

TMI DOCUMENTS

DOCUMENT NO: TM-046

COPY MADE ON 5/3/79 OF DOCUMENT PROVIDED BY
METROPOLITAN EDISON COMPANY.

W.R.M.
Wilda R. Mullinix, NRC

7906140096

188 250

CONTROLLED COPY CENTRAL FILE

2301-S1
Revision 15
03/14/79

39

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

APR 23 1979

Table of Effective Pages

Page	Date	Revision	Page	Date	Revision	Page	Date	Revision
1.0	12/22/77	2	25.0	08/15/77	0			
2.0	03/21/78	5	26.0	12/22/77	2			
3.0	08/15/77	0	27.0	12/22/77	2			
4.0	08/15/77	0	28.0	08/15/77	0			
4.1	03/09/78	4	29.0	08/15/77	0			
5.0	12/22/77	2	30.0	08/15/77	0			
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			
10.0	11/09/78	12	35.0	01/12/79	13			
11.0	03/14/79	15	36.0	01/12/79	13			
12.0	06/12/78	8						
13.0	03/09/78	4						
14.0	03/14/79	15						
14.1	08/15/78	9						
15.0	11/09/78	12						
16.0	01/30/78	3						
17.0	01/30/78	3						
18.0	01/30/78	3						
19.0	03/09/78	4						
20.0	12/22/77	2						
21.0	06/12/78	8						
22.0	11/09/78	12						
23.0	12/22/77	2						
24.0	08/15/77	0						

Unit 1 Staff Recommends Approval

Approval NA Date
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval NA Date
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

NA Date
Chairman of PORC

Unit 2 PORC Recommends Approval

NA Date 3/12/79
Chairman of PORC

Unit 1 Superintendent Approval

NA Date

Unit 2 Superintendent Approval

NA Date 5/14/79

Manager Generation Quality Assurance Approval NA Date

188 251

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

APR 23 1979

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.

APR 23 1979

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
	Narrow Range A RC-3A PR1	RC Press NR-A	Panel 4
	Narrow Range B 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
R.C. Flow	Ch. 3 RC-3B PT3	RCS Press.	Cab. 126
	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. Press (Remote)	Wide Range BS-PT43882	R.B. WR Prsss	BS-PR4338 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-PT4338-1	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
	RPS BS-PS-3570	R.B. Press Ch. B	Rack 472
	RPS BS-PS-3572	R.B. Press Ch. B	Rack 472
	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. C	Rack 467
		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 2-11FB
		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
	CO-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 Screen House
River Water Level	NA	NA	
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	Δ Flux NI-5	Panel 4
	NI-6	Δ Flux NI-6	
	NI-7	Δ Flux NI-7	
	NI-8	Δ 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	

3
APR 23 19772301-S1
Revision 0
08/15/77

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 C & D
RCS Press	RC-3A PT1 & 2 RC-3B PT1 & 2	Pressure	RPS Cab A, 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

APR 23 1978

2301-S1
Revision 4
03/09/78

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 P	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

Oct 7

5.0 ATTACHMENTS5.1 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 Index 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.

8
APR 23 1979

- b. "Appendix" data sheets are EVENT RELATED and shall only 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 is not 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.

188 258

APR 23 1979

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.

APR 23 1979

Page 1 of 6

9.0

ENCLOSURE 1
SHIFT AND DAILY SURVEILLANCE CHECKS
MISCELLANEOUS SURVEILLANCE ITEMS

2301-S1
Revision 12
11/09/78

Page of APR 25 1979

APPLICABLE MODES: 1, 2, 3, 4 Sh 1 of 2		PRESENT MODE		
TECH SPEC ACTION NO.	DATA DESCRIPTION	ACTUAL		
		3	1	2
3.3.3.6	Chlorine Det - Air Intake Tunnel, Conc.			
3.3.3.6	Chlorine Det - Control Room Supply, Conc.			
3.4.5	OTSG (A) Startup Level (In.)			
3.4.5	OTSG (B) Startup Level (In.)			
3.4.5	OTSG Level (A) Full Range (In.)			
3.4.5	OTSG Level (B) Full Range (In.)			
3.4.5	OTSG Level (A) LT-3 Oper. Range (%)			
3.4.5	OTSG Level (B) LT-3 Oper. Range (%)			
3.4.5	OTSG Level (B) LT-2 Oper. Range (%)			
3.4.5	OTSG Level (A) LT-2 Oper. Range (%)			
3.6.1.4	RB Press WR (Red)			
3.6.1.4	RB Press NR (Green)			
3.6.1.4	RB Press WR (Red)			
3.6.1.4	RB Press NR (Green)			
3.6.1.5	RB Average Air Temp.			
3.6.1.5	Location a. EL 353-1 AMB Rec. Pt. 11 Panel 25			
3.6.1.5	Location b. EL 353-2 AMB Rec. Pt. 12 Panel 25			
3.6.1.5	Location c. EL 330-1 AMB Rec. Pt. 13 Panel 25			
3.6.1.5	Location d. EL 330-2 AMB Rec. Pt. 14 Panel 25			
3.6.1.5	Location e. EL 310-1 AMB Rec. Pt. 15 Panel 25			
3.6.1.5	Location f. EL 310-2 AMP Rec. Pt. 16 Panel 25			
3.6.1.5	AVERAGE = $\frac{a+b+c+d+e+f}{6}$ =			

DATE

REQUIRED

In Green or Yellow Band

In Green or Yellow Band

OTSG water level is less than 390 i on the full range, less than 99% on the operating range and greater than 18 inches on the Startup Range.

RB Internal Pressure is between -2 and +3 PSIG

The arithmetical average RB air temperature shall not exceed 130°F.

SURVEILLANCE CHECKS ARE AS REQUIRED? (YES/NO)

YES-NO FOLLOW UP
NO-FOLLOW UP PER

Performed By:	<u>31</u>	Time	<u>11</u>	Time	<u>21</u>	Time
Approved By:						

188 262

APR 29 1979

ENCLOSURE 1

SHIFT AND DAILY SURVEILLANCE CHECKS
MISCELLANEOUS SURVEILLANCE ITEMS

2301-S1 03/14/79 13

Revision 15

Page 3 of 6

APPLICABLE MODES: 1,2,3,4 Sh 2of2		PRES.	MODE	DATE		
TECH SPEC ACTION NO.	DATA DESCRIPTION	ACTUAL			REQUIRED	
		3	1	2		
3.7.5.1	River Water Level				>271 ft.	
3.7.5.1	River Water Temp				<90°F	
3.7.7.1	Control Room Air Temp				<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					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 ³ x 7.48 gal/ft ³ x #Sump Pump Starts)					
	*No. of RB Sump Pump Starts since last reading. If computer is 0.0.S, Place Control Switches for R.B. Sump Pumps in OFF. Monitor R.B. Sump Level every 4 hrs. (Log level in CRO 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				< 90 hrs. in proceeding 365 day	
3.6.5	AH-E-52A in operation (MCC-2-35) Yes/No				At least one Reactor vessel skirt fan shall be in operation	
3.6.5	AH-E-52B in operation (MCC-2-47) Yes/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	TIME	1	TIME	2	TIME
APPROVED BY:				188 263		

ENCLOSURE 1
SHIFT AND DAILY SURVEILLANCE CHECKS
MISCELLANEOUS SURVEILLANCE ITEMS

APR 23 1979

2301-S1
Revision 8
06/12/78
Page 4 of 6

14

APPLICABLE MODES: 1,2,3		PRESENT MODE		DATE		
TECH SPEC ACTION NO.	DATA DESCRIPTION	ACTUAL			REQUIRED	
		3	1	2		
3.4.4	Pressurizer Level LT-1				PZR Level is between 45 and 385 in.	
3.4.4	Pressurizer Level LT-2					
3.4.4	Pressurizer Level LT-3					
3.5.1	Core Flood Tank "A" Level LT-1A1				CF Tank Level is between 2.55' and 3.45'	
3.5.1	Core Flood Tank "B" Level LT-1B1					
3.5.1	Core Flood Tank "A" Level LT-2A2					
3.5.1	Core Flood Tank "B" Level LT-2B2					
3.5.1	Core Flood Tank "A" Pressure PT-1A1				CF Tank Nitrogen Pressure is between 575 and 625 (PSIG)	
3.5.1	Core Flood Tank "B" Pressure PT -1B1					
3.5.1	Core Flood Tank "A" Pressure PT - 1A2					
3.5.1	Core Flood Tank "B" Pressure PT-2B2					
3.5.1	CF Tk "A" Isol Vlv (CF-V1A) OPEN				Valves are Positioned as indicated (✓). NOTE: Required when RCS Pressure is >750 PSIG	
3.5.1	CF Tk "B" Isol Vlv (CF-V1B) OPEN					
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					
3.7.1.3	LT A Local Level Indicator					
3.7.1.3	LT B Console Level Indicator					
3.7.1.3	LT B Local Level Indicator					
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				White Ind. Light (27x) Lit	
3.3.2.1	4KV Emerg Bus 2-4E Under Voltage					
SURVEILLANCE CHECKS ARE AS REQUIRED? (YES/NO)					YES-NO FOLLOWUP NO-FOLLOWUP PER TS	
Performed By:	3	TIME 1	TIME 2	TIME	188 264	
Approved By:						

ENCLOSURE 1
SHIFT AND DAILY SURVEILLANCE CHECKS
MISCELLANEOUS SURVEILLANCE ITEMS

APR 23 1978

03/09/78
2301-S1
Revision 4

15

APPLICABLE MODES: 1,2,3		PRESENT MODE	ACTUAL			REQUIRED
TECH SPEC ACTION NO.	DATA DESCRIPTION		3	1	2	
3.3.2.1	RCS Press Chan 1. (ES Cab No. 124)					Channel check satisfactory by comparison of Readings. log indicated value.
3. 2.1	RCS Press Chan. 2 (ES Cab No. 125)					
3.3.2.1	RCS Press Chan. 3 (ES Cab No. 126)					
3.3.2.1	RB Press (BS-PS-3261) Instrument Rack 467					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					
3.3.2.1	RB Press (BS-PS-396) Instrument Rack 472					
3.3.2.1	RB Press (BS-PS-3259) Instrument Rack 472					
3.3.2.1	RB Press (BS-PS-3260) Instrument Rack 455					
3.3.2.1	RB Press (BS-PS-3988) Instrument Rack 455					
SURVEILLANCE CHECKS ARE AS REQUIRED? (YES/NO)						YES-NO FOLLOWUP NO-FOLLOWUP PER TS
Performed By:						TIME 88 265
Approved By:						

ENCLOSURE 1
SHIFT AND DAILY SURVEILLANCE CHECKS
MISCELLANEOUS SURVEILLANCE ITEMS

APR 23 1979

2301-S1
Revision T5
03/14/79

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

188 266

APR 23 1978

2301-S1
Revision 9
08/15/78ENCLOSURE 1
SHIFT AND DAILY SURVEILLANCE CHECKS
MISCELLANEOUS SURVEILLANCE ITEMS

APPLICABLE MODES: ☒ ☐ ☐ ☐ PRESENT MODE		ACTUAL			REQUIRED
TECH SPEC ACTION NO.	DATA DESCRIPTION	3	1	2	
Applicable Modes: 3, 4, 5	☒ Present Mode				Complete 2311-F3 sd margin must be $\geq 1\% \Delta k/k$
Tech Spec. Action No.		ACTUAL			
		3	1	2	
3.1.1.1	Determine SD Margin to be $\geq 1\% \Delta k/k$ per S.P. 2311-F3	☒		☒	
SURVEILLANCE CHECKS ARE AS REQUIRED? (YES/NO)					YES-NO FOLLOWUP NO-FOLLOWUP PER
Performed By:	3	TIME	1	TIME	TIME
Approved By:			14.1		

188 267

ENCLOSURE 2
SHIFT AND DAILY SURVEILLANCE CHECKS

APR 28, 1979
2301-SI 11/09/78
Revision 12

18

APPLICABLE MODES: 1,2		PRESENT MODE																DATE	
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																		
	RPI																		
1	API																		
	RPI																		
2	API																		
	RPI																		

Gp-Rd	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	5-1
3	API																		
	RPI																		
1	API																		
	RPI																		
2	API																		
	RPI																		

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																		
	RPI																		
1	API																		
	RPI																		
2	API																		
	RPI																		

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												3	TIME
	RPI													
1	API												1	TIME
	RPI													
2	API												2	TIME
	RPI													

GROUP	1	2	3	4	5	6	7	8	COMMENTS:
PI	3								
AVG	1								
	2								

TECH SPEC ACTION NO.	IS REQUIREMENT:	YES/NO	YES/NO	
			3	1
3.1.1.1 **	S/D Margin ≥ 2 $\Delta k/k$ (Reg Rods within limits of Fig. 1)? when Keff ≥ 1.0			
3.1.3.1	All Safety & Reg Rods agree within $\pm 6.5\%$ of Gp AVG?			
3.1.3.2	All APSR AGREE within $\pm 6.5\%$ of Group AVG?			
3.1.3.3	Each Rod API & RPI agrees within $\pm 6.5\%$			
3.1.3.6 *	All Safety Rods Fully Withdrawn?			
3.1.3.7 *	Reg Rod Groups Positioned Per Fig 1 with $25 \pm 5\%$ Gp Overlap?			
** NOTE: Attach completed Data Sheet from Shutdown Calculations				

188 268

*Keff ≥ 1.0

15.0

2301-S1
Revision 3
01/30/78

APR 23 1979

CC 19

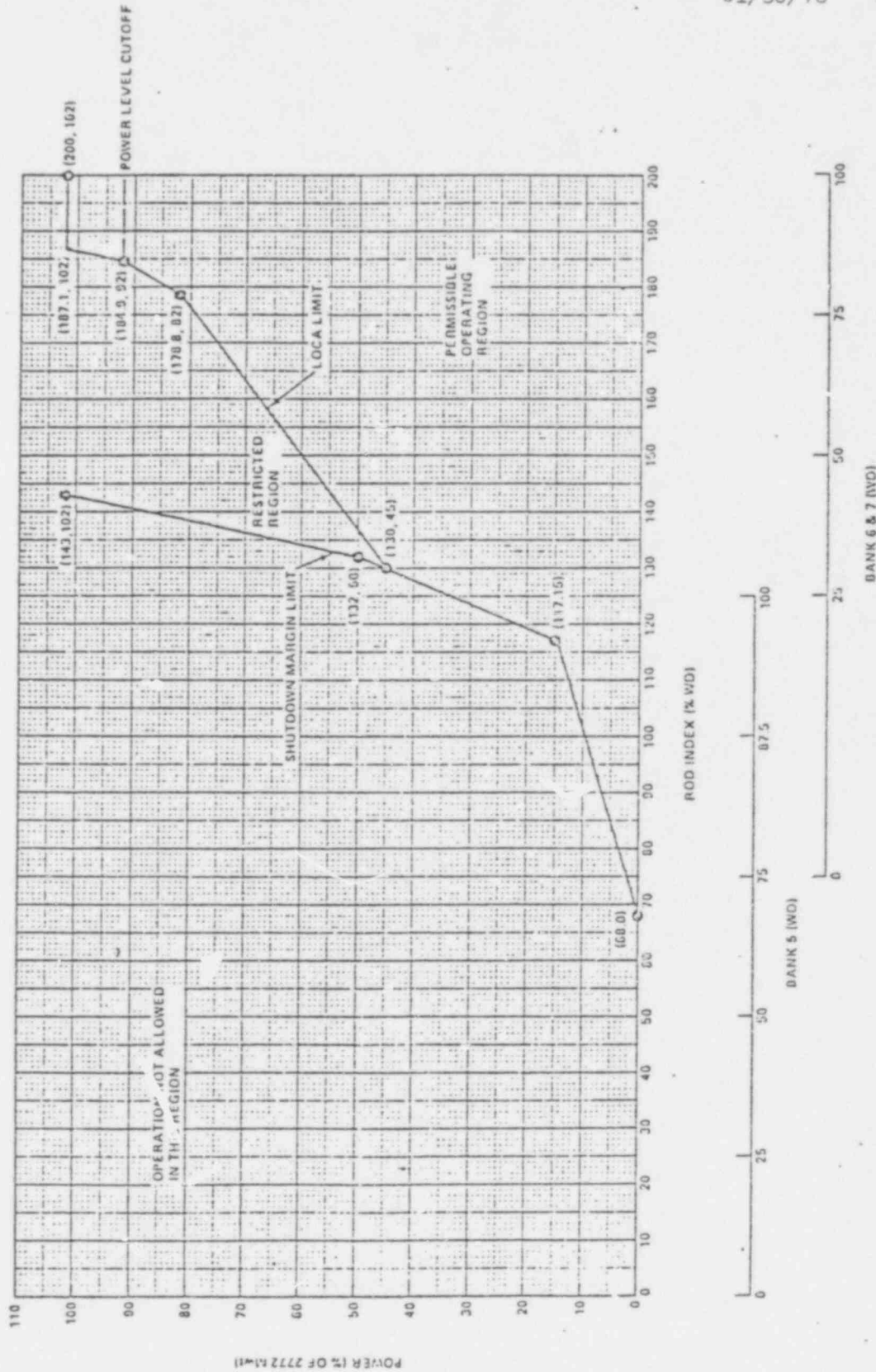


Figure 1a Regulating Rod Group Insertion Limits
(0-200 ± 10 EFDP's) 4 Pump Operation

2301-S1
Revision 3
01/30/78

APR 23 1979

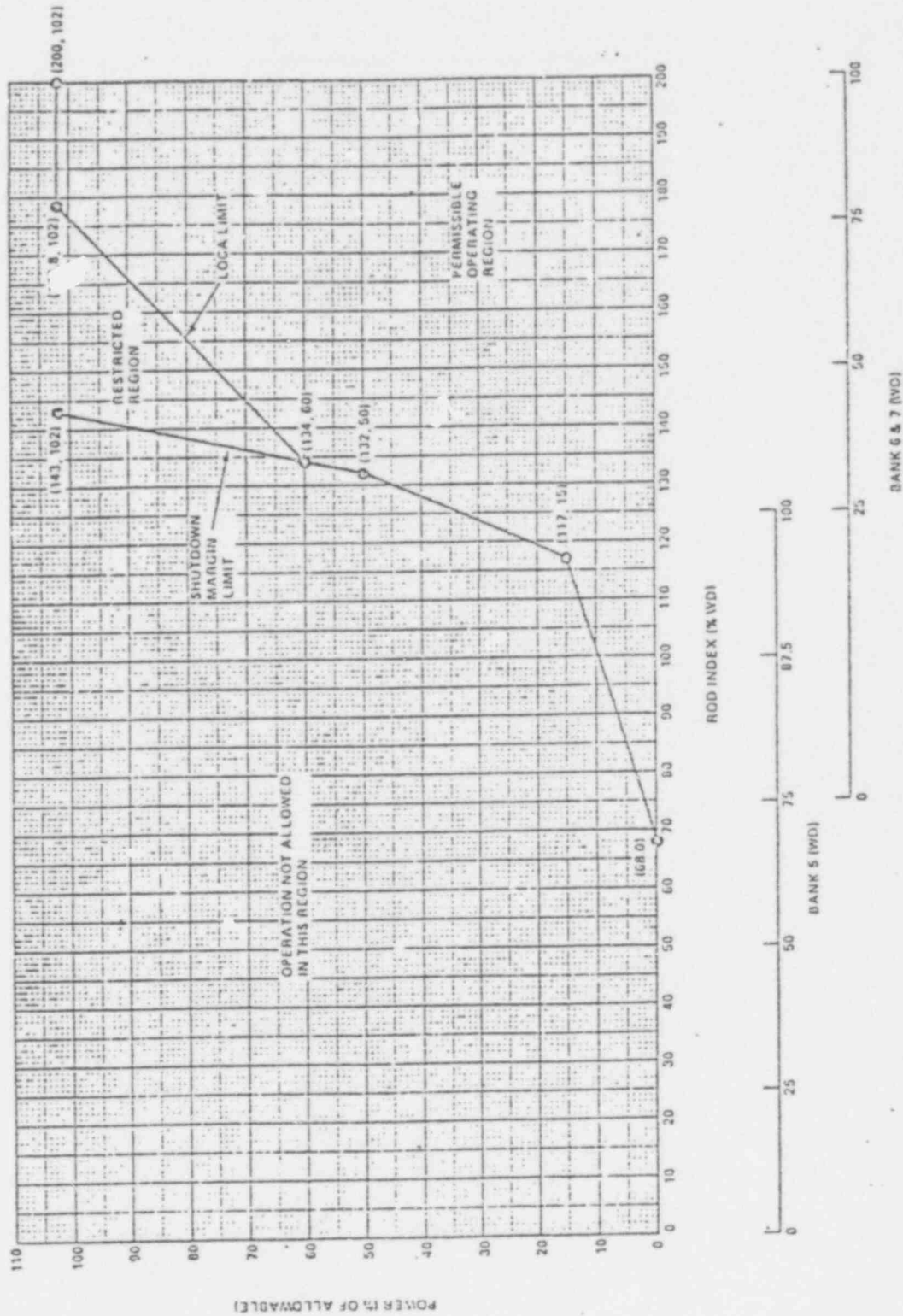


Figure 1-b Regulating Rod Group Insertion Limits
(0-200 ± 10 EFPD's) 3 Pump Operation

THREE MILE ISLAND - UNIT 2

17.0

188 270

2301-S1
Revision 3
01/30/78

APR 23 1979

CS

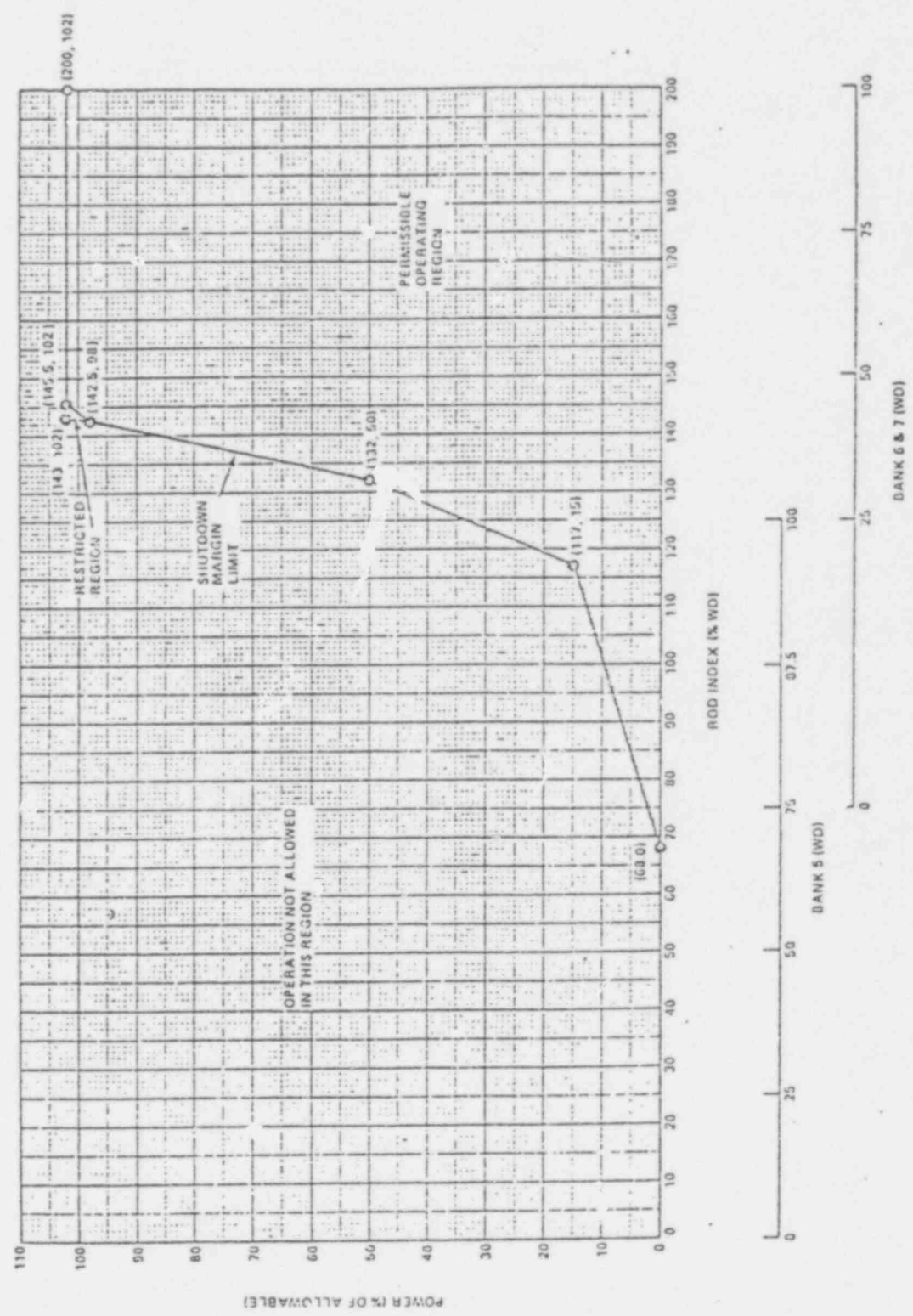


Figure 1c Regulating Rod Group Insertion Limits
(0-200 + 10 EFPD's) 2 Pump Operation

THREE MILE ISLAND - UNIT 2

18.0

188 271

ENCLOSURE 3

SHIFT AND DAILY SURVEILLANCE CHECKS
RPS INSTRUMENTATION CHANNEL CHECKS2301-S1
Revision 4
03/09/78

APR 23 1979

22

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

MODES 3, 4, & 5													
Shutdown Bypass	(N - Normal) (B - Bypass)												

MODES 2, 3, 4, & 5													
Source Range Flux (CPS)													
Source Range Rate (DPM)													

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)					

*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: _____

SHIFT:	- 3 -	- 1 -	- 2 -
Performed By:	TIME	TIME	TIME
Approved By:			188 272

APR 23 1979

Applicable Modes	Instrument	Source			Check		Sat 3rd Shift	T/S Action	Comments
		1st Shift			2nd Shift				
A11	HP-R-219 (P)							2.3.2(ETS) 3.3.3.1 3.4.6.1 3.4.6.2 3.4.6.1 3.4.6.2 3.4.6.1 3.4.6.2 3.4.6.1 3.4.6.2 3.4.6.1 3.4.6.2 3.4.6.1 3.4.6.2	
	Stat. Vent								
	HP-R-219								
	Stat. Vent (I)								
	HP-R-219								
	Stat. Vent (G)								
	HP-R-225								
	R.B. Purge (P)								
	HP-R-225								
	R.B. Purge (I)								
	HP-R-225								
	R.B. Purge (G)								
	HP-R-226								
	R.B. Purge (P)								
HP-R-226									
R.B. Purge (I)									
HP-R-226									
R.B. Purge (G)									
1,2,3,4	HP-R-227							3.3.3.1	
	RCS Leakage (P)							3.4.6.1	
	HP-R-227								
	RCS Leakage (G)								
Note (1)	HP-R-221B								
	F.H. Bldg Vent (P)							3.3.3.1	
Note (2)	HP-R-215								
	Crit. Monit.								

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.

The above radiation monitoring instrumentation is operable except as noted.

NOTE 1:

NOTE 2:

Required whenever irradiated fuel is in spent fuel pool.

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

188 273

PERFORMED BY:

APPROVED BY:

[illegible]

APR 23 1979

EVENT RELATED SURVEILLANCE REQUIREMENTS

Page 1 of 3

2301-S1
DATE Revision 8
06/12/78

MODE						EVENT DESCRIPTION	EVENT EXISTS?			PERFORM S.P. No.	RELATED T.S. ACTION No.	SURVEILLANCE REQUIREMENT
6	5	4	3	2	1		YES/NO					
							3	1	2			
✓	✓	✓	✓	✓	✓	Boron Reduction in RCS				2301-S1 App. H	3.1.1.2	RCS Flow ≥ 2800 GPM
✓	✓	✓	✓	✓	✓	Outside Air Temp < 40°F				2301-S1 Encl. 1	3.1.2.8 3.1.2.9 3.5.4	BWST Temp ≥ 40°F
✓	✓	✓	✓	✓	✓	OTSG Press >237 psig, T-Ave <200°F				2301-S1 App. A	3.7.2.1	OTSG Temp >110°F
✓	✓	✓	✓	✓	✓	River Water Level >301' MSL				2301-S1 App. B	3.7.6.1	Monitor Level ea. 2 hours
✓	✓	✓	✓	✓	✓	PZR Aux Spray in Operation				2311-7	3.4.9.2	Ck PZR/Spray ΔT <410°F ea. 2 hours
✓	✓	✓	✓	✓	✓	Irradiated fuel in Fuel Stg. Pool				2315-R4	3.9.11	Water ≥23' over fuel
✓	✓	✓	✓	✓	✓	Irradiated fuel in Fuel Stg Pool and (1) HEPA/CHARCOAL Housing Maint. or (2) following painting, fire or chemical release in the FH Bldg ventilation area				2303-R28	3.9.12	Verify cleanup performance
✓		✓	✓	✓	✓	RMS CHANNEL INOPERATIVE				--	3.3.3.1	Refer to T.S. 3.3.3.1 ACTION STATEMENTS
	✓	✓	✓	✓	✓	Inoperable Control Rod				2311-1	3.1.1.1.1	Verify S/D Margin within one hour & each 12 hrs per T.S. Req'mt 4.1.1.1.1
	✓	✓	✓	✓	✓	RPS Channel Inoperative				--	3.3.1.1	Refer to T.S. 3.3.1.1 ACTION STATEMENTS
	✓	✓	✓	✓	✓	Pri Spec Act. >1.0 μCi/gm. Dose Equiv I-131 or 100/E μCi/gm				2304-3D2	3.4.8	Isotopic Anal for Iodine each 4 hours
		✓	✓	✓	✓	Establishing containment Integrity				2311-5	3.5.2	Visual Inspection of RB
		✓	✓	✓	✓	Person. Airlock entry				2311-5	3.6.1.1	Flow test door seal > 10
						Equip Hatch Airlock entry (Seals broken) yes/no					3.6.1.3	psig after each use, INSP.
		✓	✓	✓	✓	ESF Channel Inoperative				--	3.3.2.1.1	Refer to T.S. 3.3.2.1. ACTION Statements
		✓	✓	✓	✓	R. B. Isol Valve Maintenance Repair or Replacement				2303-M17	3.6.3.1.1	Check Valve for cycling and closure time

188 274

APR 23 1979

ENCLOSURE 5
EVENT RELATED SURVEILLANCE REQUIREMENTS

APR 23 1979

Page 2 of 3

2301-S1
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				2302-R25	3.7.7.1	Verify cleanup performance
		✓	✓	✓	✓	Sec. Sys. Gross Iodine Activity is > 10% of Limit				2304-3D2	3.7.1.4	No Primary Isotopic Analysis for I-131 DOSE EQUIV ea 31 d
			✓	✓	✓	NRSW Source to Aux FW Pumps				2301-S-1 App. F	3.7.1.3	Verify for one (10 NSRW Sys. OPERABLE each 8 hours
			✓	✓	✓	CSTS Source to Aux FW Pumps				2301-S1 Encl. 1	3.7.1.3	Verify level > ft ea 8 hrs.
			✓	✓	✓	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 Hrs.
			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 hr
				✓	✓	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 ² Purge and Exhaust Performance evaluation
188				✓	✓	Asym Rod Monitor INOPERATIVE				2301-S1 APP. C	3.1.3.1 3.1.3.2 3.1.3.3	Verify idnividual and group Rod Positions ea. 4 hours
275				✓	✓	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 adn OVERLAP in limits each 4 hours.

MODE						EVENT DESCRIPTION	EVENT EXISTS?			PERFORM S.P. No.	RELATED TS ACTION No.	SURVEILLANCE REQUIREMENT
6	5	4	3	2	1		YES/NO					
							3	1	2			
				✓	✓	Asym. Rod Monitor Inoperative				2311-F2	3.1.3.1 (C.2.C)	Determine Power Distribution with 72 hours
				✓	✓	At RTP Equil. Boron Conc of 300 PPM				2311-F4	3.1.1.3	Determine Mod. Temp. Coeff Within 7 days
				✓	✓	Init. OP>5% RTP after fuel load				2311-F4	3.1.1.3	Determine Mod Temp Coeff.
				Note 4		Axial Pwr IMB Monitor INOP				2301-S1 App. E	3.2.1	Calc Axial Pwr IMB ea 1 hr.
				Note 3		Quad Pwr Tilt Monitor INOP				2301-S1 App. G	3.2.4	Calc Quad Pwr Tilt ea. 1 hr.
				✓		Inc Therm Pwr > Pwr Level Cutoff				2311-4	3.1.3.9	Determine Xenon Reactivity Equilibrium
				Note 5		Initial OPER > 75% RTP After each Fuel Loading				2311-2	3.2.2 3.2.3	Determine Nuclear Heat Flux-Hot Channel Factor
				✓		Incore Det. Sys. Used for Surv. Axial Pwr IMB or Quad Pwr Tilt				2302-R4	3.3.3.2	Calib Incore Detector Chan within 7 days prior to use.
				✓		After Ea. 31 EFPD accumulated				2311-F1	3.1.1.1	Reactivity Anomaly Check

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

PRESENT MODE

		-3-		-1-		-2-		NOTES:	
		TIME		TIME		TIME			
PERFORMED BY:								1. With Keff > 1.0	
APPROVED BY:								2. RC Press > 800 PSIG.	
DATE:								3. When > 15% of RTP	
COMMENTS:								4. When > 40% of RTP	
								5. When > 20% but < 75% of RTP	

APPENDIX A
OTSG PRESSURE/TEMPERATURE LIMITATION

APR 23 1979

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		

DATE: _____

188 277

APPENDIX B

FLOOD PROTECTION

2301-S1
Revision 0
08/15/77

APR 22 1979

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

APR 23 1979

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	Gp-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													

APPENDIX C

230T-SI
Revision 2

12/22/77

APR 23 1979

Page 2 of 2

TIME	Gp-Rd	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	Gp.	AVG	AVG	AVG	AVG	AVG	AVG	COMMENTS:
1								
2								
3								
4								
5								
6								
7								
8								

188 280

MODES 1 and 2

DATE: _____

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

APPENDIX D

REGULATING RODS INSERTION LIMITS/SEQUENCE

APR 23 1979

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

188 281

		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	25 + 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.									
MODES 1 and 2									
PERFORMED BY:									
APPROVED BY:									

COMMENTS:

APR 23 1979

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

[illegible]

CALCULATION:

(1) Determine average Power ($\bar{p}$) = $(NI-5 + NI-6 + NI-7 + NI-8) \div 4$

(2) Using IMB reading and average $\bar{p}$, refer to Figure 2 and verify power imbalance is within allowable limits.

(3) Answer YES or NO in appropriate space.

MODE: 1 (>40% RTP)

DATE:

188 282

SHIF7

-3-

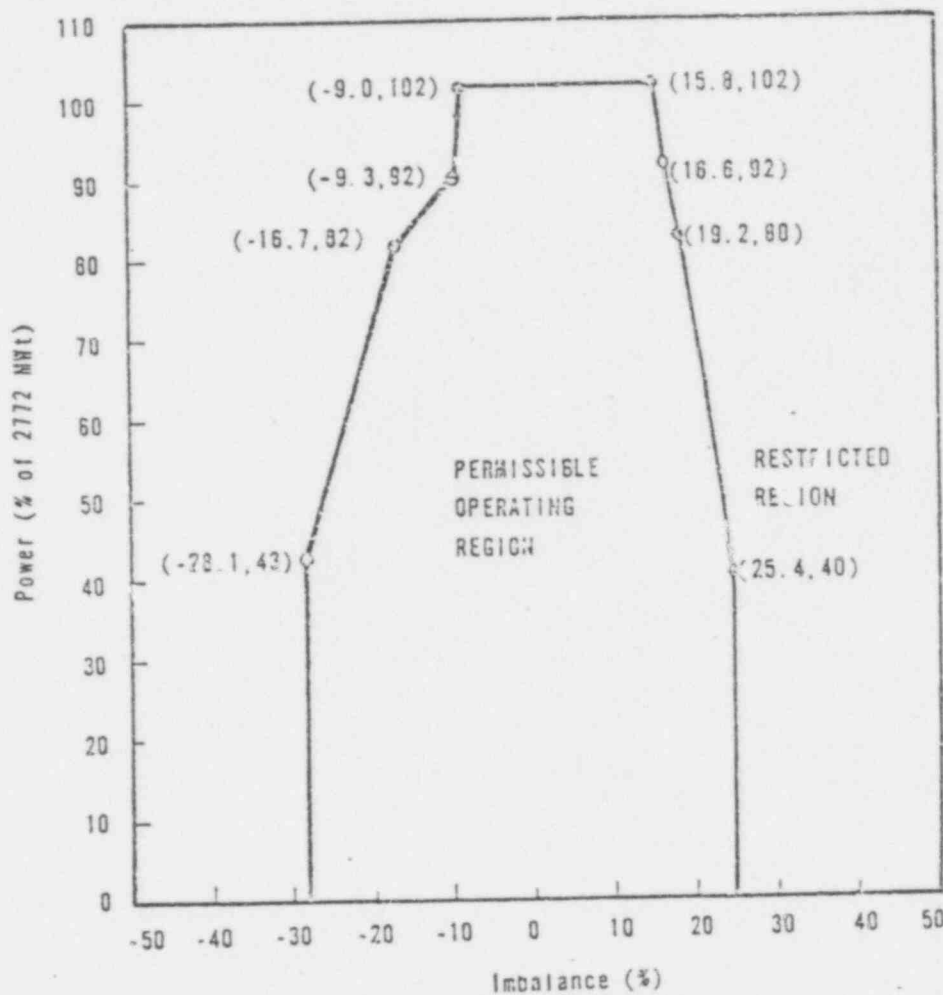
-7-

-2-

APPROVED BY:

CCJ

APR 23 1979

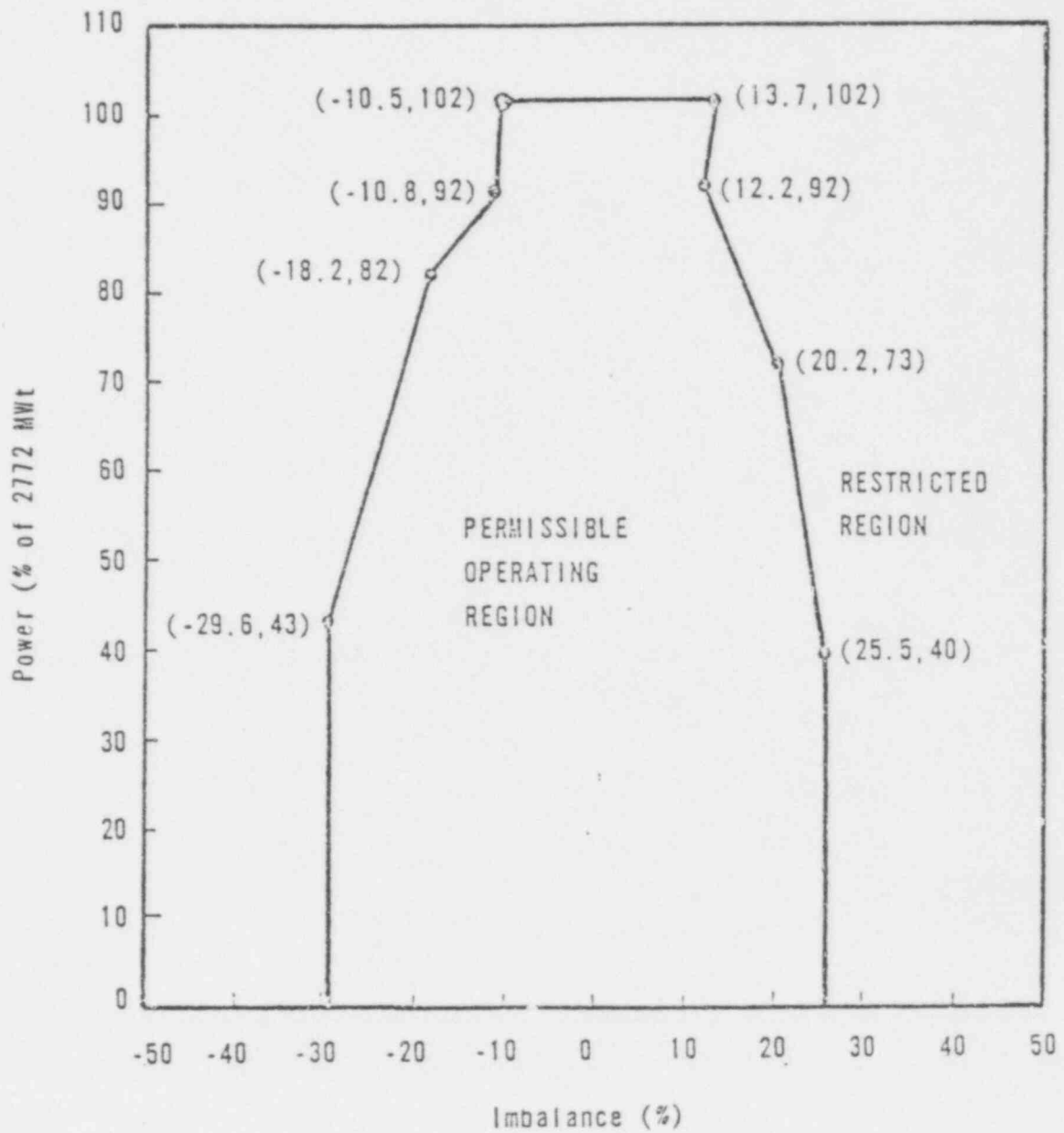


CORE IMBALANCE VS POWER LEVEL
(0-200 ± 10 EFPS)

Figure 2

APR 23 1979

34
CC



CORE IMBALANCE VS POWER LEVEL
(200-421 $\pm$ 10 EFPD'S)

Figure 2

APPENDIX F

NSRW SOURCE TO AUX FW PUMPS

2301-Si
Revision 0
08/15/77

APR 23 1979

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 NO			1.b	IS NR Loop B Operating	YES 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 NR-V27A OPEN then CLOSED	INITIALS			3.b	Verify "B" Loop Operability by cycling NR-V27B OPEN then CLOSED	INITIALS		
		3	1	2			3	1	2

TECH SPEC ACTION No.	TECH SPEC REQUIREMENT:	"YES" - No Further Action Req'd. "NO" - Followup per T.S. ACTION No.	3	1	2
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:			

APPENDIX G

QUADRANT POWER TILT MONITOR INOP

2301-91
Revision 7
05/24/78

APR 23 1979

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:				
4	APPROVED BY:				

TABLE G

QUADRANT POWER TILT LIMITS

	<u>STEADY STATE LIMIT</u>	<u>TRANSIENT LIMIT</u>	<u>MAXIMUM LIMIT</u>
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

188 286

APPENDIX II

BORON REDUCTION IN RCS

2301-S1
Revision 2
12/22/77

APR 23 1979

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 TIME/DATE, completed TIME/DATE.

TECH SPEC ACTION No.	DESCRIPTION	ACTUAL											
3.1.1.2	TIME: (HOURLY $\pm$ 7 min)												
	≥ 2800 gpm ($\checkmark$)												
	TIME: (HOURLY $\pm$ 7 min)												
	≥ 2800 gpm ($\checkmark$)												

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:			
APPROVED BY:			

COMMENTS: _____

APR 23 1979

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.

188 288

APR 23 1979

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	.02198
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

188 289