A	N/A	3.3.3.1	
	Note (2) HP-R-215 Crit. Monit.	N/A	N/A	N/A			

The above radiation monitoring instrumentation is operable except as noted.

NOTE 1: Required whenever irradiated fuel is in spent fuel pool.

NOTE 2: Required whenever fuel is in S.F. Pool or in Fuel Handling Building.

229 314

PERFORMED BY:

APPROVED BY:

1st Shift	2nd Shift	3rd Shift
	<i>A Miller</i>	<i>C King / J Faust</i>
MAR 2 1979	MAR 28 1979	MAR 28 1979
Date	Date	Date
Time	Time	Time

MAR 28 1979

ENCLOSURE 5

EVENT RELATED SURVEILLANCE REQUIREMENTS Page 1 of 3

2301-S1  
DATE Revision 8  
06/12/75

MODE	EVENT DESCRIPTION						EVENT EXISTS?		PERFORM S.P. No.	RELATED T.S. ACTION No.	SURVEILLANCE REQUIREMENT
							YES/NO				
							1	2			
6	✓	✓	✓	✓	✓	✓	Yes	2301-S1 App II	3.1.1.2	RCS Flow $\geq$ 2800 GPM	
✓	✓	✓	✓	✓	✓	✓	No	2301-S1 Encl. 1	3.1.2.8 3.1.2.9 3.5.4	BWST Temp $\geq$ 40°F	
✓	✓	✓	✓	✓	✓	✓	No	2301-S1 App. A	3.7.2.1	OTSG Temp $>$ 110°F	
✓	✓	✓	✓	✓	✓	✓	No	2301-S1 App. B	3.7.6.1	Monitor Level ea. 2 hours CK PZR/Spray $\Delta$ T $<$ 410°F ea. 2 hours	
✓	✓	✓	✓	✓	✓	✓	No	2311-7	3.4.9.2	Water $>$ 23' over fuel	
✓	✓	✓	✓	✓	✓	✓		2315-R4	3.9.11	Verify cleanup performance	
✓	✓	✓	✓	✓	✓	✓		2303-R28	3.9.12		
✓	✓	✓	✓	✓	✓	✓		--	3.3.3.1	Refer to T.S. 3.3.3.1 ACTION STATEMENTS	
✓	✓	✓	✓	✓	✓	✓		2311-1	3.1.1.1.1	Verify S/D Margin within one hour & each 12 hrs per T.S. Req'tmt 4.1.1.1.1	
✓	✓	✓	✓	✓	✓	✓		--	3.3.1.1	Refer to T.S. 3.3.1.1 ACTION STATEMENTS	
✓	✓	✓	✓	✓	✓	✓		2304-302	3.4.8	Isotopic Anal for Iodine each 4 hours	
✓	✓	✓	✓	✓	✓	✓		2311-5	3.5.2	Visual Inspection of RB	
✓	✓	✓	✓	✓	✓	✓		2311-5	3.6.1.1 3.6.1.3	Flow test door seal $>$ 10 psig after each use, INSP.	
✓	✓	✓	✓	✓	✓	✓		--	3.3.2.1.1	Refer to T.S. 3.3.2.1. ACTION STATEMENTS	
✓	✓	✓	✓	✓	✓	✓		2303-M17	3.6.3.1.1	Check Valve for cycling and closure time	

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MAR 28 1979

ENCLOSURE 5  
EVENT RELATED SURVEILLANCE REQUIREMENTS

2301-SI  
Revision 12  
11/09/78

MODE						EVENT DESCRIPTION	EVENT EXISTS ?			PERFORM S.P. NO.	RELATED TS ACTION NO.	SURVEILLANCE REQUIREMENTS
6	5	4	3	2	1		3	2	1			
		✓	✓	✓	✓		Control Rm HEPA/CHARCOAL housing Maint., or after painting, fire or chemical release in vent area					
		✓	✓	✓	✓	Sec. Sys. Gross Iodine Activity is > 10% of Limit				2304-3D2	3.7.1.4	Do Primary Isotopic Analysis for I-131 DOSE EQUIV ea 31
			✓	✓	✓	NRSW Source to Aux FW Pumps				2301-S-1 App. F	3.7.1.3	Verify for one (10 NSRW Sy OPERABLE each 8 hours
			✓	✓	✓	CSTS Source to Aux FW Pumps				2301-S1 Encl. 1	3.7.1.3	Verify level > ft ea 8 hr
			✓	✓	✓	Following a thermal power change exceeding 15% of the RTP within a 1hr period.				2304-3D2	3.4.8	Do Primary Isotopic analysis for Iodine between 2 & 6 Hr
			NOTE 2	✓	✓	CF TK VOL INC >1% of Capacity				2304-M1	3.5.1	Verify Boron Conc within 6 hours.
					✓	RCS T-AVE <535°F				2311-2	3.1.1.4	Verify T-ave >525°F as 1/2
				✓	✓	RC Pump Combination Change				2311-6	3.4.1	Reset RPS Setpoint vs. RC Pump Comb within 4 hours
				✓	✓	CRD Maintenance/Modification				2303-R1	3.1.3.5	Verify CRD DROP time
				✓	✓	CRD Patch Panel Testing/Maint				2311-3	3.1.3.8	Verify CRD Programming
				✓	✓	RB HEPA/CHARCOAL housing maint., or after painting, fire or chemical release in ventilation area				2303-R15	3.6.4.3	H <sup>2</sup> Purge and Exhaust Performance evaluation
				✓	✓	Asym Rod Monitor INOPERATIVE				2301-S1 APP. C	3.1.3.1 3.1.3.2 3.1.3.3	Verify individual and group Rod Positions ea. 4 hours
				✓	✓	Reg Rod INSERT Limit alarm INOP				2301-S1 App. D	3.1.3.7	Verify reg groups within insert limits each 4 hours
				✓	✓	GRD Sequence Alarm INOP				2301-S1 App. D	3.1.3.7	Verify SEQ don OVERLAP in limits each 4 hours.

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MODE	EVENT DESCRIPTION			EVENT EXISTS?		PERFORM S.P. No.	RELATED TS ACTION No.	SURVEILLANCE REQUIREMENT
	1	2	3	YES	NO			
6				3	2	2311-F2	3.1.3.1 (C.2.C)	Determine Power Distribution with 72 hours Determine Mod. Temp. Coeff Within 7 days
		✓				2311-F4	3.1.1.3	Determine Mod Temp Coeff.
		✓				2311-F4	3.1.1.3	Calc Axial Pwr IMB ea 1 hr.
		✓				2301-S1 App. E	3.2.1	Calc Quad Pwr Tilt ea. 1 hr.
						2301-S1 App. G	3.2.4	Determine Xenon Reactivity Equilibrium
						2311-4	3.1.3.9	Determine Nuclear Heat Flux-Hot Channel Factor
						2311-2	3.2.2 3.2.3	Calib Incore Detector Chan within 7 days prior to use.
						2302-R4	3.3.3.2	Reactivity Anomaly Check
						2311-F1	3.1.1.1	

MODES: 1, 2, 3, 4, 5, 6 (As Indicated) PRESENT MODE

NOTES:

1. With Keff ≥ 1.0

2. RC Press > 800 PSIG.

3. When > 15% of RTP

4. When > 40% of RTP

5. When > 20% but < 75% of RTP

PERFORMED BY: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

DATE: **MAR 28 1979**

COMMENTS: \_\_\_\_\_

229 317

APPENDIX A  
OTSG PRESSURE/TEMPERATURE LIMITATION

2301-S1  
Revision 0  
08/15/77

SURVEILLANCE REQUIREMENT: Data in this appendix is required at least once per hour when OTSG secondary pressure is >237 psig and T-ave is <200°F

PARAMETER \ TIME																				
OTSG A TT1, °F																				
OTSG A TT2, °F																				
OTSG B TT1, °F																				
OTSG B TT2, °F																				
OTSG A PT1, PSIG																				
OTSG A PT2, PSIG																				
OTSG B PT1, PSIG																				
OTSG B PT2, PSIG																				
RC Tave, °F																				

REQUIRED TECH SPEC ACTION:

Implement T.S. ACTION Paragraph 3.7.2.1 if OTSG Temperature  $\leq 110^{\circ}\text{F}$  whenever OTSG Pressure >237 PSIG.

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_

MODES 1, 2, 3, 4, 5, 6

	PERFORMED BY:	APPROVED BY:
3		
1		
2		

FLOOD PROTECTION

SURVEILLANCE REQUIREMENT:

Data in this appendix is required at least once per two (2) hours when River Water level is  $\geq$  301 feet Mean Sea Level.

TIME	RIVER WATER LEVEL (ft)	PERFORMED BY:	APPROVED BY:

MODE 1, 2, 3, 4, 5, 6

DATE: \_\_\_\_\_

TECH SPEC REQUIREMENT:

See T.S. ACTION No. 3.7.6.1 if the River Water level exceeds 302 ft MSL.

APPENDIX C

ASYM ROD MONITOR INOP

2301-S1  
Revision 2  
12/22/77

Page 1 of 2

SURVEILLANCE REQUIREMENT:

Data in this appendix is required at least once per four (4) hours if the ASYM Rod Monitor is INOPERATIVE.

TIME	Gr-Rd	API	RPI	API	RPI	API	RPI	API	RPI	API	RPI	API	RPI
1-1													
1-2													
1-3													
1-4													
2-1													
2-2													
2-3													
2-4													
2-5													
2-6													
2-7													
2-8													
3-1													
3-2													
3-3													
3-4													
3-5													
3-6													
3-7													
3-8													
4-1													
4-2													
4-3													
4-4													
4-5													
4-6													
4-7													
4-8													
5-1													
5-2													
5-3													
5-4													
5-5													
5-6													
5-7													
5-8													
5-9													
5-10													
5-11													
5-12													
6-1													



TIME	API	RPI	API	RPI	API	RPI	API	RPI	API	RPI	API	RPI
6-2												
6-3												
6-4												
6-5												
6-6												
6-7												
6-8												
6-9												
6-10												
6-11												
6-12												
7-1												
7-2												
7-3												
7-4												
7-5												
7-6												
7-7												
7-8												
7-9												
8-1												
8-2												
8-3												
8-4												
8-5												
8-6												
8-7												
8-8												

TIME	AVG	AVG	AVG	AVG	AVG	AVG	COMMENTS:
1							
2							
3							
4							
5							
6							
7							
8							

MODES 1 and 2

DATE: \_\_\_\_\_

TECH SPEC ACTION No.	T.S. REQUIREMENT	TIME	YES/NO
3.1.3.1	All Control Rods <u>+6.5%</u> of Gp?		
3.1.3.2	All APSR <u>+6.5%</u> of Gp?		
3.1.3.3	All Rods API <u>+4%</u> of RPI ?		
"YES"-No Further Action "NO"-Followup per T.S. Action No.		PERFORMED BY:	
		APPROVED BY:	

APPENDIX D

2301-S1  
Revision 0  
08/15/77

REGULATING RODS INSERTION LIMITS/SEQUENCE

SURVEILLANCE REQUIREMENT: Data in this appendix is required at least once per four (4) hours if:

Reg. Rod Insertion Limit Alarm is INOPERABLE.

CRD Sequence Alarm is INOPERABLE.  
(Check applicable EVENT)

\_\_\_\_\_ Date of EVENT.

\_\_\_\_\_ Time of EVENT

DATE:							
TIME:							
Regulating Rod Group Positions: (% W/D)		5					
		6					
		7					
T.S. ACTION No.	TECH SPEC REQUIREMENT:						
3.1.3.7	Reg Rods within Limits of Figure 1? YES/NO						
3.1.3.7	± 5% OVERLAP of Gp 5 and Gp 6/7? YES/NO						
"YES" ANSWER: No Further Action Required.							
"NO" ANSWER: Followup per T.S. ACTION No.							
PERFORMED BY:							
APPROVED BY:							

MODES 1 and 2

COMMENTS: \_\_\_\_\_

279522

2301-S1  
Revision 0  
08/15/77

APPENDIX E

AXIAL POWER IMBALANCE MONITOR INOP

SURVEILLANCE REQUIREMENT: Data in this appendix is required at least once per hour if the Axial Power Imbalance Monitor is inoperable.

TECH SPEC ACTION No.		TECH SPEC REQUIREMENT: "YES" - No Further Action Required "NO" - Followup per T.S. ACTION No.					
3.2.1		IS AXIAL POWER IMBALANCE WITHIN LIMITS OF FIGURE 2					
TIME	CONTROL CONSOLE INDICATORS				PERFORMED BY:	YES	NO
	NI-5 IMB $\emptyset$	NI-6 IMB $\emptyset$	NI-7 IMB $\emptyset$	NI-8			

PERFORMED BY: \_\_\_\_\_

PERFORMED BY: \_\_\_\_\_

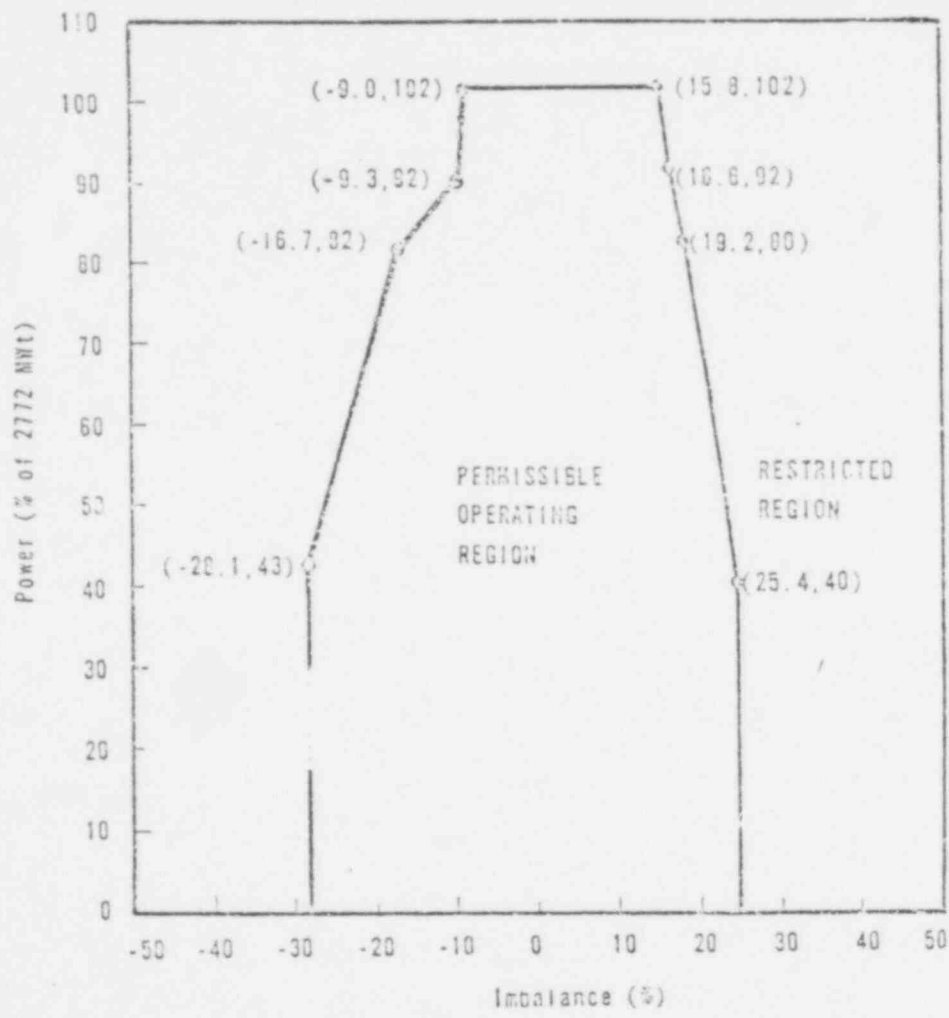
PERFORMED BY: \_\_\_\_\_

CALCULATION: (1) Determine average Power ( $\emptyset$ ) = (NI-5 + NI-6 + NI-7 + NI-8) ÷ 4  
 (2) Using IMB reading and average  $\emptyset$ , refer to Figure 2 and verify that axial power imbalance is within allowable limits.  
 (3) Answer YES or NO in appropriate space.

MODE: 1 (>40% RTP) DATE: \_\_\_\_\_

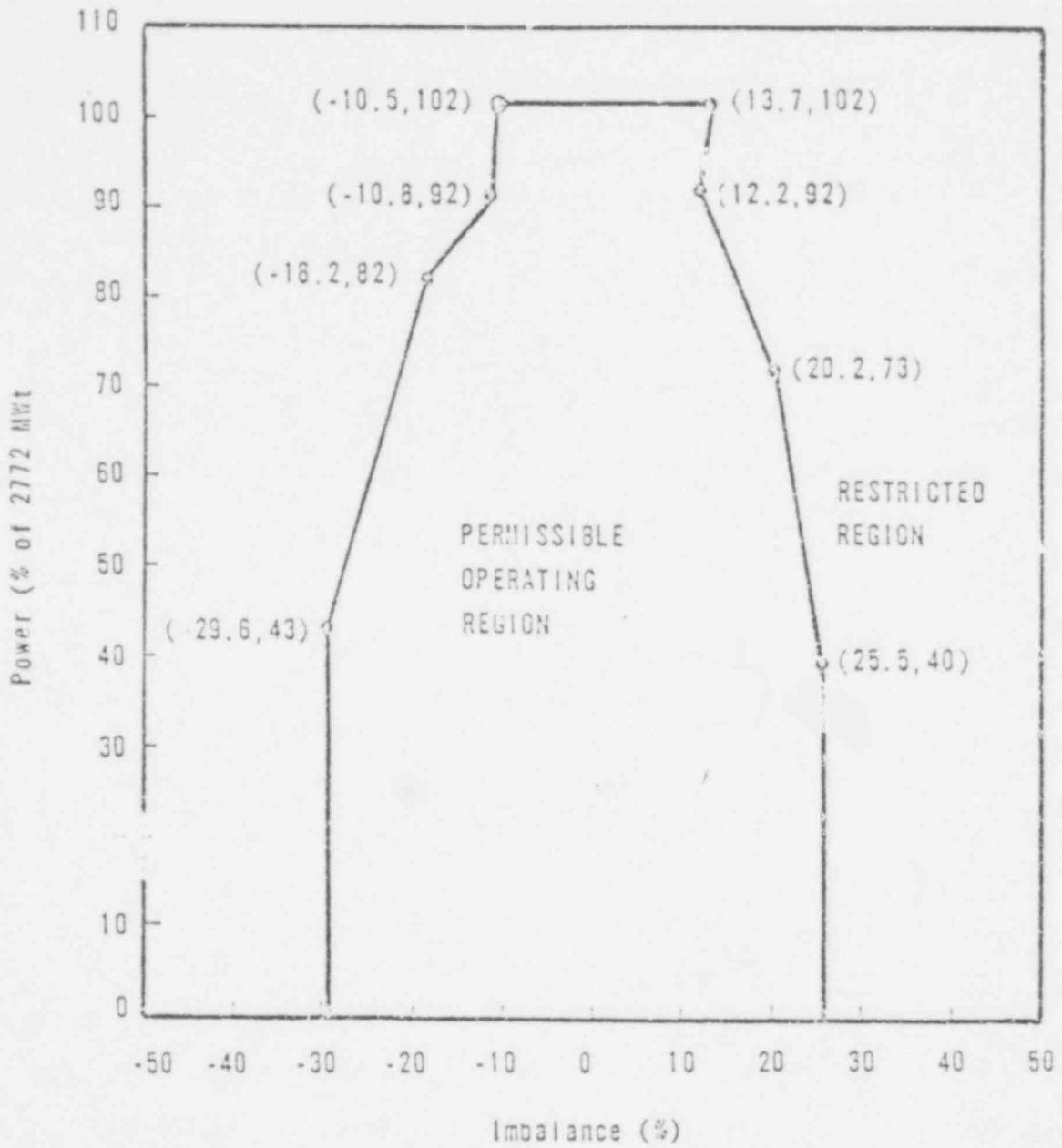
SHIFT	-3-	-1-	-2-
APPROVED BY:			

229 323



CORE IMBALANCE VS POWER LEVEL  
(0-200 ± 10 EFPO'S)

Figure 2



CORE IMBALANCE VS POWER LEVEL  
(200-421 ± 10 EFPO'S)

Figure 2

APPENDIX F

2501-S1  
Revision 0  
08/15/77

NSRW SOURCE TO AUX FW PUMPS

SURVEILLANCE REQUIREMENT: Data in this appendix is required at least once per shift whenever the Nuclear Services River Water System is the supply source for the auxiliary feedwater pumps.

		(✓)					(✓)		
		3	1	2			3	1	2
1.a	IS NR Loop A Operating	YES			1.b	IS NR Loop B Operating	YES		
		NO					NO		
2.a	If YES - Verify that the following valves are positioned as shown:	INITIALS			2.b	If YES - Verify that the following valves are positioned as shown:	INITIALS		
		3	1	2			3	1	2
	NR-V25A OPEN					NR-V25B OPEN			
	NR-V26A OPEN					NR-V26B OPEN			
	NR-V28A CLOSED					NR-V28B CLOSED			
	NR-V27A CLOSED					NR-V27B CLOSED			
3.a	Verify "A" Loop Operability by cycling NP V27 when CLOSED	INITIALS			3.b	Verify "B" Loop Operability by cycling NR-V27B OPE. then CLOSED	INITIALS		
		3	1	2			3	1	2

TECH SPEC ACTION No.	TECH SPEC REQUIREMENT:	3	1	2
	"YES" - No Further Action Req'd. "NO" - Followup per T.S. ACTION No.			
3.7.1.3	NR Loop "A" or "B" is OPERABLE			
	YES/NO			
	TIME:			

MODES: 1, 2, 3

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

SHIFT:	-3-	-1-	-2-
APPROVED BY:			

229 326

APPENDIX G

2301-91  
Revision 7  
05/24/78

QUADRANT POWER TILT MONITOR INOP

SURVEILLANCE REQUIREMENT: Data in this appendix is required at least once per eight (8) hours if the Quadrant Power Tilt Monitor is INOPERATIVE.

DATE: \_\_\_\_\_

TECH SPEC ACTION No.	T.S REQUIREMENT: "YES" - No Further Action Required. "NO" - Followup per T.S. ACTION No.				
3.2.4	Quadrant Power Tilt is within limits of Table G.				
	SHIFT	-3-	-1-	-2-	
	TIME				
1	Calculate Quadrant Power Tilt per 2103-1.11 (enter results and attach Data Sheets)				
2	Is Quadrant Power Tilt within limits per Table G? (YES/NO)				
3	PERFORMED BY:				
	APPROVED BY:				

TABLE G

QUADRANT POWER TILT LIMITS

	STEADY STATE LIMIT	TRANSIENT LIMIT	MAXIMUM LIMIT
Measurement Independent QUADRANT POWER TILT	3.69	9.74	20.0
QUADRANT POWER TILT as Measured by:			
Symmetrical Incore Detector System	2.30	7.71	20.0
Power Range Channels	0.96	5.88	20.0
Minimum Incore Detector System	1.72	3.71	20.0
	33.0		

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APPENDIX II

BORON REDUCTION IN RCS

2301-S1  
Revision 2  
12/22, 77

SURVEILLANCE REQUIREMENT: Data in this appendix is required at least once per hour whenever a boron reduction in the RC System is being made.

Reduction in RCS boron concentration began MAR 28 1979 completed \_\_\_\_\_  
TIME/DATE TIME/DATE

TECH SPEC ACTION NO.	DESCRIPTION	ACTUAL															
3.1.1.2	TIME: (HOURLY ± 7 min)	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500						
	>2300 gpm (✓)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
	TIME: (HOURLY ± 7 min)																
	>2800 gpm (✓)																

REQUIRED TECH SPEC ACTION

With RCS flow <2800 gpm, immediately suspend all operations involving a boron reduction of the RCS per Tech Spec ACTION: No. 3.1.1.2

	- 3 -	- 1 -	- 2 -
PERFORMED BY:	<i>C. Taylor</i>		
APPROVED BY:			

COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

TEN 2-79-30

229 328



APPENDIX I  
RCS TOTAL FLOW

1. Obtain a current reading of computer points 1715 and 1716 (Average RC Flow A and B, respectively).

NOTE: If computer is unavailable obtain flow rate from RC Total Flow Recorder on Panel 4 and use as X below in formula.

2. Add computer point values 1715 and 1716.

$$X = 1715 + 1716 \text{ (Average RC Flow A + Avg. RC Flow B)}$$

$$X = \text{R.C. Total Flow}$$

3. Determine value for specific volume of RCS from Table I, its notation is in formula.

4. Substitute values in formula below to determine RC flowrate in GPM.

$$\left( X \frac{\text{lbs.}}{\text{hr.}} \right) \left( \frac{7.4805 \text{ gal/ft}^3}{60 \text{ min/hr}} \right) \left( \frac{\text{ft}^3}{16} \right) = \text{RC Flow (GPM)}$$

5. RC Flow must be greater or equal to ( $\geq$ )

382,655 GPM for 4 RC Pump Operation

284,606 GPM for 3 RC Pump Operation

185,542 GPM for 2 RC Pump Operation

per Tech Spec 3.2.5

NOTE: This includes 1.5% instrument error.

*See TRW 2-79-30  
JC*

*229 329*

Table I: Specific Volume

PSIG

°F

	2100	2110	2120	2130	2140	2150	2160	2170	2180
530	.02082	.02082	.02081	.02081	.02081	.02081	.02080	.02080	.02080
540	.02009	.02009	.02008	.02008	.02008	.02007	.02007	.02007	.02007
550	.02137	.02137	.02137	.02136	.02136	.02136	.02135	.02135	.02135
560	.02168	.02167	.02167	.02167	.02166	.02166	.02166	.02165	.02165
570	.02201	.02201	.02201	.02200	.02200	.02199	.02199	.02199	.02199
580	.02238	.02237	.02237	.02237	.02236	.02236	.02236	.02235	.02235
590	.02278	.02278	.02277	.02277	.02276	.02276	.02275	.02275	.02274
600	.02223	.02222	.02222	.02221	.02221	.02220	.02220	.02219	.02218
610	.02274	.02273	.02272	.02272	.02271	.02270	.02269	.02269	.02268

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GROUP 12  
23:52:16  
03/27/79

OPERATOR SPECIAL SUMMARY B

0390	RC LOOP A OUTLET TEMP	505.9
0589	RP LOOP A RC OUTLET TEMP 1 (RRRW)	605.8
0590	RP LOOP A RC OUTLET TEMP 2 (RRRW)	511.0
0592	RC LOOP A INLET TEMP NARROW 1	511.5
0393	RC LOOP A INLET TEMP NARROW 2	511.3
0591	RC LOOP B OUTLET TEMP	515.4
0591	RP LOOP B RC OUTLET TEMP 1 (RRRW)	506.1
0592	RP LOOP B RC OUTLET TEMP 2 (RRRW)	05.7
0395	RC LOOP B INLET TEMP NARROW 1	57.2
0396	RC LOOP B INLET TEMP NARROW 2	557.4
1685	WFFA SP FDWTR FL A DP (K LB/HR)	5793.
1686	WFFB SP FDWTR FL B DP (K LB/HR)	5742.
0605	RP LOOP A RC DELTA PRESS (1IN/H2O)	646.5
0606	RP LOOP B RC DELTA PRESS (1IN/H2O)	697.3
0586	RP LOOP A RC PRESS 2 (RRRW)	2147.
1713	TOUTA AVG TEMP REACTOR OUTLET A	605.7
1702	TINA SL REACTOR INLET TEMP A	557.4
1714	TOUTB AVG TEMP REACTOR OUTLET B	605.7
1703	TINB SL REACTOR INLET TEMP B	556.9
1778	TSTA AVG SP MAIN STEAM TEMP A	595.2
1780	PSTA AVG STEAM PRESSURE A PSIA	920.
1779	TSTB AVG SP MAIN STEAM TEMP B	594.1
1781	PSTB AVG STEAM PRESSURE B PSIA	919.
1776	TFWA AVG FEEDWATER TEMP A	464.0
1777	TFWB AVG FEEDWATER TEMP B	460.3
1715	WRCA AVG RC FLOW A (M LB/HR)	67.98
1716	WRCB AVG RC FLOW B (M LB/HR)	70.43
0478	SP FDWTR FLOW A DP (1IN/H2O)	939.
0480	SP FDWTR FLOW B DP (1IN/H2O)	896.
0134	3STG HTR B OUTLET PRESS	1016.
0135	2STG HTR A OUTLET PRESS	1006.
1750	CORPW CORE POWER THERMAL (MW)	2715.