

TMI DOCUMENTS

DOCUMENT NO: TM-0053

COPY MADE ON 6/6/79 OF DOCUMENT PROVIDED BY  
METROPOLITAN EDISON COMPANY.

REN  
Supervisor, Document Control, NRC

7906180716

30 056

DATE PRINTED  
03/21/79

SURVEILLANCE PERFORMANCE FORM  
NET-ED T M I UNIT 2

EARLY DATE 03-28-79  
\*\*SCHED DATE 03-29-79\*\*  
LATE DATE 03-29-79

PROCEDURE NO 2301-W 1  
TECH/SPEC REF 4.5.4  
4.4.4  
4.1.2.1  
4.1.2.2  
4.1.2.8  
4.1.2.9  
4.1.3.8

DEPT RESP - OPERATIONS  
TASK NO - 2301-W 1  
WEEKLY SURVEILLANCE CHECKS

WORK ORDER NO. - 036000326  
ACCOUNT NO. - 520.1  
GC CODE - 20  
COMPONENT NO - TMI-2301-W 1-  
COMPONENT DESC - STANDARD TECH SPEC ITEM  
COMP LOCATION - B06 LVL GRID

DEPENDENT TASK 4.8.1.1  
4.8.1.2  
4.8.2.1  
4.8.2.2  
4.8.2.3  
4.8.2.4  
4.3.3.2.A

SPECIAL COMMENT -  
PLANT CONDITION 1-1-1-1-1-U-1

ASSIST DEPT FREQUENCY W QUALITY CONTROL 1  
SPECIFIC DAY  
CONTRACTOR 0 INTERFERENCE 0  
PRIORITY 1 COMPONENT STATUS 1

\*\* \*\* \*\* \*\* \*\* COMPLETE THIS SECTION \*\* \*\* \*\* \*\*

(1) (5) (35)  
401CTM12301W 1 036002152301-W 1790380  
+ COMP NO ++ CSU+ + TASK ++SCHD+

RESULTS (51) DATE PERFORMED (39) 03 29 79  
MONTH DAY YEAR  
( ) 1 PERFORMED OR ACTUAL MANHOURS (45) 00001.00  
EXCEPTIONS ACTION TAKEN CODE (52) L L I  
EFFICIENCIES REASON NOT PERFORMED (54) L L I  
( ) 4 BOTH E S AND D S ABNORMAL OCC REPT (56) L L L L I  
( ) 5 NOT PERFORMED  
PERFORMED BY EMPLOYEE NUMBER (60) 06404 SIGNATURE - Earl J. Hemmelt  
APPROVED BY EMPLOYEE NUMBER (65) 06301 SIGNATURE - C. Dea  
WITNESSED BY EMPLOYEE NUMBER (70) L L L L L I SIGNATURE -  
CORRECTIVE MAINTENANCE JOB TICKET NUMBER (75) L L L L L I

403A (1) DUPLICATE AS ABOVE (5-38) 402A (1) DUPLICATE AS ABOVE (5-38)

RESULTS DESCRIPTION ASSISTING DEPARTMENTS  
L L L L L L L L L L L L L L L L L L L I (39) CODE (39) L L L L L I  
L L L L L L L L L L L L L L L L L L L I (61) HOURS (44) L L L L L I . L I

404A (1) DUPLICATE AS ABOVE (5-38) CODE (50) L L L L L I  
L L L L L L L L L L L L L L L L L L L I (39) HOURS (55) L L L L L I . L I  
L L L L L L L L L L L L L L L L L L L I (61)

**CONTROLLED COPY**  
**CONTROL ROOM**  
**WORKING COPY**

THREE MILE ISLAND NUCLEAR STATION  
 UNIT #2 SURVEILLANCE PROCEDURE 2301-W1  
 WEEKLY SURVEILLANCE CHECKS  
 Table of Effective Pages

Page	Date	Revision	Page	Date	Revision	Page	Date	Revision
1.0	02/01/78	3	26.0			51.0		
2.0	08/19/77	0	27.0			52.0		
3.0	10/29/77	1	28.0			53.0		
4.0	02/01/78	3	29.0			54.0		
5.0	08/19/77	0	30.0			55.0		
6.0	10/29/77	1	31.0			56.0		
7.0	05/24/78	4	32.0			57.0		
8.0	02/01/78	3	33.0			58.0		
9.0	02/01/78	3	34.0			59.0		
10.0	02/01/78	3	35.0			60.0		
11.0	02/01/78	3	36.0			61.0		
12.0	02/01/78	3	37.0			62.0		
13.0	02/01/78	3	38.0			63.0		
14.0	02/01/78	3	39.0			64.0		
15.0	12/23/78	5	40.0			65.0		
16.0	12/23/78	5	41.0			66.0		
17.0	02/01/78	3	42.0			67.0		
18.0	12/23/78	5	43.0			68.0		
19.0	12/23/78	5	44.0			69.0		
20.0	12/23/78	5	45.0			70.0		
21.0	12/23/78	5	46.0			71.0		
22.0	02/01/78	3	47.0			72.0		
23.0	12/23/78	5	48.0			73.0		
24.0			49.0			74.0		
25.0			50.0			75.0		

Unit 1 Staff Recommends Approval  
 Approval MAH Date \_\_\_\_\_  
 Cognizant Dept. Head

Unit 2 Staff Recommends Approval  
 Approval MAH Date \_\_\_\_\_  
 Cognizant Dept. Head

Unit 1 PCRC Recommends Approval  
MAH Date \_\_\_\_\_  
 Chairman of PCRC

Unit 2 FORC Recommends Approval  
J.F. Helbock Date 12/21/78  
 V-Chairman of FORC

Unit 1 Superintendent Approval  
MAH Date \_\_\_\_\_

Unit 2 Superintendent Approval  
JB Logan Date 12/23/78

Manager Generation Quality Assurance Approval MAH Date \_\_\_\_\_

230 058

THREE MILE ISLAND NUCLEAR STATION  
UNIT #2 SURVEILLANCE PROCEDURE 2301-W1  
WEEKLY SURVEILLANCE CHECKS

1.0 PURPOSE

1.1 To perform the required WEEKLY Surveillance Checks in compliance with the TMI Unit 2 Technical Specifications.

2.0 MODE/FREQUENCY REQUIREMENTS

2.1 Refer to applicable attachment Mode requirements for a given surveillance item.

3.0 LIMITS AND PRECAUTIONS

3.1 Surveillance requirements are listed with the appropriate items on data sheet attachments to to this procedure. Follow up each item not meeting requirements by referring to applicable Tech Spec ACTION number.

5.0 ATTACHMENTS

5.1 Enclosures:

1. ONSITE/OFFSITE DISTRIBUTION SYSTEM LINEUP.
2. 4160/480 VOLT BUS LINEUP.
3. 120 VAC VITAL BUS LINEUP.
4. 250/125 VDC BUS LINEUP.
5. REACTIVITY CONTROL SYSTEM CHECKS.
6. RB PURGE AND EXHAUST ISOLATION SYSTEM TEST.

5.2 Appendix

A. Incore Monitoring Instrumentation Weekly Checks.

5.3 Figures

1. Boric Acid mix tank - Level/Vol. vs. Boron concentration.
2. Minimum BA Tank Vol. vs. concentration.

6.0 PROCEDURE:

- TEN 2-78-711  
JFS, 12/5/78
- 6.1 Refer to the MODE applicability on each enclosure data sheet when recording data and implementing Tech Spec ACTION requirement.
  - 6.2 Record required data, verifying Tech Spec compliances, per attached enclosure data sheets at least once each seven (7) days.
  - 6.3 Perform Channel Check of Incore Monitoring Instrumentation per Appendix A, (Incore Monitoring Instrumentation Weekly Checks), when Unit is in Mode 1 and >15% RTP.
  - 6.4 Shift Supervisor/Shift Foreman shall review and sign data sheets upon completion of required entries, ensuring compliance of required Tech Spec items.

7.0 ACCEPTANCE CRITERIA

- 7.1 Readings are acceptable if within normal expected range for various plant conditions.
- 7.2 Breakers are positioned as required per appropriate data sheets for the applicable Unit Mode.
- 7.3 Entries are made in the Control Room Operators log of all non-compliance items identifying subsequent followup action.
- 7.4 All data sheets are completed, as applicable, by the data taken and approved by the Shift Supervisor/Shift Foreman.

ENCLOSURE 1

ONSITE/OFFSITE DISTRIBUTION SYSTEM LINEUP

SURVEILLANCE REQUIREMENT: MODES 5 & 6:

One Ckt between the ofsite Transmission network and the onsite class 1E Dist. Sys.  
 MODES 5 & 6: All Data Listed

BUS	BREAKER POS/IND.	REQ	AS FOUND
230 KV SUBSTATION BUS #4	2A-1E2 OPEN/GREEN & WHITE	YES	Yes *
	2A-2E2 CLOSED/RED	YES	Yes *
	G22-2E2 CLOSED/RED	YES	Yes *
	G22-12 OPEN/GREEN	YES	Yes *
BUS	READING ACTUAL	REQ'D	
230KV BUS #4 (KV)	235	≥219	

\* If any \* is No, then all \* items (2A-1E2, 2A-2E2, 2B-2E2, and 2B-1E2) must be No to meet Tech Spec in Modes 1,2,3,&4.

BUS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
230 KV SUBSTATION BUS #8	2B-1E2 CLOSED/RED	YES	Yes *
	2B-2E2 OPEN/GREEN & WHITE	YES	Yes *
	G2-1E2 CLOSED/RED	YES	Yes *
	G2-12 OPEN/GREEN	YES	Yes *
BUS	READING ACTUAL	REQ'D	
230 KV BUS #8 (KV)	235	≥219	

3.8.1.1	MODES 1-4 Cond. as Required?	YES - No Followup Action. NO - Followup per T.S. Action No.	(YES/NO)	Yes
3.8.1.2	MODES 5,6 Cond. as Required?	YES - No Followup Action NO - Followup per T.S. Action No.	(YES/NO)	Yes
Performed By: <i>Spennels</i>		Date: 3-29-79	Time: 1315	Approved By: <i>Amiller</i>

230 061

ENCLOSURE 2

4160/480 VOLT BUS LINEUP

SURVEILLANCE REQUIREMENT:

Modes 5 & 6: One 4160V EM BUS and one 480V EM BUS. (Left column or Right column).  
Modes 1,2,3,4: All Data Listed

3

PRESENT MODE:

BUSS	BREAKER	POS/IND.	AS REQUIRED	AS FOUND
4160V EM BUS 2-1E & 2-3E	2B-1E2	CLOSED/RED	YES	yes*
	2A-1E2	OPEN/GREEN WHITE &	YES	yes*
	T1E-2E2	OPEN/GREEN	YES	yes
	T1E-3E2	CLOSED/RED	YES	yes
	T3E-4E2	PTL/GREEN	YES	yes
	BUS 2-1E Volts		ACTUAL 4160	REQ'D >3675 VAC
	BUS 2-3E Volts		4160	>3675 VAC

BUSS	BREAKER	POS/IND.	AS REQUIRED	AS FOUND
4160V EM BUS 2-2E & 2-4E	2B-2E2	OPEN/GREEN WHITE &	YES	yes*
	2A-2E2	CLOSED/RED	YES	yes*
	T2E-1E2	OPEN/GREEN	YES	yes
	T2E-4E2	CLOSED/RED	YES	yes
	T4E-3E2	PTL/GREEN	YES	yes
	BUS 2-2E Volts		ACTUAL 4250	REQ'D >3675 VAC
	BUS 2-4E Volts		4250	>3675 VAC

\* If any \* is No, then all \* items (2A-1E2, 2A-2E2, 2B-1E2, 2B-2E2) Must be No to meet Tech Spec in Modes 1, 2, 3, and 4.

80V EM BUS 2-11E, 2-12E & 2-31E	1E-11E2	CLOSED/RED	YES	yes	
	11E-1E2	CLOSED/RED	YES	yes	
	1E-12E2	CLOSED/RED	YES	yes	
		CLOSED/RED	YES	yes	
	3E-31E2	CLOSED/RED	YES	yes	
	31E-3E2	CLOSED/RED	YES	yes	
	T11E-21E2	PTL/ NO LIGHT	YES	yes	
	T12E-22E2	PTL/ NO LIGHT	YES	yes	
	T31E-41E2	PTL/ NO LIGHT	YES	yes	
	POWER LIGHTS ON:				
	BUS 2-11E		YES	yes	

480V EM BUS 2-12E, 2-22E & 2-41E	2E-21E2	CLOSED/RED	YES	yes	
	21E-2E2	CLOSED/RED	YES	yes	
	2E-22E2	CLOSED/RED	YES	yes	
	22E-2E2	CLOSED/RED	YES	yes	
	4E-41E2	CLOSED/RED	YES	yes	
	41E-4E2	CLOSED/RED	YES	yes	
	T21E-11E2	PTL/ NO LIGHT	YES	yes	
	T22E-12E2	PTL/ NO LIGHT	YES	yes	
	T41E-31E2	PTL/ NO LIGHT	YES	yes	
	POWER LIGHTS ON:				
	BUS 2-21E		YES	yes	

3.8.2.1	Mode 1-4	Cond. as Required?	YES - No Followup Action NO - Followup per T.S. Action No.	(YES/NO) yes
3.8.2.2	Mode 5&6	Cond. as Required?	YES - No Followup Action NO - Followup per T.S. Action No.	(YES/NO) yes

ENCLOSURE 3

120 VAC VITAL BUS LINEUP

SURVEILLANCE REQUIREMENT: MODES 5 & 6: Two 120 VAC VITAL BUSSES (2-1V & 2-3V or 2-2V & 2-4V)  
 MODES 1,2,3,4: All Data Listed

PRESENT MODE: 3

BUSS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
120 VAC VITAL BUS 2-1V	Inverter 2-1 CLOSED/RED	YES	yes
	Reg Xfmr 2-1R OPEN/GREEN	YES	yes
	1DC-VP1 CLOSED/RED	YES	yes
	Static Sw 2-1V NORMAL	YES	yes
120 VAC VITAL BUS 2-3V	Inverter 2-3 CLOSED/RED	YES	yes
	Reg Xfmr 2-3R OPEN/GREEN	YES	yes
	1DC-VP3 CLOSED/RED	YES	yes
	Static Sw 2-3V NORMAL	YES	yes

BUSS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
120 VAC VITAL BUS 2-2V	Inverter 2-2 CLOSED/RED	YES	yes
	Reg Xfmr 2-2R OPEN/GREEN	YES	yes
	2DC-VP2 CLOSED/RED	YES	yes
	Static Sw 2-2V NORMAL	YES	yes
120 VAC VITAL BUS 2-4V	Inverter 2-4 CLOSED/RED	YES	yes
	Reg Xfmr 2-4R OPEN/GREEN	YES	yes
	2DC-VP4 CLOSED/RED	YES	yes
	Static Sw 2-4V NORMAL	YES	yes

5.0

230 063

3.8.2.1 MODE 1-4 Cond. As Required?	YES - No Followup Action. NO - Follow up Per T.S. ACTION No.	(YES/NO)	yes
3.8.2.2 MODE 5,6 Cond. As Required?	YES - No Followup Action. NO - Followup per T.S. ACTION No.	(YES/NO)	yes
PERFORMED BY: <i>Himmels</i>	DATE: 3-29-79	TIME: 1315	APPROVED BY: <i>Miller</i>

2301-N1  
 Revision 0  
 08/19/77



ENCLOSURE 4

250/125 VDC BUS LINEUP

SURVEILLANCE REQUIREMENT: MODES 5 & 6: One 250/125 VDC BUS and one 250/125 VDC Battery Bank & Charger.  
 MODES 1,2,3,4: All Data Listed

BUSS	BREAKER POS/IND.	PRESENT MODE:		AS FOUND
		BREAKER POS/IND.	AS REQUIRED	
	2DC-SB2 CLOSED/RED	2DC-SB2 CLOSED/RED	YES	YES
	2DC-22E CLOSED/RED	2DC-22E CLOSED/RED	YES	YES
	BUS TIE	BUS TIE	YES	YES
	2DC/1DC OPEN/GREEN	2DC/1DC OPEN/GREEN	YES	YES
	BUSS	BUSS	READING ACTUAL	READING REQ'D
	2-2DC P-PN (VDC)	2-2DC P-PN (VDC)	129	>125
	2-2DC PN-N (VDC)	2-2DC PN-N (VDC)	130	>125

3.8.2.3	MODE 1-4 Cond. As F. ed?	YES - No Followup Action. NO - Followup per T.S. ACTION No.	(YES/NO)	yes
3.8.2.4	MODE 5,6 Cond. As F. red?	YES - No Followup Action. NO - Followup per T.S. ACTION No.	(YES/NO)	no
PERFORMED BY: <i>A. M. Williams</i>		DATE: 3-29-79	TIME: 1315	APPROVED BY: <i>A. M. Williams</i>

250/125 VDC  
 Revision 1  
 10/29/77

ENCLOSURE 5  
REACTIVITY CONTROL SYSTEM CHECKS

Revision 4  
05/24/78

SURVEILLANCE REQUIRED:

MODES 5 & 6: Record either BWST, BAMT, or RBAT Data.

MODES 1,2,3,4: Record BWST and BAMT or RBAT Data.

NOTE: To determine whether the BAMT or RBAT is being used as a source of Boron, see 2301-M2. NA the tank not being used.

PRESENT MODE: 4

T.S. ACTION	DESCRIPTION	BORATED WATER STORAGE TANK		BORIC ACID MIX TANK		RECLAIMED BORIC ACID TANK	
		ACTUAL	REQUIRED	ACTUAL	REQUIRED	ACTUAL	REQUIRED
3.1.2.1	Heat traced pipe	yes	Energized	yes	Energized		Energized
3.1.2.8	Most recent Chemistry	2313	Modes 5, 6 & >2270 ppmb	13013	Modes 1,2, 3,4,5, & 6 between 7875 and 13,125ppmb		Modes 1,2,3,4, 5 and 6: between 7875 and 13,125 ppmb
3.1.2.9	Boron sample		Modes 1, 2, 3, 4: between 2270 and 2370 ppmb				
3.5.4	Tank volume (level, ft.)	20 E-1	Modes 5, 6: > 8.7 feet Modes 1, 2, 3, 4: between 53.5' and 56'	103.9	per attached figure 1&2		per attached figure 5
3.1.2.8	Tank solution temp (°F)	63	≥ 40°F	134.3 E-1 AM	≥ 105°F		≥ 105°F

Above surveillance checks are as required? (Yes/No) ~~No~~ <sup>E-1</sup> ~~No~~ <sup>E-1 AM</sup>

SURVEILLANCE REQUIRED DURING MODES 1 & 2		PRESENT MODE: 4	
T.S. ACTION No.	DESCRIPTION	ACTUAL	REQUIRED
3.1.3.8	CRD PATCH PANELS ARE LOCKED? (YES/NO) YES - No followup required NO - Followup per T.S. ACTION No.	N/A	YES

			PRESENT MODE: 4	
MODE	T.S. ACTION No.	DESCRIPTION	ACTUAL	REQUIRED
1 > 1	3.2.4	Quadrant Pwr Tilt (Computer Operable) Full Incore Sys. Group 55	N/A	<2.30
ALL	3.9.11	SF STG Pool Water Level (when irradiated fuel is in STG Pool)	N/A	<344.5 ft. Over fuel

PERFORMED BY: Adelina DATE: 3-29-79 TIME: 1315  
 APPROVED BY: [Signature] DATE: 3-29-79 TIME: 1420

230 065

## FIGURE 1

## Boric Acid Mix Tank

Level vs. Volume vs. Required Boron Concentration

Level (in.)	Volume (Gal.)	Level (in.)	Volume (Gal.)	Level (in.)	Volume (Gal.)
0	670*	20	1643	40	2617
1	719	21	1692	41	2665
2	768	22	1741	42	2713
3	816	23	1789	43	2762
4	865	24	1838	44	2811
5	914	25	1887	45	2859
6	962	26	1935	46	2908
7	1011	27	1984	47	2957
8	1059	28	2033	48	3005
9	1108	29	2081	49	3054
10	1157	30	2130	50	3102
11	1205	31	2178	51	3151
12		32	2227	52	3200
13	1303	33	2276	53	3248
14	1351	34	2325	54	3297
15	1400	35	2373	55	3346
16	1449	36	2422	56	3394
17	1497	37	2471	57	3443
18	1546	38	2519	58	3492
19	1595	39	2568	59	3540

Boric Acid Mix Tank

Level vs. Volume vs. Required Boron Concentration (Cont'd)

Level (in.)	Volume (Gal.)	Tech. Spec. Min. Boron (ppm)	Conc. Boron Source Max. Boron (ppm)
60	3589		
61	3638		
62	3686	NOT ENOUGH	
63	3735		
64	3784	VOLUME FOR	
65	3832		
66	3881		
67	3930	TECH SPEC USE	
68	3978		
69	4027		
<hr/>			
70	4076	13,059	13,125
71	4124	12,907	13,125
72		12,755	13,125
73	4222	12,607	13,125
74	4270	12,465	13,125
75	4319	12,324	13,125
76	4368	12,186	13,125
77	4416	12,053	13,125
78	4465	11,921	13,125
79	4514	11,791	13,125

230 067

## Boric Acid Mix Tank

## Level vs. Volume vs. Required Boron Concentration (cont'd)

Level (in.)	Volume (Gal.)	Tech. Spec.	Conc. Boron Source
		Min. Boron (ppm)	Max. Boron (ppm)
80	4562	11,667	13,125
81	4611	11,543	13,125
82	4660	11,422	13,125
83	4708	11,306	13,125
84	4757	11,189	13,125
85	4805	11,077	13,125
86	4854	10,966	13,125
87	4903	10,856	13,125
88	4951	10,751	13,125
89	5000	10,645	13,125
90	5049	10,542	13,125
91	5097	10,443	13,125
92	5146	10,343	13,125
93	5195	10,246	13,125
94	5243	10,152	13,125
95	5292	10,058	13,125
96	5341	9,966	13,125
97	5389	9,877	13,125
98	5438	9,788	13,125
99	5487	9,701	13,125

10.0

230 068

Boric Acid Mix Tank

Level vs. Volume vs. Required Boron Concentration (Cont'd)

Level (in.)	Volume (Gal.)	Tech. Spec.	Conc. Boron Source
		Min. Boron (ppm)	Max. Boron (ppm)
100	5535	9,616	13,125
101	5584	9,532	13,125
102	5633	9,449	13,125
103	5681	9,369	13,125
104	5730	9,289	13,125
105	5779	9,210	13,125
106	5827	9,135	13,125
107	5876	9,058	13,125
108	5925	8,984	13,125
109	5973	8,911	13,125
110	6022	8,839	13,125
111	6071	8,767	13,125
112	6119	8,699	13,125
113	6168	8,630	13,125
114	6217	8,562	13,125
115	6265	8,496	13,125
116	6314	8,430	13,125
117	6363	8,365	13,125
118	6411	8,303	13,125
119	6460	8,240	13,125

Boric Acid Mix Tank

Level vs. Volume vs. Required Boron Concentration (Cont'd)

Level (in.)	Volume (Gal.)	Tech. Spec. Min. Boron (ppm)	Conc. Boron Source Max. Boron (ppm)
120	6508	8179	13,125
121	6557	8118	13,125
122	6606	8057	13,125
123	6654	7999	13,125
124	6703	7941	13,125
125	6752	7883	13,125
126	6800	7875	13,125
127	6849	7875	13,125
128	6898	7875	13,125
129	6946	7875	13,125
130	6995	7875	13,125

CAUTION: Straight wall of Tank ends at approximately 130". Do not exceed this level.

\*Bottom of Tank to level transmitters holds 8.0 gallons.

NOTES

1. Straight wall section of tank holds 48.65749 gallons per inch.
2. The product of volume in gallons and Boron in ppm must exceed 53,225,000 to qualify for Tech. Spec. source of conc. Boric Acid.
3. 1,750 ppm Boron = 1% Boric Acid.

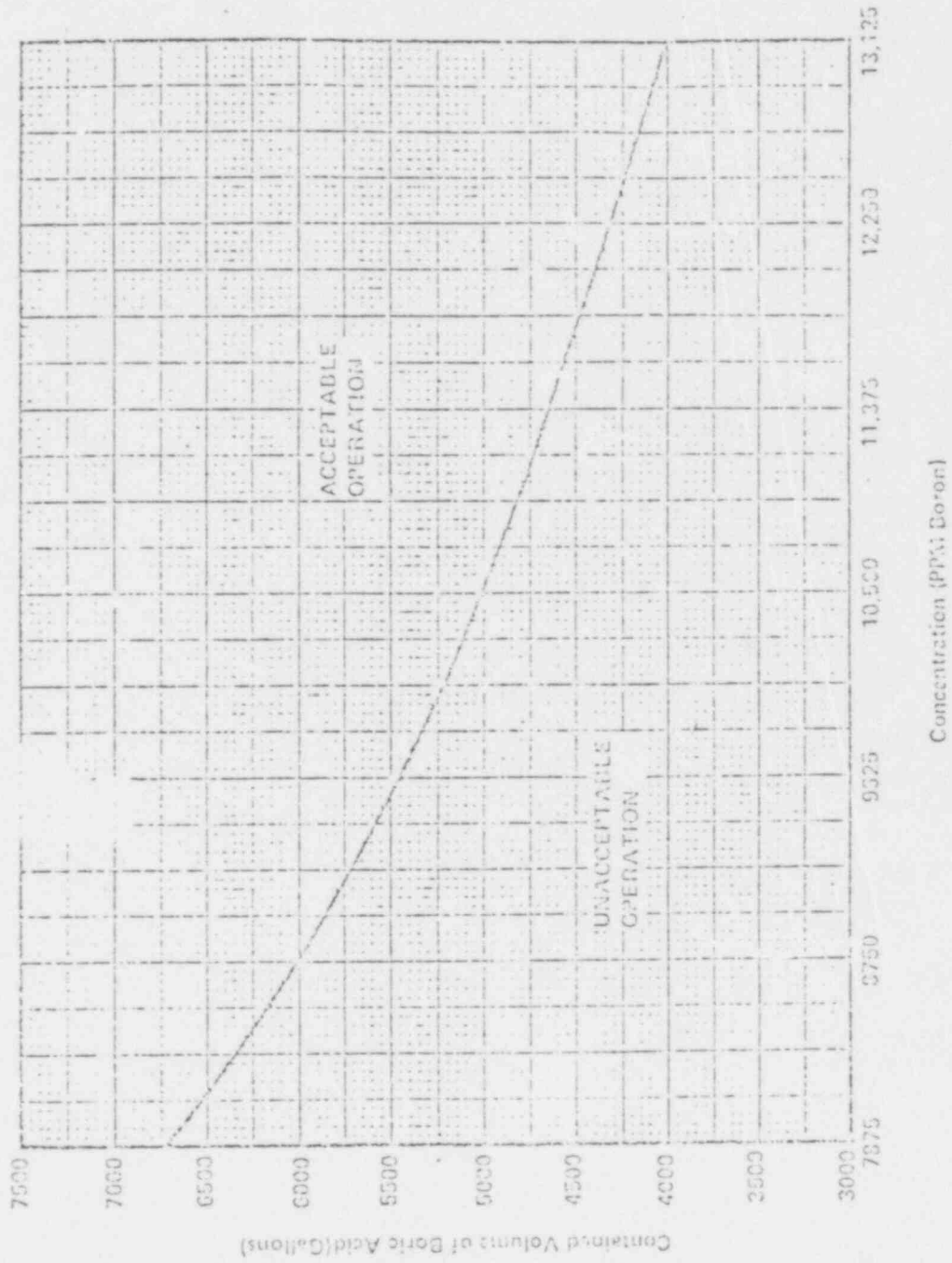


Figure 2 Minimum Boric Acid Tank Contained Volume as a Function of Stored Boric Acid Concentration



APPENDIX A

INCORE MONITORING INSTRUMENTATION WEEKLY CHECKS

Table of Contents

- 1.0 PURPOSE
- 2.0 APPLICABLE SURVEILLANCE FREQUENCY AND MODES
- 3.0 LIMITS AND PRECAUTIONS
- 4.0 LOCATION OF SYSTEM/ASSEMBLIES
- 5.0 EQUIPMENT REQUIRED
- 6.0 PROCEDURE
- 7.0 ACCEPTANCE CRITERIA

## 1.0 PURPOSE

- 1.1 To meet the surveillance requirements of TMI-2 Technical Specification 4.3.3.2(a) which states:

"The Incore Detector System shall be demonstrated operable by performance of a CHANNEL CHECK within 7 days prior to its use for measurement of the AXIAL POWER IMBALANCE or the QUADRANT POWER TILT".

## 2.0 APPLICABLE SURVEILLANCE FREQUENCY AND MODES

- 2.1 Frequency: At least once per 7 days (W).  
2.2 Modes: One (1) above 15% of rated thermal power.

## 3.0 LIMITS AND PRECAUTIONS

- 3.1 Wait at least 10 minutes (or for obvious equilibrium) after a power change prior to performing this check.  
3.2 Restrict power level changes to + or - 2 percent during data acquisition.

## 4.0 LOCATION OF SYSTEM/ASSEMBLIES

- 4.1 The Bailey 855 Computer is located in the Control Room.  
4.2 The Back Up Recorders are located on Panel #14 in the Control Room.

## 5.0 EQUIPMENT REQUIRED

- 5.1 Plant Computer.

## 6.0 PROCEDURE

- 6.1 Obtain Group 45 printout of Uncorrected SPND signals for each of the seven (7) levels.  
6.2 Examine the seven Group 45 printouts to determine which incores are inoperable. List any inoperable incores on Data Sheet 1.

NOTE: Most inoperable detectors print out either negative or zero values.

- 6.3 From the list of inoperable incore detectors determine if any detectors are symmetrical. This can be accomplished by checking Figure 6 for the

symmetric locations. If none of symmetric are inoperable then the incores satisfy tech specs. However, if any symmetric is determined to be inoperable, then contact the Nuclear Engineer for determination of tech spec status.

- 6.4 Determine if any of the incore detector inputs identified as inoperable on Data Sheet 1 also inputs to the back up recorders. This can be accomplished by comparing Data Sheet 1 to the back-up identification sheet in 2103-1.11(Table 1), "Hand Calculation of Tilt and Imbalance".

NOTE: An identification sheet for the back-up recorder is attached to Panel 14 below the recorders.

- 6.5 List any inoperable back-up recorder input on Data Sheet 2.  
6.6 Send xerox copy of Data Sheets 1 and 2 and Group 45 printouts to the Nuclear Engineer.

#### 7.0 ACCEPTANCE CRITERIA

- 7.1 For AXIAL POWER IMBALANCE measurements, the incore detector inputs not identified as inoperable shall meet the following minimum requirements;

- 7.1.1 Three detectors, one in each of 3 strings, shall lie in the same axial plane with 1 plane in each axial core half.  
7.1.2 The axial planes in each core half shall be symmetrical about the core mid-plane.  
7.1.3 The detector strings shall not have radial symmetry.

NOTE: Figure 3 shows a typical set of detectors meeting the above requirements.

- 7.2 For QUADRANT POWER TILT measurements, the incore detector inputs not identified as inoperable shall meet the following minimum requirements:

- 7.2.1 Two sets of 4 detectors shall lie in each core half. Each set of detectors shall lie in the same axial plane. The two sets in the same core half may lie in the same axial plane.

7.2.2 Detectors in the same plane shall have quarter core radial symmetry.

NOTE: Figure 4 shows a typical set of detectors meeting the above requirements.

NOTE: If the minimum requirements identified in 7.1 and 7.2 are not met, follow the action statement of 3.3.3.2 of the Technical Specification.





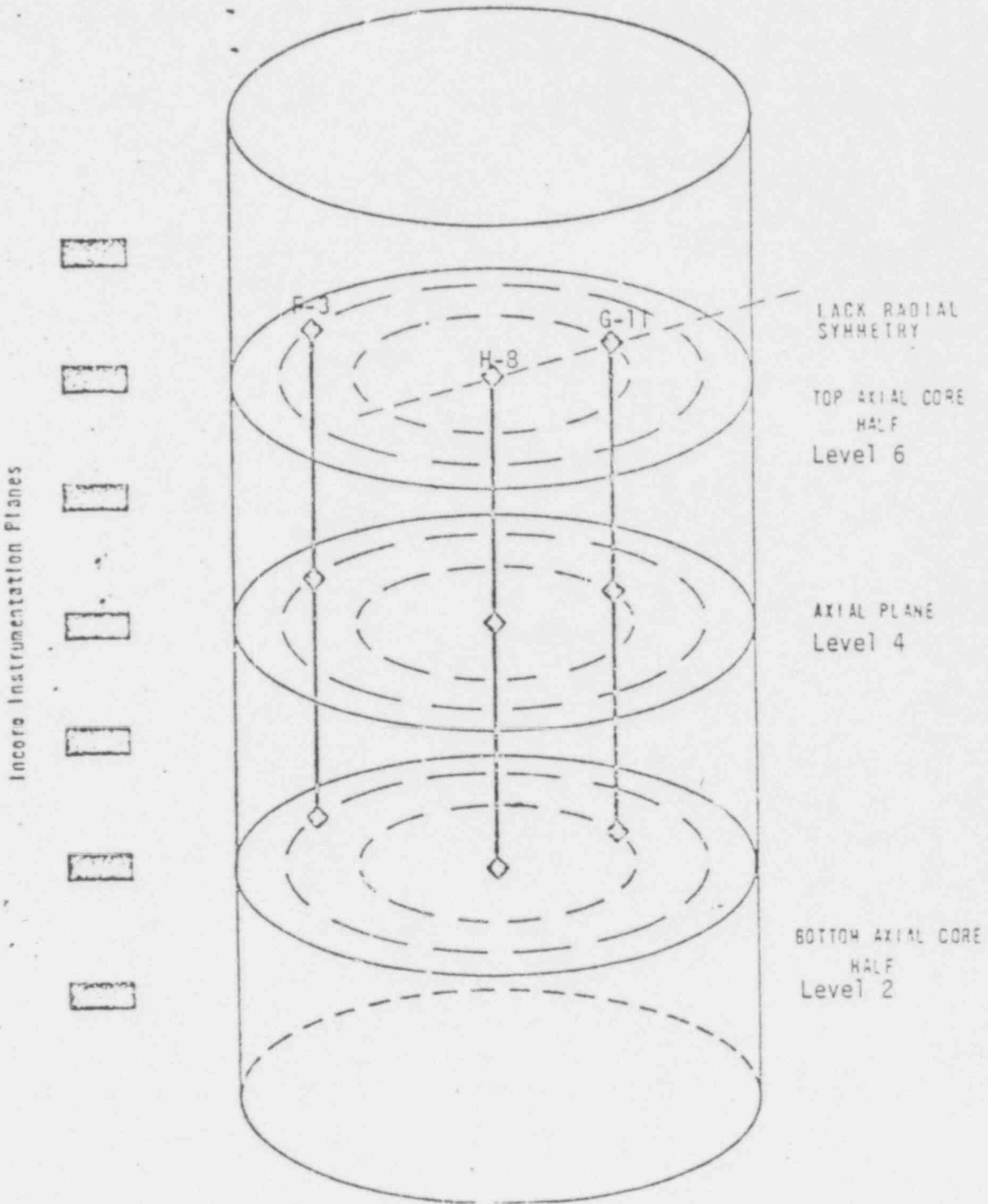


Figure 3 - Typical Set of Incore Detectors Meeting Minimum Requirements for Imbalance Measurement

230 078

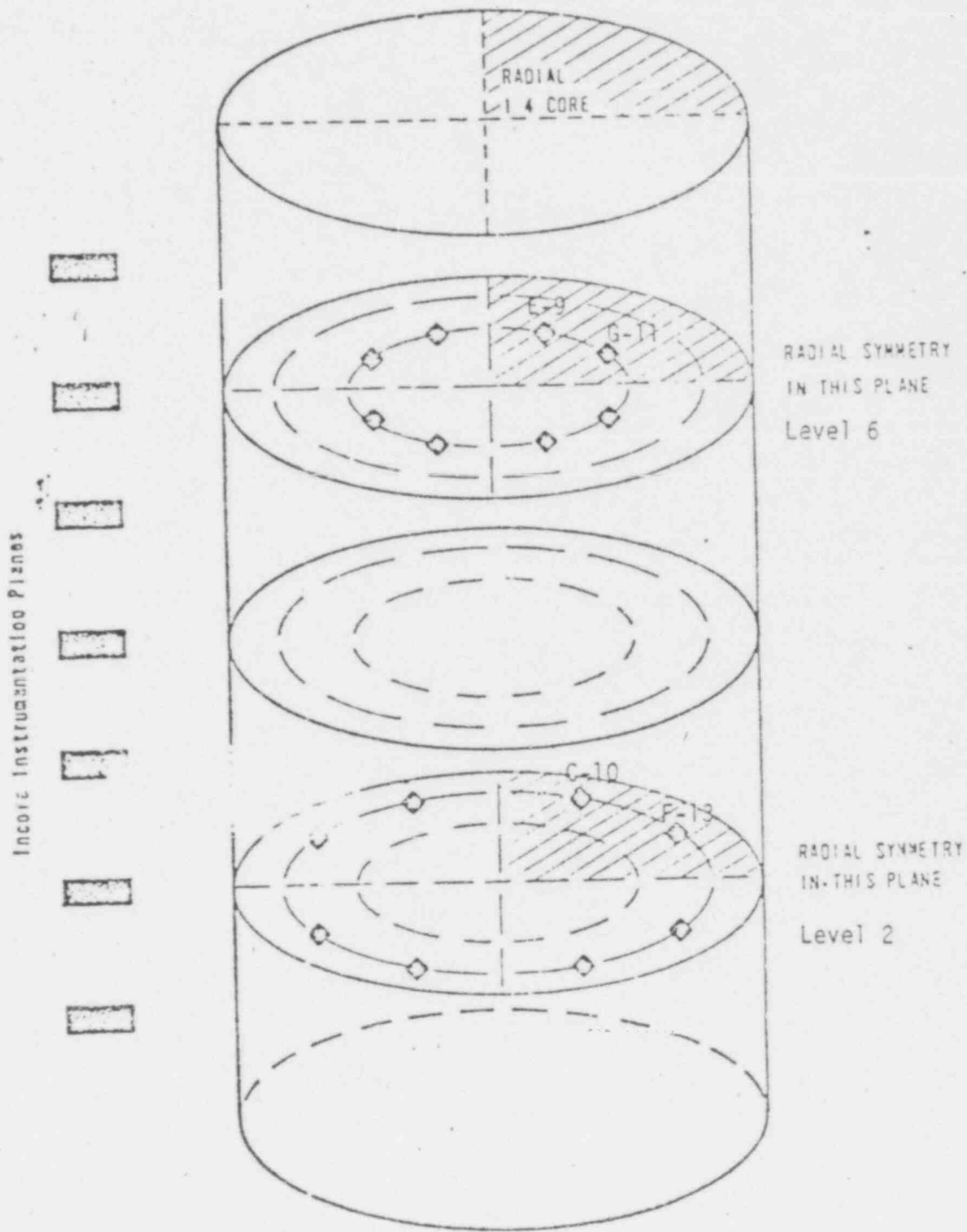
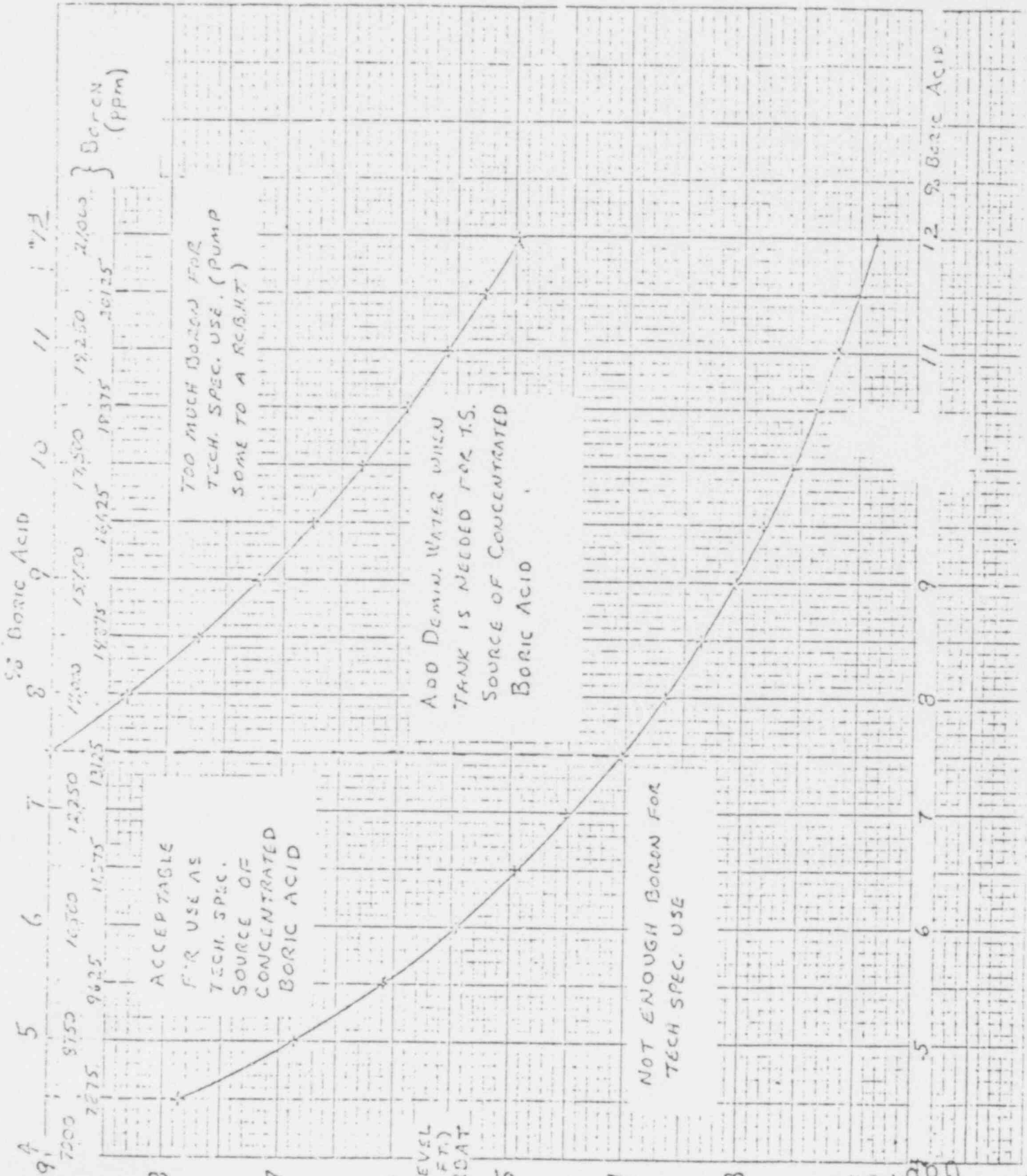


Figure 4 - Typical Set of Incore Detectors Meeting Minimum Requirements for Quadrant Tilt Measurement

230 079





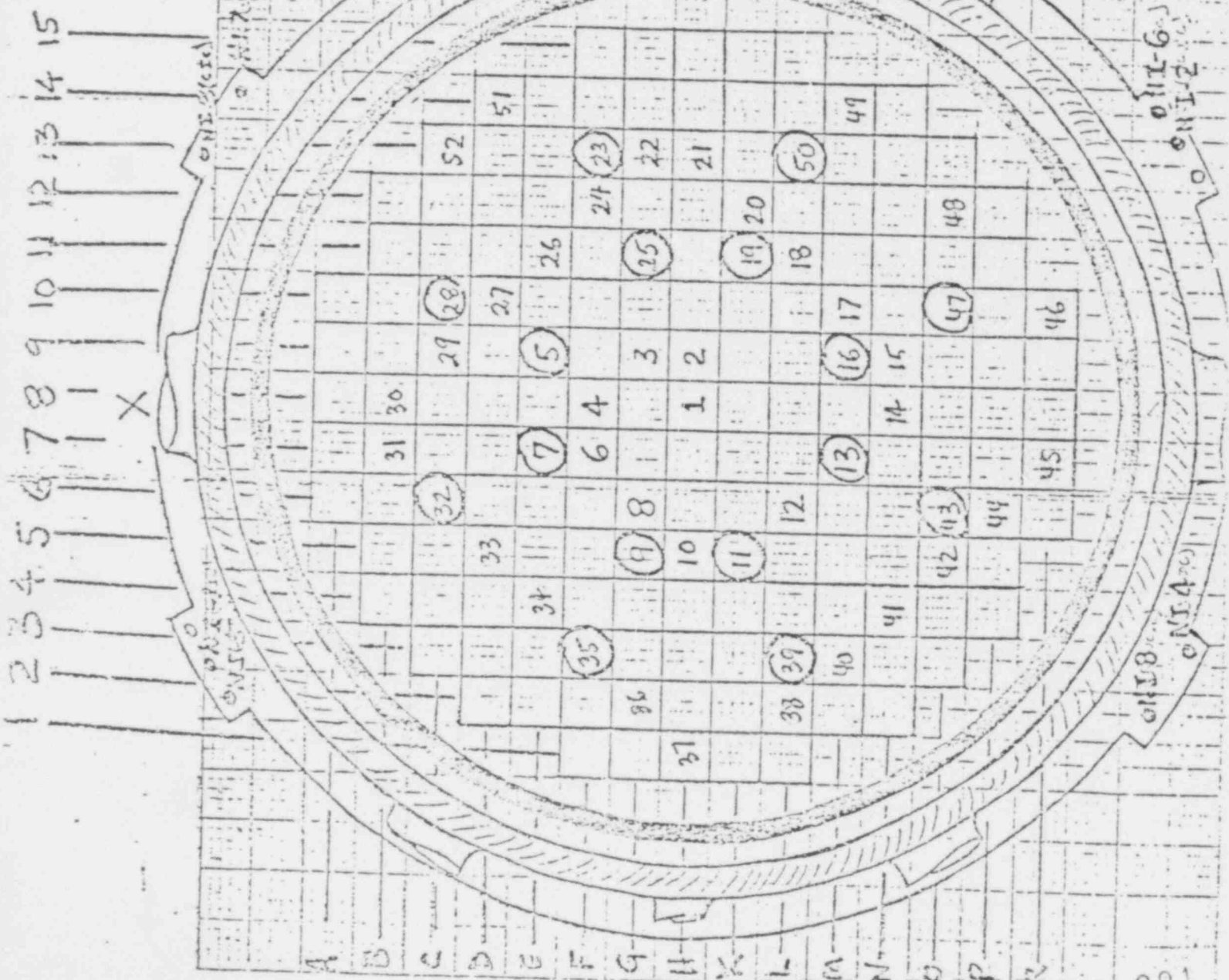
2301-M1  
 Revision 3  
 02/01/78

POOR ORIGINAL  
 80-050-15080

# FIGURE 6: UNIT 2: DETECTOR SYSTEM

2301-W1  
Revision 5  
12/23/78

X - Incore Detector  
 (X) - Symmetric Detector



**POOR ORIGINAL** 230.081



**CONTROLLED COPY** THREE MILE ISLAND NUCLEAR STATION  
**CONTROL ROOM** UNIT #2 SURVEILLANCE PROCEDURE 2301-W1  
**FILE COPY** WEEKLY SURVEILLANCE CHECKS  
Table of Effective Pages

<u>Page</u>	<u>Date</u>	<u>Revision</u>	<u>Page</u>	<u>Date</u>	<u>Revision</u>	<u>Page</u>	<u>Date</u>	<u>Revision</u>
1.0	02/01/78	3	26.0			51.0		
2.0	08/19/77	0	27.0			52.0		
3.0	10/29/77	1	28.0			53.0		
4.0	02/01/78	3	29.0			54.0		
5.0	08/19/77	0	30.0			55.0		
6.0	10/29/77	1	31.0			56.0		
7.0	05/24/78	4	32.0			57.0		
8.0	02/01/78	3	33.0			58.0		
9.0	02/01/78	3	34.0			59.0		
10.0	02/01/78	3	35.0			60.0		
11.0	02/01/78	3	36.0			61.0		
12.0	02/01/78	3	37.0			62.0		
13.0	02/01/78	3	38.0			63.0		
14.0	02/01/78	3	39.0			64.0		
15.0	12/23/78	5	40.0			65.0		
16.0	12/23/78	5	41.0			66.0		
17.0	02/01/78	3	42.0			67.0		
18.0	12/23/78	5	43.0			68.0		
19.0	12/23/78	5	44.0			69.0		
20.0	12/23/78	5	45.0			70.0		
21.0	12/23/78	5	46.0			71.0		
22.0	02/01/78	3	47.0			72.0		
23.0	12/23/78	5	48.0			73.0		
24.0			49.0			74.0		
25.0			50.0			75.0		

Unit 1 Staff Recommends Approval Approval <u>MA</u> Date _____ Cognizant Dept. Head	Unit 2 Staff Recommends Approval Approval <u>MA<sup>2</sup></u> Date _____ Cognizant Dept. Head
Unit 1 PORC Recommends Approval <u>MA</u> Date _____ Chairman of PORC	Unit 2 PORC Recommends Approval <u>JF Helbrich</u> Date <u>12/21/78</u> Chairman of PORC
Unit 1 Superintendent Approval <u>MA</u> Date _____	Unit 2 Superintendent Approval <u>JB Lyman</u> Date <u>12/23/78</u>
Manager Generation Quality Assurance Approval <u>MA</u> Date _____	

230 083

ENCLOSURE 1

ONSITE/OFFSITE DISTRIBUTION SYSTEM LINEUP

SURVEILLANCE REQUIREMENT: MODES 5 & 6: One Ckt between the offsite Transmission network and the onsite class 1E Dist. Sys.  
 MODES 1,2,3,4: All Data Listed

BUSS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
230 KV SUBSTATION BUS #4			
BREKERS			
2A-1E2 & WHITE	YES	good *	
2A-2E2	CLOSED/RED	YES	good
G22-2E2	CLOSED/RED	YES	good
G22-1E	OPEN/GREEN	YES	good
BUSS			
230KV BUS #4 (KV)		234	>219

\* If any \* is No, then all \* items (2A-1E2, 2A-2E2, 2B-2E2, and 2B-1E2) must be No to meet Tech Spec in Modes 1,2,3,&4.

BUSS	BREAKER POS/IND.	PRESENT MODE:	AS REQUIRED	AS FOUND
230 KV SUBSTATION BUS #8				
BREKERS				
2B-1E2	CLOSED/RED	1	YES	good *
2B-2E2 & WHITE	OPEN/GREEN	1	YES	good *
G2-1E2	CLOSED/RED	1	YES	good *
G2-12	OPEN/GREEN	1	YES	good
BUSS				
230 KV BUS #8 (KV)			233	>219

3.8.1.1	MODES 1-4 Cond. as Required?	YES - No Followup Action.	(YES/NO)	good
3.8.1.2	MODES 5,6 Cond. as Required?	YES - No Followup Action	(YES/NO)	NA

Performed By: *Raymond Mark* Date: *3-22-79* Time: *0800* Approved By: *[Signature]*

230 084

ENCLOSURE 2

4160/480 VOLT BUS LINEUP

SURVEILLANCE REQUIREMENT:

Modes 5 & 6: One 4160V EM BUS and one 480V EM BUS. (Left column or Right column).  
Modes 1,2,3,4: All Data Listed

PRESENT MODE:

BUSS	BREAKER	POS/IND.	AS REQUIRED	AS FOUND
4160V EM BUS 2-1E & 2-3E	2B-1E2	CLOSED/RED	YES	yes
	2A-1E2	OPEN/GREEN WHITE &	YES	yes
	T1E-2E2	OPEN/GREEN	YES	yes
	T1E-3E2	CLOSED/RED	YES	yes
	T3E-4E2	PTL/GREEN	YES	yes
	BUS 2-1E Volts		ACTUAL 4000	REQ'D >3675 VAC
	BUS 2-3E Volts		4000	>3675 VAC

80V EM BUS 2-11E, 2-12E & 2-31E	1E-11E2	CLOSED/RED	YES	yes
	11E-1E2	CLOSED/RED	YES	yes
	1E-12E2	CLOSED/RED	YES	yes
		CLOSED/RED	YES	yes
	3E-31E2	CLOSED/RED	YES	yes
	31E-3E2	CLOSED/RED	YES	yes
	T11E-21E2	NO LIGHT PTL/	YES	yes
	T12E-22E2	NO LIGHT PTL/	YES	yes
	T31E-41E2	NO LIGHT PTL/	YES	yes
	POWER LIGHTS ON:			yes
	BUS 2-11E		YES	yes
	BUS 2-12E		YES	yes
	BUS 2-31E		YES	yes

BUSS	BREAKER	POS/IND.	AS REQUIRED	AS FOUND
4160V EM BUS 2-2E & 2-4E	2B-2E2	OPEN/GREEN WHITE &	YES	yes
	2A-2E2	CLOSED/RED	YES	yes
	T2E-1E2	OPEN/GREEN	YES	yes
	T2E-4E2	CLOSED/RED	YES	yes
	T4E-3E2	PTL/GREEN	YES	yes
	BUS 2-2E Volts		ACTUAL 4000	REQ'D >3675 VAC
	BUS 2-4E Volts		4100	>3675 VAC

480V EM BUS 2-12E, 2-22E & 2-41E	2E-21E2	CLOSED/RED	YES	yes
	21E-2E2	CLOSED/RED	YES	yes
	2E-22E2	CLOSED/RED	YES	yes
	22E-2E2	CLOSED/RED	YES	yes
	4E-41E2	CLOSED/RED	YES	yes
	41E-4E2	CLOSED/RED PTL/	YES	yes
	T21E-11E2	NO LIGHT PTL/	YES	yes
	T22E-12E2	NO LIGHT PTL/	YES	yes
	T41E-31E2	NO LIGHT PTL/	YES	yes
	POWER LIGHTS ON:			yes
	BUS 2-21E		YES	yes
	BUS 2-22E		YES	yes
	BUS 2-41E		YES	yes

\* If any \* is No, then all \* items (2A-1E2, 2A-2E2, WB-1E2, and 2B-2E2) Must be No to meet Tech Spec in Modes 1, 2, 3, and 4.

3.8.2.1 Mode 1-4 Cond. as Required? YES - No Followup Action  
NO - Followup per T.S. Action No. (YES/NO) yes

3.8.2.2 Mode 5&6 Cond. as Required? YES - No Followup Action  
NO - Followup per T.S. Action No. (YES/NO)

ENCLOSURE 3

120 VAC VITAL BUS LINEUP

SURVEILLANCE REQUIREMENT: MODES 5 & 6: Two 120 VAC VITAL BUSES (2-1V & 2-3V or 2-2V & 2-4V)  
 MODES 1,2,3,4: All Data Listed

PRESENT MODE:

BUSS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
120 VAC VITAL BUS 2-1V	Inverter 2-1 CLOSED/RED	YES	yes
	Reg Xfmr 2-1R OPEN/GREEN	YES	yes
	1DC-VP1 CLOSED/RED	YES	yes
	Static Sw 2-1V NORMAL	YES	yes
120 VAC VITAL BUS 2-3V	Inverter 2-3 CLOSED/RED	YES	yes
	Reg Xfmr 2-3R OPEN/GREEN	YES	yes
	1DC-VP3 CLOSED/RED	YES	yes
	Static Sw 2-3V NORMAL	YES	yes

BUSS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
120 VAC VITAL BUS 2-2V	Inverter 2-2 CLOSED/RED	YES	yes
	Reg Xfmr 2-2R OPEN/GREEN	YES	yes
	2DC-VP2 CLOSED/RED	YES	yes
	Static Sw 2-2V NORMAL	YES	yes
120 VAC VITAL BUS 2-4V	Inverter 2-4 CLOSED/RED	YES	yes
	Reg Xfmr 2-4R OPEN/GREEN	YES	yes
	2DC-VP4 CLOSED/RED	YES	yes
	Static Sw 2-4V NORMAL	YES	yes

5.0

230 086  
2

3.8.2.1	MODE 1-4 Cond. As Required?	YES - No Followup Action. NO - Follow up Per T.S. ACTION No.	(YES/NO)	yes
3.8.2.2	MODE 5,6 Cond. As Required?	YES - No Followup Action. NO - Followup per T.S. ACTION No.	(YES/NO)	NA
PERFORMED BY: <i>Raymond Hoke</i>		DATE: <i>3-22-77</i>	TIME: <i>0830</i>	APPROVED BY: <i>FR [Signature]</i>

2301-N1  
Revision 0  
08/19/77

ENCLOSURE 4

250/125 VDC BUS LINEUP

SURVEILLANCE REQUIREMENT: MODES 5 & 6: One 250/125 VDC BUS and one 250/125 VDC Battery Bank & Charger.  
 MODES 1,2,3,4: All Data Listed

PRESENT MODE:

BUSS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
	1DC-SB1 CLOSED/RED	YES	yes
	1DC-12E CLOSED/RED	YES	yes
	BUS TIE 1DC/2DC OPEN/GREEN	YES	yes
		READING	
	BUSS	ACTUAL	REQ'D
	2-1DC P-PN (VDC)	130	≥125
	2-1DC PN-N (VDC)	130	≥125

BUSS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
	2DC-SB2 CLOSED/RED	YES	yes
	2DC-22E CLOSED/RED	YES	yes
	BUS TIE 2DC/1DC OPEN/GREEN	YES	yes
		READING	
	BUSS	ACTUAL	REQ'D
	2-2DC P-PN (VDC)	130	≥125
	2-2DC PN-N (VDC)	130	≥125

6.0

3.8.2.3	MODE 1-4 Cond. As Required?	YES - No Followup Action. NO - Followup per T.S. ACTION No.	(YES/NO)	yes
3.8.2.4	MODE 5,6 Cond. As Required?	YES - No Followup Action. NO - Followup per T.S. ACTION No.	(YES/NO)	NA
PERFORMED BY: <i>Raymond Hester</i>		DATE: 3-22-79	TIME: 0900	APPROVED BY: <i>K.R. Hester</i>

230 087



ENCLOSURE 5  
REACTIVITY CONTROL SYSTEM CHECKS

Revision 4  
05/24/78

SURVEILLANCE REQUIRED:

MODES 5 & 6: Record either BWST, BMT, or RBAT Data.

MODES 1,2,3,4: Record BWST and BMT or RBAT Data.

NOTE: To determine whether the BMT or RBAT is being used as a source of Boron, see 2301-M2. NA the tank not being used.

ONE

PRESENT MODE:

TS ACTION #	DESCRIPTION	BORATED WATER STORAGE TANK		BORIC ACID MIX TANK		RECLAIMED BORIC ACID TANK	
		ACTUAL	REQUIRED	ACTUAL	REQUIRED	ACTUAL	REQUIRED
3.1.2.1 3.1.2.2	Heat traced pipe	<i>Energized</i>	Energized	<i>Energized</i>	Energized		Energized
3.1.2.8 3.1.2.9 3.5.4	Most recent Chemistry Boron sample	<i>2313</i>	Modes 5, 6 & >2270 ppmb Modes 1, 2, 3, 4: between 2270 and 2370 ppmb	<i>12258</i>	Modes 1,2, 3,4,5, & 6 between 7875 and 13,125ppmb		Modes 1,2,3,4, 5 and 6: between 7875 and 13,125 ppmb
	Tank volume (level, ft.)	<i>55</i>	Modes 5, 6: > 8.7 feet Modes 1, 2, 3, 4: between 53.5' and 56'	<i>yes</i> <i>116.9</i>	per attached figure 1&2		per attached figure 5
3.1.2.8 3.1.2.9	Tank solution temp (°F)	<i>73</i>	≥ 40°F	<i>131</i>	≥ 105°F		≥ 105°F

Above surveillance checks are as required?  Yes  No *yes*

SURVEILLANCE REQUIRED DURING MODES 1 & 2

PRESENT MODE:

T.S. ACTION No.	DESCRIPTION	ACTUAL	REQUIRED
3.1.3.8	CRD PATCH PANELS ARE LOCKED? YES - No followup required. NO - Followup per T.S. ACTION No.	<i>yes</i>	YES

PRESENT MODE: *1*

MODE	T.S. ACTION No.	DESCRIPTION	ACTUAL	REQUIRED
<i>1</i>	<i>3.2.4</i>	Quadrant Pwr Tilt (Computer Operable) Full Incore Sys. Group 55	<i>0</i>	<2.30
ALL	3.0.11	SF STG Pool Water Level (when irradiated fuel is in STG Pool)	<i>NA</i>	<344.5 ft Over fuel

*NO I.R. fuel*

PERFORMED BY: *Raymond G. Gabe* DATE: *3-22-79* TIME: *0900*

APPROVED BY: *K. H. Hays* DATE: *3/22/79* TIME: *1000*

DATA SHEET 1

Paragraph 6.2

Inoperable Incore Detectors

Detector Number	
38	✓
27	✓
5	*
6	✓
38	✓
14	-
27	✓
38	-
14	✓
27	-
5	*
38	✓
7	✓
27	✓
5	*
4	✓
11	*
38	✓
27	✓
51	✓

Core Location/Level	
1 L-2	
2 D-10	
2 E-9	
2 F-7	
2 L-2	
2 N-8	
3 D-10	
3 L-2	
3 N-8	
4 D-10	
4 E-9	
4 L-2	
4 R-10	
5 D-10	
5 E-9	
5 F-8	
5 K-5	
5 L-2	
6 B-10	
6 B-14	

*Det\*\**  
*Level*  
*E-9*  
*L-2*  
*D-10*  
*E-9*  
*L-2*

NOTE: See Figure for Core location of detectors.

230 089

Performed By: *Booker* Date: *3-22-79*

Approved By: *K.P. Huff* Date: *3/22/79*

*TMI's \**  
*Resident NUC ENGR-*

*Confirms incore status as "Sat"*  
*18.0 with tech spec-*  
*requirements - 3-22-79 - \**



19.24-  
Not paid

	31	30			
	454	500			
	32	29	28	52	
	* 451*	541	* 454*	213	
	33		27	51	
	450		544	113	
	34	7	5	26	
	443	* 550*	* 500*	553	
	35			24	23
	* 453*	500	505	542	* 444*
	3	0	3	25	22
	* 500*	510	497	* 571*	553
	10		1	2	21
	495	610	550		500
	11			14	20
	* 501*			* 570*	487
	36	12		16	50
	* 440*	570		500	* 446*
	40	13	10	17	41
	460	* 500*	* 500*	490	310
	41		14	15	
	450		504	435	
	42	43		47	49
	465	* 454*		* 454*	324
	44				
	421				
		45		46	
		312		223	

STED SPID MAP LEVEL 2 ALL LOCATIONS 11 HAWAII PS DU:53:31 03/22/71

	31	30			
	651	745			
	32	29	28	52	
	* 607*	708	* 633*	367	
	33		27	51	
	634		713	213	
	34	7	5	26	
	640	* 627*	713	713	
	35			24	23
	* 645*	656		732	* 651*
	3	0	3	25	22
	* 622*	741	675	* 610*	717
	10		1	2	21
	725	647	733		710
	11			10	20
	* 630*			* 610*	713
	36	12		16	50
	* 651*	620		714	* 652*
	40	13	10	17	41
	670	* 615*	* 616*	729	485
	41		15		
	605		734		
	42	45		47	46
	677	* 653*		* 650*	461
	44				
	624				
		45		46	
		470		340	

POOR ORIGINAL

230 091

TESTED SPID MAP LEVEL 3 ALL LOCATIONS IN CAMPUS 09:11:31 03/22/70

31	31			
32	21	28	52	
33	51			
34	7	5	26	
35	8	4	24	23
36	11	2	21	
37	11	11	21	
38	12	13	51	
39	14	17		
40	14	17		
41	14	17		
42	13	17	41	
43	13	17	41	
44	13	17	41	
45	13	17	41	

TESTED SPID MAP LEVEL 3 ALL LOCATIONS IN CAMPUS 09:12:31 03/22/70

31	31			
32	21	28	52	
33	51			
34	7	5	26	
35	8	4	24	23
36	11	2	21	
37	11	11	21	
38	12	13	51	
39	14	17		
40	14	17		
41	14	17		
42	13	17	41	
43	13	17	41	
44	13	17	41	
45	13	17	41	

**POOR ORIGINAL**

230 092

733 44

72

45  
310

46

STED AND VAP LEVEL & ALL LOCATIONS IN MINNAP 10:12:51 03/12/73

31 30  
731 330

32  
730

25  
737

20  
735

52  
310

38  
750

7

52  
330

58  
730

7  
730

17  
737

30  
730

19  
730

13  
730

17  
730

1  
730

22  
730

22  
730

17  
730

1  
730

2  
730

21  
730

17  
730

12  
730

14  
730

11  
730

10  
730

30  
730

14  
730

15  
730

17  
730

17  
730

12  
730

14  
730

17  
730

18  
730

17  
730

17  
730

17  
730

14  
730

14  
730

POOR ORIGINAL

STED AND VAP LEVEL & ALL LOCATIONS IN MINNAP 10:12:51 03/12/73

31 31  
731 730

33  
732

21  
732

20  
732

52  
310

38  
752

7

52  
330

58  
730

7  
730

17  
737

30  
730

19  
730

13  
730

17  
730

1  
730

22  
730

22  
730

17  
730

1  
730

2  
730

21  
730

17  
730

12  
730

14  
730

11  
730

17  
730

20  
730

230 093







**CONTROLLED COPY**  
**CONTROL ROOM**  
**WORKING COPY**

THREE MILE ISLAND NUCLEAR STATION  
UNIT #2 SURVEILLANCE PROCEDURE 2301-W1  
WEEKLY SURVEILLANCE CHECKS  
Table of Effective Pages

<u>Page</u>	<u>Date</u>	<u>Revision</u>	<u>Page</u>	<u>Date</u>	<u>Revision</u>	<u>Page</u>	<u>Date</u>	<u>Revision</u>
1.0	02/01/78	3	26.0			51.0		
2.0	08/19/77	0	27.0			52.0		
3.0	10/29/77	1	28.0			53.0		
4.0	02/01/78	3	29.0			54.0		
5.0	08/19/77	0	30.0			55.0		
6.0	10/29/77	1	31.0			56.0		
7.0	05/24/78	4	32.0			57.0		
8.0	02/01/78	3	33.0			58.0		
9.0	02/01/78	3	34.0			59.0		
10.0	02/01/78	3	35.0			60.0		
11.0	02/01/78	3	36.0			61.0		
12.0	02/01/78	3	37.0			62.0		
13.0	02/01/78	3	38.0			63.0		
14.0	02/01/78	3	39.0			64.0		
15.0	12/23/78	5	40.0			65.0		
16.0	12/23/78	5	41.0			66.0		
17.0	02/01/78	3	42.0			67.0		
18.0	12/23/78	5	43.0			68.0		
19.0	12/23/78	5	44.0			69.0		
20.0	12/23/78	5	45.0			70.0		
21.0	12/23/78	5	46.0			71.0		
22.0	02/01/78	3	47.0			72.0		
23.0	12/23/78	5	48.0			73.0		
24.0			49.0			74.0		
25.0			50.0			75.0		

Unit 1 Staff Recommends Approval Approval: <u>MA</u> Date: _____ Cognizant Dept. Head	Unit 2 Staff Recommends Approval Approval: <u>MA</u> Date: _____ Cognizant Dept. Head
Unit 1 PORC Recommends Approval <u>MA</u> Date: _____ Chairman of PORC	Unit 2 PORC Recommends Approval <u>J. Hilborn</u> Date: <u>12/21/78</u> V. Chairman of PORC
Unit 1 Superintendent Approval <u>MA</u> Date: _____	Unit 2 Superintendent Approval <u>B. Logan</u> Date: <u>12/23/78</u>
Manager Generation Quality Assurance Approval <u>MA</u> Date: _____	

230 096

ENCLOSURE 1

ONSITE/OFFSITE DISTRIBUTION SYSTEM LINEUP

SURVEILLANCE REQUIREMENT: MODES 5 & 6: One Ckt between the offsite Transmission network and the onsite class 1E Dist. Sys.  
 MODES 1,2,3,4: All Data Listed

BUSS	BREAKER POS/IND. OPEN/GREEN & WHITE	AS REQUIRED	AS FOUND
2A-1E2		YES	Yes*
2A-2E2	CLOSED/RED	YES	Yes*
G22-2E2	CLOSED/RED	YES	Yes
G22-12	OPEN/GREEN	YES	Yes
230 KV SUBSTATION BUS #4			
BUSS		READING ACTUAL	REQ'D
230KV BUS #4 (KV)		236	≥219

BUSS	BREAKER POS/IND. CLOSED/RED OPEN/GREEN & WHITE	PRESENT MODE: A, REQUIRED	AS FOUND
2B-1E2		YES	Yes*
2B-2E2	OPEN/GREEN & WHITE	YES	Yes*
G2-1E2	CLOSED/RED	YES	Yes*
G2-12	OPEN/GREEN	YES	Yes
230 KV SUBSTATION BUS #8			
BUSS		READING ACTUAL	REQ'D
230 KV BUS #8 (KV)		235	≥219

\* If any \* is No, then all \* items (2A-1E2, 2A-2E2, 2B-2E2, and 2B-1E2) must be No to meet Tech Spec in Modes 1,2,3,&4.

3.8.1.1	MODES 1-4 Cond.	acquired?	YES - No Followup Action. NO - Followup per T.S. Action No.	(YES/NO)	Yes
3.8.1.2	MV	5,6 Cond. as Required?	YES - No Followup Action NO - Followup per T.S. Action No.	(YES/NO)	
Performed By:		Date: 3/11/79	Time: 0755	Approved By:	<i>[Signature]</i>

ENCLOSURE 2  
4160/480 VOLT BUS LINEUP

SURVEILLANCE REQUIREMENT:

Modes 5 & 6: One 160V EM BUS and one 480V EM BUS. (Left column or Right column).  
Modes 1,2,3,4: All Data Listed

BUSS	BREAKER	POS./IND.	AS REQUIRED	AS FOUND
4160V EM BUS 2-1E & 2-3E	2B-1E2	CLOSED/RED	YES	Yes
	2A-1E2	OPEN/GREEN WHITE &	YES	Yes
	T1E-2E2	OPEN/GREEN	YES	Yes
	T1E-3E2	CLOSED/RED	YES	Yes
	T3E-4E2	PTL/GREEN	YES	Yes
BUS 2-1E	Volts	ACTUAL	REQ'D	
		4000	>3675 VAC	
BUS 2			4000	>3675 VAC

PRESENT MODE: 1

BUSS	BREAKER	POS./IND.	AS REQUIRED	AS FOUND
4160V EM BUS 2-2E & 2-4E	2B-2E2	OPEN/GREEN WHITE &	YES	Yes*
	2A-2E2	CLOSED/RED	YES	Yes*
	T2E-1E2	OPEN/GREEN	YES	Yes
	T2E-4E2	CLOSED/RED	YES	Yes
	T4E-3E2	PTL/GREEN	YES	Yes
BUS 2-2E	Volts	ACTUAL	REQ'D	
		4140	>3675 VAC	
BUS 2-4E	Volts		4200	>3675 VAC

\*If any \* is No, then all \* items (2A-1E2, 2A-2E2, WB-1E2, and 2B-2E2) Must be No to meet Tech Spec in Modes 1, 2, 3, and 4.

BUSS	BREAKER	POS./IND.	AS REQUIRED	AS FOUND
80V EM BUS 2-11E, 2-12E & 2-31E	1E-11E2	CLOSED/RED	YES	Yes
	11E-1E2	CLOSED/RED	YES	Yes
	1E-12E2	CLOSED/RED	YES	Yes
	12E-1E2	CLOSED/RED	YES	Yes
	3E-31E2	CLOSED/RED	YES	Yes
	31E-3E2	CLOSED/RED	YES	Yes
	T11E-21E2	NO LIGHT PTL/	YES	Yes
	T12E-22E2	NO LIGHT PTL/	YES	Yes
	T31E-41E2	NO LIGHT PTL/	YES	Yes
	POWER LIGHTS ON:			
BUS 2-11E		YES	Yes	
BUS 2-12E		YES	Yes	
BUS 2-31E		YES	Yes	

BUSS	BREAKER	POS./IND.	AS REQUIRED	AS FOUND
480V EM BUS 2-12E, 2-22E & 2-41E	2E-21E2	CLOSED/RED	YES	Yes
	21E-2E2	CLOSED/RED	YES	Yes
	2E-22E2	CLOSED/RED	YES	Yes
	22E-2E2	CLOSED/RED	YES	Yes
	4E-41E2	CLOSED/RED	YES	Yes
	41E-4E2	CLOSED/RED	YES	Yes
	T21E-11E2	NO LIGHT PTL/	YES	Yes
	T22E-12E2	NO LIGHT PTL/	YES	Yes
	T41E-31E2	NO LIGHT PTL/	YES	Yes
	POWER LIGHTS ON:			
BUS 2-21E		YES	Yes	
BUS 2-22E		YES	Yes	
BUS 2-41E		YES	Yes	

3.8.2.1 Mode 1-4 Cond. as Required? YES - No FC Followup Action  
NO - Followup per T.S. Action No. (YES/NO) Yes

3.8.2.2 Mode 5&6 Cond. as Required? YES - No Followup Action  
NO - Followup per T.S. Action No. (YES/NO) Yes

ENCLOSURE 3

120 VAC VITAL BUS LINEUP

SURVEILLANCE REQUIREMENT: MODES 5 & 6: Two 120 VAC VITAL BUSSES (2-1V & 2-3V or 2-2V & 2-4V)  
 MODES 1,2, : All Data Listed

5.0

BUSS	BREAKER POS/IND.	COND	AS FOUND
120 VAC VITAL BUS 2-1V	Inverter 2-1 CLOSED/RED	YES	Yes
	Reg Xfmr 2-1R OPEN/GREEN	YES	Yes
	1DC-VP1 CLOSED/RED	YES	Yes
	Static Sw 2-1V NORMAL	YES	Yes
120 VAC VITAL BUS 2-3V	Inverter 2-3 CLOSED/RED	YES	Yes
	Reg Xfmr 2-3R OPEN/GREEN	YES	Yes
	1DC-VP3 CLOSED/RED	YES	Yes
	Static Sw 2-3V NORMAL	YES	Yes

PRESENT MODE:

BUSS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
120 VAC VITAL BUS 2-2V	Inverter 2-2 CLOSED/RED	YES	Yes
	Reg Xfmr 2-2R OPEN/GREEN	YES	Yes
	2DC-VP2 CLOSED/RED	YES	Yes
	Static Sw 2-2V NORMAL	YES	Yes
120 VAC VITAL BUS 2-4V	Inverter 2-4 CLOSED/RED	YES	Yes
	Reg Xfmr 2-4R OPEN/GREEN	YES	Yes
	2DC-VP4 CLOSED/RED	YES	Yes
	Static Sw 2-4V NORMAL	YES	Yes

3.8.2.1	MODE 1-4 Cond. As Required?	YES - No Followup Action. NO - Follow up Per T.S. ACTION No.	(YES/NO)	Yes
3.8.2.2	MODE 5,6 Cond. As Required?	YES - No Followup Action. NO - Followup per T.S. ACTION No.	(YES/NO)	
PERFORMED BY:	Olson	DATE: 3/14/77	TIME: 0803	APPROVED BY: <i>[Signature]</i>

230 099

2301-M1  
 Revision 0  
 08/19/77

ENCLOSURE 4

250/125 VDC BUS LINEUP

SURVEILLANCE REQUIREMENT: MODES 5 & 6: One 250/125 VDC BUS and one 250/125 VDC Battery Bank & Charger.  
 MODES 1,2,3,4: All Data Listed

PRESENT MODE: 1

BUSS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
	1DC-SB1 CLOSED/RED	YES	Yes
	1DC-12E CLOSED/RED	YES	Yes
	BUS TIE 1DC/2DC OPEN/GREEN	YES	Yes
		READING	
	BUSS	ACTUAL	REQ'D
	2-1DC-P-PN (VDC)	130	≥125
	2-1DC PN-N (VDC)	133	≥125

BUSS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
	2DC-SB2 CLOSED/RED	YES	Yes
	2DC-22E CLOSED/RED	YES	Yes
	BUS TIE 2DC/1DC OPEN/GREEN	YES	Yes
		READING	
	BUSS	ACTUAL	REQ'D
	2-2DC P-PN (VDC)	129	≥125
	2-2DC PN-N (VDC)	130	≥125

6.0

3.8.2.3	MODE 1-4 Cond. As Required?	YES - No Followup Action. NO - Followup per T.S. ACTION No.	(YES/NO)	Yes
3.8.2.4	MODE 5,6 Cond. As Required?	YES - No Followup Action. NO - Followup per T.S. ACTION No.	(YES/NO)	
PERFORMED BY: Olson		DATE: 3/14/77	TIME: 0805	APPROVED BY: <i>[Signature]</i>

230 100

2301-N1  
 Revision 1  
 10/29/77

ENCLOSURE 5  
REACTIVITY CONTROL SYSTEM CHECKS

Revision 4  
05/24/78

SURVEILLANCE REQUIRED:

MODES 5 & 6: Record either BWST, BAMS, or RBAT Data.

MODES 1,2,3,4: Record BWST and BAMS or RBAT Data.

NOTE: To determine whether the BAMS or RBAT is being used as a source of Boron, see 2301-M2. NA the tank not being used.

PRESENT MODE: 1

T.S. ACTION #	DESCRIPTION	BORATED WATER STORAGE TANK		BORIC ACID MIX TANK		RECLAIMED BORIC ACID TANK	
		ACTUAL	REQUIRED	ACTUAL	REQUIRED	ACTUAL	REQUIRED
3.1.2.1	Heat traced pipe	Yes	Energized	Yes	Energized		Energized
3.1.2.8	Most recent Chemistry	23/13	Modes 5, 6 & >2270 ppmb	12/58	Modes 1,2,3,4,5, & 6 between 7875 and 13,125ppmb		Modes 1,2,3,4,5 and 6: between 7875 and 13,125 ppmb
3.5.4	Boron sample		Modes 1, 2, 3, 4: between 2270 and 2370 ppmb				
	Tank volume (level, ft.)	54.54	Modes 5, 6: > 8.7 feet Modes 1, 2, 3, 4: between 53.5' and 56'	121.9	per attached figure 1&2		per attached figure 5
3.1.2.8	Tank solution temp (°F)	70	≥ 40°F	131.1	≥ 105°F		≥ 105°F

Above surveillance checks are as required? (Yes/No) Yes

SURVEILLANCE REQUIRED DURING MODES 1 & 2

PRESENT MODE:

T.S. ACTION No.	DESCRIPTION	ACTUAL	REQUIRED
3.1.3.8	CRD PATCH PANELS ARE LOCKED? (YES/NO) YES - No followup required. NO - Followup per T.S. ACTION No.	Yes	

PRESENT MODE:

MODE	T.S. ACTION No.	DESCRIPTION	ACTUAL	REQUIRED
1 >15%	3.2.4	Quadrant Pwr Tilt (Computer Operable) Full Incore Sys. Group 55		<2.30
ALL	3.9.11	SF STG Pool Water Level (when irradiated fuel is in STG Pool)	NA	<344.5 ft. Over fuel

PERFORMED BY: OB

DATE: 3/14/79

TIME: 08:15

APPROVED BY: M. [Signature]

DATE: 3/14/79

TIME: 10:50

230 101

DATA SHEET 1

Paragraph 6.2

Inoperable Incore Detectors

<u>Detector Number</u>	<u>Core Location/Level</u>
<u>38</u>	<u>L-2 / 1</u>
<u>27</u>	<u>D-10 / 2</u>
* <u>5</u>	<u>E-9 2</u>
<u>6</u>	<u>F-7 2</u>
<u>38</u>	<u>L-2 2</u>
<u>27</u>	<u>D-10 3</u>
<u>38</u>	<u>L-2 3</u>
<u>14</u>	<u>N-8 3</u>
<u>27</u>	<u>D-10 4</u>
* <u>5</u>	<u>E-9 4</u>
<u>38</u>	<u>L-2 4</u>
<u>27</u>	<u>D-10 5</u>
* <u>5</u>	<u>E-9 5</u>
<u>4</u>	<u>F-8 5</u>
* <u>11</u>	<u>K-5 5</u>
<u>38</u>	<u>L-2 5</u>
<u>57</u>	<u>D-14 6</u>
* <u>5</u>	<u>E-9 6</u>
<u>38</u>	<u>L-2 6</u>
<u>27</u>	<u>D-10 7</u>
* <u>5</u>	<u>E-9 7</u>
<u>38</u>	<u>L-2 7</u>

NOTE: See Figure for Core location of detectors.

Performed By: C. P. ... Date: 3/14/79

Approved By: M. ... Date: 3/14/79

27  
46  
14

18.0  
D-10 / 6  
R-10 4230 102  
N-8 2





Contacted Mike Benson - He concurs that  
test spec requirements are met on ~~some~~,  
incore instruments.

230 104

55  
:43  
/79

TILT/IMBALANCE/INSERTION 03/14/79 08:19:42

	INCORE	N15	N16	N17	N18
NER		97.72	97.47	97.69	97.44
WCE	1.05	1.09	0.34	0.66	0.72

CALCULATED ALLOWABLE INCORE IMBALANCE  
FOR PRESENT POWER LEVEL NEG= -5.04 POS= 12.45

IX	YZ	XY	ZI	
0.23	0.16	0.20	-0.58	INCORE
0.14	-0.11	0.11	-0.14	OUT OF CORE

CALCULATED ALLOWABLE INCORE TILT  
FOR PRESENT POWER LEVEL 2.30

WITHDRAWAL INDEX 196.402

CALCULATED ALLOWABLE ROD INDEX  
FOR PRESENT POWER LEVEL MIN=188.295 MAX=200.000

CORPL 2717.23 POWUP 1373.83 POWLL 1344.83

PERCENT FULL POWER 98.025

230 105

:37  
/79

RECTED SPND MAP LEVEL 1 ALL LOCATIONS IN NANOMIPS 07:47:27 03/14/79

	31	30			
	464	521			
	32	29	28	52	
	* 450*	561	* 463*	216	
	33		27	51	
	457		555	197	
	34	7	5	26	
	450	* 570*	* 582*	565	
	35	6	4	24	23
	* 461*	520	603	554	* 457*
36	9	8	3	25	22
453	* 578*	521	623	* 583*	564
	10	1	2	21	
	504	626	562	509	
	11		19	20	
	* 572*		* 582*	496	
39	12		18	50	
** 457*	502		510	* 455*	
40	13	16	17	49	
469	* 591*	* 579*	508	316	
	41	14	15		
	468	507	493		
	42	43	47	48	
	475	* 462*	* 462*	328	
	44				
	430				
	45	46			
	320	223			

45  
:05  
/79

RECTED SPND MAP LEVEL 2 ALL LOCATIONS IN NANOMIPS 07:47:27 03/14/79

	31	30			
	668	768			
	32	29	28	52	
	* 684*	809	* 670*	365	
	33		27	51	
	640		0	299	
	34	7	5	26	
	656	* 850*	* ****	805	
	35	6	4	24	23
	* 662*	0	892	805	* 676*
36	9	8	3	25	22
678	* 845*	750	902	* 844*	810
	10	1	2	21	
	740	926	803	735	
	11		19	20	
	* 853*		* 830*	718	
39	12		18	50	
** 667*	844		733	* 669*	
40	13	16	17	49	
692	* 838*	* 841*	746	475	
	41	14	15		
	681	1	718		
	42	43	47	48	
	696	* 670*	* 672*	470	

230 106

690 \* 670\* \* 672\* 470

44

643

45

46

484

349

45

:40

/79

RECTED SPND MAP LEVEL 3 ALL LOCATIONS III NANONIPS 07:47:27 03/14/79

31 30

707 777

32

29

28

52

\* 624\*

810

\* 632\*

327

33

27

51

607

\*\*\*

306

34

7

5

26

507

\* 850\*

\* 858\*

752

35

6

4

24

23

\* 634\*

796

936

487

\* 634\*

36

9

8

3

25

22

304

\* 845\*

821

971

\* 847\*

819

10

1

2

21

769

996

385

754

11

19

20

\* 851\*

\* 833\*

679

38

12

18

50

\*\* 620\*

365

668

\* 625\*

40

13

16

17

49

600

\* 845\*

\* 860\*

681

484

41

14

15

667

0

675

42

43

47

48

670

\* 624\*

627

44

636

45

46

505

375

45

:03

/79

RECTED SPND MAP LEVEL 4 ALL LOCATIONS III NANONIPS 07:47:27 03/14/79

31 30

710 811

32

29

28

52

\* 655\*

874

\* 671\*

354

33

27

51

640

0

329

34

7

5

26

621

\* 886\*

\*\*\*\*\*

794

35

6

4

24

23

\* 649\*

841

995

516

\* 656\*

36

0

3

3

25

22

797

\* 835\*

823

1003

\* 893\*

860

10

1

2

21

815

1003

907

703

11

19

20

\* 893\*

\* 892\*

715

38

12

18

50

20-21

39	12	18	50
** 637*	908	731	* 659*
40	13	16	17
630	* 837*	* 882*	737
41	14	15	49
708	845	713	503
42	43	47	48
705	* 663*	* 652*	501
44	677		
45	524	46	8

45  
:41  
/73

RECTED SPND MAP LEVEL 5 ALL LOCATIONS IN NANOMIPS 07:47:27 03/14/79

	31	30		
	754	812		
	32	29	23	52
	* 768*	919	* 762*	325
33			27	51
746			****	354
34	7	5	26	
744	* 946*	****	918	
35	6	4	24	23
* 765*	877	****	866	* 733*
36	3	3	25	22
723	* 950*	865	1001	* 942*
	10	1	2	21
	830	949	896	843
	11		19	20
	****		* 990*	806
	12		18	50
**	884		825	* 762*
	13	16	17	49
730	* 956*	* 951*	830	526
41	14	15		
750	901	811		
42	43	47	48	
775	* 737*	* 760*	528	
44	692			
	45	46		
	516	309		

45  
:12  
/73

RECTED SPND MAP LEVEL 6 ALL LOCATIONS IN NANOMIPS 07:47:27 03/14/79

	31	30		
	693	763		
	32	29	23	52
	* 711*	847	* 797*	342
33			27	51
723			0	****
34	7	5	25	
718	* 877*	****	350	
35	6	4	24	23
* 680*	790	890	823	* 710*

230 108

36  
 075 \* 870\* 730 343 \* 300\*  
 10 1 2  
 792 304 309  
 11 10  
 \* 886\* \* 300\* 751  
 33 39 12  
 \*\* \* 696\* 314 10  
 40 13 17  
 731 \* 303\* \* 314\* 704  
 41 14 13  
 710 312 736  
 42 43 47  
 713 \* 635\* \* 300\* 478  
 44  
 650  
 45 46  
 426 370

22  
 853  
 21  
 751  
 20  
 751  
 50  
 \* 671\*  
 49  
 503  
 48  
 479

7  
 144  
 /79

INPUT SUMMARY

BORATED STR TO DEWELZR FL (GRM)  
 IN LINCORF T/C 11-E TEMP  
 NP SRCE RANGE H11 LVL (LOG OPS)  
 NP SRCE RANGE H12 LVL (LOG OPS)  
 FLUX 0-F LEVEL 5 (NANOAMPS)  
 FLUX 9-E LEVEL 2 (NANOAMPS)  
 FLUX 9-E LEVEL 4 (NANOAMPS)  
 FLUX 9-E LEVEL 5 (NANOAMPS)  
 FLUX 9-E LEVEL 6 (NANOAMPS)  
 FLUX 9-E LEVEL 7 (NANOAMPS)  
 BACKGROUND 9-E (NANOAMPS)  
 FLUX 5-K LEVEL 5 (NANOAMPS)  
 FLUX 10-D LEVEL 3 (NANOAMPS)  
 FLUX 10-D

45  
 :52  
 /70

DIRECTED SPIN MAP LEVEL 7 ALL LOCATIONS IN NANOAMPS 07:47:27 03/14/70

31 30  
 391 432  
 32 29 28  
 \* 407\* 513 \* 426\*  
 33 27  
 401  
 34 7 5 26  
 430 \* 556\* \*-----\* 430  
 35 6 4 24 23  
 \* 410\* 481 577 400 \* 406\*  
 36 9 3 3 25 22  
 300 \* 576\* 400 583 \* 513\* 510  
 10 1 2 21  
 472 558 432 432  
 11 10 20  
 \* 540\* \* 540\* 449  
 3 39 12 13 50  
 \*\* \* 306\* 554 475 \* 421\*  
 40 13 16 17 49  
 445 \* 553\* \* 531\* 427 294

230 109

FLUX 10-D LEVEL 3 (NANOAMPS)  
FLUX 10-D

45  
:52  
/70

RECTED SPIN MAP LEVEL 7 ALL LOCATIONS III NANOAMPS 07:47:27 03/14/73

	31	30			
	391	432			
	32	29	28	52	
	* 407*	513	* 426*	195	
	33		27	51	
	401		-****	184	
	34	7	5	26	
	430	* 550*	*-*****	430	
	35	6	4	24	23
	* 410*	481	577	490	* 406*
36	0	0	3	25	22
300	* 576*	480	503	* 513*	510
	10	1	2		21
	472	553	432		432
	11			10	20
	* 540*			* 543*	440
39	12			18	50
* 306*	554			475	* 421*
40	13	16	17		49
445	* 553*	* 531*	427		294
41	14	15			
422	447	456			
42	43		47	48	
440	* 303*		* 402*	290	
	44				
	394				
	45	46			
	212	211			

230 110





**CONTROLLED COPY** - THREE MILE ISLAND NUCLEAR STATION  
**CONTROL ROOM** UNIT #2 SURVEILLANCE PROCEDURE 2301-W1  
**WORKING COPY** WEEKLY SURVEILLANCE CHECKS  
Table of Effective Pages

Page	Date	Revision	Page	Date	Revision	Page	Date	Revision
1.0	02/01/78	3	26.0			51.0		
2.0	08/19/77	0	27.0			52.0		
3.0	10/29/77	1	28.0			53.0		
4.0	02/01/78	3	29.0			54.0		
5.0	08/19/77	0	30.0			55.0		
6.0	10/29/77	1	31.0			56.0		
7.0	05/24/78	4	32.0			57.0		
8.0	02/01/78	3	33.0			58.0		
9.0	02/01/78	3	34.0			59.0		
10.0	02/01/78	3	35.0			60.0		
11.0	02/01/78	3	36.0			61.0		
12.0	02/01/78	3	37.0			62.0		
13.0	02/01/78	3	38.0			63.0		
14.0	02/01/78	3	39.0			64.0		
15.0	12/23/78	5	40.0			65.0		
16.0	12/23/78	5	41.0			66.0		
17.0	02/01/78	3	42.0			67.0		
18.0	12/23/78	5	43.0			68.0		
19.0	12/23/78	5	44.0			69.0		
20.0	12/23/78	5	45.0			70.0		
21.0	12/23/78	5	46.0			71.0		
22.0	12/23/78	3	47.0			72.0		
23.0	12/23/78		48.0			73.0		
24.0			49.0			74.0		
25.0			50.0			75.0		

Unit 1 Staff Recommends Approval Approval: <u>MAH</u> Date: _____ Cognizant Dept. Head	Unit 2 Staff Recommends Approval Approval: <u>MAH</u> Date: _____ Cognizant Dept. Head
Unit 1 PORC Recommends Approval <u>MAH</u> Date: _____ Chairman of PORC	Unit 2 PORC Recommends Approval <u>J.F. Hilbish</u> Date: <u>12/21/78</u> V-Chairman of PORC
Unit 1 Superintendent Approval <u>MAH</u> Date: _____	Unit 2 Superintendent Approval <u>B. Logan</u> Date: <u>12/23/78</u>
Manager Generation Quality Assurance Approval: <u>MAH</u> Date: _____	

ENCLOSURE 1

ONSITE/OFFSITE DISTRIBUTION SYSTEM LINEUP

SURVEILLANCE REQUIREMENT: MODES 5 & 6: One Ckt between the offsite Transmission network and the onsite class 1E Dist. Sys.  
 MODES 1,2,3,4: All Data Listed

BUSS	BREAKER POS/IND.	PRESENT MODE:	
		AS REQUIRED	AS FOUND
230 KV SUBSTATION BUS #4	2A-1E2 OPEN/GREEN & WHITE	YES	Y <sub>20</sub> *
	2A-2E2 CLOSED/RED	YES	Y <sub>20</sub> *
	G22-2E2 CLOSED/RED	YES	Y <sub>20</sub>
	G22-12 OPEN/GREEN	YES	Y <sub>20</sub>
BUSS		READING ACTUAL REQ'D	
230KV BUS #4 (KV)		232	>219

BUSS	BREAKER POS/IND.	PRESENT MODE:	
		AS REQUIRED	AS FOUND
230 KV SUBSTATION BUS #8	2B-1E2 CLOSED/RED	YES	Y <sub>19</sub> *
	2B-2E2 OPEN/GREEN & WHITE	YES	Y <sub>20</sub> *
	G2-1E2 CLOSED/RED	YES	Y <sub>20</sub> *
	G2-12 OPEN/GREEN	YES	Y <sub>20</sub>
BUSS		READING ACTUAL REQ'D	
230 KV BUS #8 (KV)		232	>219

\* If any \* is No, then all \* items (2A-1E2, 2A-2E2, 2B-2E2, and 2B-1E2) must be No to meet Tech Spec in Modes 1,2,3, & 4.

3.8.1.1	MODES 1-4 Cond. as Required?	(YES/NO)	Y <sub>20</sub>
3.8.1.2	MODES 5,6 Cond. as Required?	(YES/NO)	
Performed By: Coleman		Date: 3/8/79	Time: 0530
		Approved By: J. Schuman	

2301-W1  
 Revision 1  
 10/29/77

ENCLOSURE 2  
4160/480 VCLT BUS LINEUP

SURVEILLANCE REQUIREMENT:

Modes 5 & 6: One 4160V EM BUS and one 480V EM BUS. (Left column or Right column).  
Modes 1,2,3,4: All Data Listed

BUSS	BREAKER	POS/IND.	AS REQUIRED	AS FOUND
4160V EM BUS 2-1E & 2-3E	2B-1E2	CLOSED/RED	YES	Yea*
	2A-1E2	OPEN/GREEN WHITE &	YES	Yea-
	T1E-2E2	OPEN/GREEN	YES	Yea
	T1E-3E2	CLOSED/RED	YES	Yea
	T3E-4E2	PTL/GREEN	YES	Yea
	BUS 2-1E	Volts	ACTUAL 3900	REQ'D >3675 VAC
	BUS 2-3E	Volts	3950	>3675 VAC
80V EM BUS 2-11E, 2-12E & 2-31E	1E-11E2	CLOSED/RED	YES	Yea
	11E-1E2	CLOSED/RED	YES	Yea
	1E-12E2	CLOSED/RED	YES	Yea
	12E-1E2	CLOSED/RED	YES	Yea
	3E-31E2	CLOSED/RED	YES	Yea
	31E-3E2	CLOSED/RED	YES	Yea
	T11E-21E2	NO LIGHT PTL/	YES	Yea
	T12E-22E2	NO LIGHT PTL/	YES	Yea
	T31E-41E2	NO LIGHT PTL/	YES	Yea
	POWER LIGHTS ON:			YES
BUS 2-11E		YES	Yea	
BUS 2-12E		YES	Yea	
BUS 2-31E		YES	Yea	

\*If any \* is No, then all \* items (2A-1E2, 2A-2E2, WB-1E2, and 2B-2E2)  
Must be No to meet Tech Spec in Modes 1, 2, 3, and 4.

BUSS	BREAKER	POS/IND.	AS REQUIRED	AS FOUND
4160V EM BUS 2-2E & 2-4E	2B-2E2	OPEN/GREEN WHITE &	YES	Yea*
	2A-2E2	CLOSED/RED	YES	Yea*
	T2E-1E2	OPEN/GREEN	YES	Yea
	T2E-4E2	CLOSED/RED	YES	Yea
	T4E-3E2	PTL/GREEN	YES	Yea
	BUS 2-2E	Volts	ACTUAL 4000	REQ'D >3675 VAC
	BUS 2-4E	Volts	4100	>3675 VAC
480V EM BUS 2-12E, 2-22E & 2-41E	2E-21E2	CLOSED/RED	YES	Yea
	21E-2F2	CLOSED/RED	YES	Yea
	2E-22E2	CLOSED/R.		Yea
	22E-2E2	CLOSED/RED	YES	Yea
	4E-41E2	CLOSED/RED	YES	Yea
	41E-4E2	CLOSED/RED	YES	Yea
	T21E-11E2	NO LIGHT PTL/	YES	Yea
	T22E-12E2	NO LIGHT PTL/	YES	Yea
	T41E-31E2	NO LIGHT PTL/	YES	Yea
	POWER LIGHTS ON:			YES
BUS 2-21E		YES	Yea	
BUS 2-22E		YES	Yea	
BUS 2-41E		YES	Yea	

3.8.2.1 Mode 1-4 Cond. as Required? YES - No Followup Action  
NO - Followup per T.S. Action No. 230 YES/NO/NA Yea

3.8.2.2 Mode 5&6 Cond. as Required? YES - No Followup Action  
NO - Followup per T.S. Action No. 230 YES/NO/NA Yea  
Colman 3/6/79 05%

ENCLOSURE 3

120 VAC VITAL BUS LINEUP

SURVETLLANCE REQUIREMENT: MODES 5 & 6: Two 120 VAC VITAL BUSSES (2-1V & 2-3V or 2-2V & 2-4V)  
 MODES 1,2,3,4: All Data Listed

PRESENT MODE: /

BUSS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
120 VAC VITAL BUS 2-1V	Inverter 2-1 CLOSED/RED	YES	Yes
	Reg Xfmr 2-1R OPEN/GREEN	YES	Yes
	1DC-VP1 CLOSED/RED	YES	Yes
	Static Sw 2-1V NORMAL	YES	Yes
120 VAC VITAL BUS 2-3V	Inverter 2-3 CLOSED/RED	YES	Yes
	Reg Xfmr 2-3R OPEN/GREEN	YES	Yes
	1DC-VP3 CLOSED/RED	YES	Yes
	Static Sw 2-3V NORMAL	YES	Yes

BUSS	BREAKER POS/IND.	AS REQUIRED	AS FOUND
120 VAC VITAL BUS 2-2V	Inverter 2-2 CLOSED/RED	YES	Yes
	Reg Xfmr 2-2R OPEN/GREEN	YES	Yes
	2DC-VP2 CLOSED/RED	YES	Yes
	Static Sw 2-2V NORMAL	YES	Yes
120 VAC VITAL BUS 2-4V	Inverter 2-4 CLOSED/RED	YES	Yes
	Reg Xfmr 2-4R OPEN/GREEN	YES	Yes
	2DC-VP4 CLOSED/RED	YES	Yes
	Static Sw 2-4V NORMAL	YES	Yes

3.8.2.1	MODE 1-4 Cond. As Required?	YES - No Followup Action. NO - Follow up Per T.S. ACTION No.	(YES/NO)	Yes
3.8.2.2	MODE 5,6 Cond. As Required?	YES - No Followup Action. NO - Followup per T.S. ACTION No.	(YES/NO)	N/A
PERFORMED BY: <i>Colman</i>		DATE: <i>3/8/57</i>	TIME: <i>0535</i>	APPROVED BY: <i>J. J. Roman</i>

5.0

230 115

2301-M1  
Revision 0  
08/19/77

ENCLOSURE 4

250/125 VDC BUS LINEUP

SURVEILLANCE REQUIREMENT:

MODES 5 & 6: One 250/125 VDC BUS and one 250/125 VDC Battery Bank & Charger.  
 MODES 1, 2, 3, 4: All Data Listed

BUSS	BREAKER POS/IND.	PRESENT MODE:		AS FOUND
		AS REQUIRED	AS REQUIRED	
	1DC-SB1 CLOSED/RED	YES	YES	Yes
	1DC-12E CLOSED/RED	YES	YES	Yes
	BUS TIE 1DC/2DC OPEN/GREEN	YES	YES	Yes
	BUSS			
	2-1DC P-PN (VDC)	ACTUAL	READING	REQ'D
		130	129	>125
	2-1DC PN-N (VDC)	ACTUAL	READING	REQ'D
		130	130	>125

3.8.2.3	MODE 1-4 Cond. As Required?	YES - No Followup Action. NO - Followup per T.S. ACTION No.	(YES/NO)	Yes
3.8.2.4	MODE 5,6 Cond. As Required?	YES - No Followup Action. NO - Followup per T.S. ACTION No.	(YES/NO)	NA
PERFORMED BY: Coleman		DATE: 3/8/79	TIME: 0537	APPROVED BY: F. J. Scherman

230 116

2301-W1  
Division 4  
05/24/78

ENCLOSURE 5  
REACTIVITY CONTROL SYSTEM CHECKS

SURVEILLANCE REQUIRED:

MODES 5 & 6: Record either BWST, BAMT, or RBAT Data.

MODES 1,2,3,4: Record BWST and BAMT or RBAT Data.

NOTE: To determine whether the BAMT or RBAT is being used as a source of Boron, see 2301-M2. NA the tank not being used.

PRESENT MODE: 1

ACTION #	DESCRIPTION	BORATED WATER STORAGE TANK		BORIC ACID MIX TANK		RECLAIMED BORIC ACID TANK	
		ACTUAL	REQUIRED	ACTUAL	REQUIRED	ACTUAL	REQUIRED
3.1.2.1	Heat traced pipe	Yes	Energized	Yes	Energized	NA	Energized
3.1.2.8	Most recent Chemistry	2313	Modes 5, 6 & >2270 ppmb	12,033	Modes 1,2, 3,4,5, & 6 between 7875 and 13,125ppmb	NA	Modes 1,2,3,4, 5 and 6: between 7875 and 13,125 ppmb
3.1.2.9	Boron sample		Modes 1, 2, 3, 4: between 2270 and 2370 ppmb				
3.1.5.4	Tank volume (level, ft.)	54.68	Modes 5, 6: > 8.7 feet Modes 1, 2, 3, 4: between 53.5' and 56'	6752 gal	per attached figure 1&2	NA	per attached figure 5
3.1.2.8	Tank solution temp (°F)	65°F	≥ 40°F	127.3	≥ 105°F	NA	≥ 105°F

Above surveillance checks are as required? (Yes/No) Yes

SURVEILLANCE REQUIRED DURING MODES 1 & 2		PRESENT MODE: 1	
T.S. ACTION No.	DESCRIPTION	ACTUAL	REQUIRED
3.1.3.8	CRD PATCH PANELS ARE LOCKED? (YES/NO) YES - No followup required. NO - Followup per T.S. ACTION No.	Yes	YES

			PRESENT MODE: 1	
MODE	T.S. ACTION No.	DESCRIPTION	ACTUAL	REQUIRED
1 >15%	3.2.4	Quadrant Pwr Tilt (Computer Operable) Full Incore Sys. Group 55	.27	<2.30
ALL	3.9.11	SF STG Pool Water Level (when irradiated fuel is in ST pool)	NA	<344.5 ft. Over 1

PERFORMED BY: Colman DATE: 3/8/79 TIME: 0610  
 APPROVED BY: F. Schumann DATE: 3/8/79 TIME: 0820

230 117

DATA SHEET 1

Paragraph 6.2

Inoperable Incore Detectors

Detector Number	Core Location/Level
14	N8 / 2
46	R10 / 4
28	L2 / 1
27	D10 / 2
5	E9 / 2
6	F7 / 2
38	L2 / 2
27	D10 3
38	L2 3
14	N8 3
27	D10 4
5	E9 4
38	L2 4
27	D10 5
5	E9 5
4	F8 5
11	K5 5
38	L2 5
27	D10 6
51	D14 6
* 5	E9 6
38	L2 6
5	E9 7
38	L2 7

NOTE: See Figure for Core location of detectors.

Performed By: Coleman Date: 3/8/79

Approved By: J. Schumann Date: 3/8/79

\* Also goes to B/u Recorder

230 118





52

227

23

471

22

501

21

523

17

59

462

17

772

52

**POOR ORIGINAL**

230 120

10/10/10  
10/10/10  
10/10/10

ADMINISTRATIVE LEVEL 1 ALL 10/10/10

31 31  
311 737

31 31  
311 737

33  
337

34 7  
343 \* 373

35  
\* 337

35 3  
333 \* 333 777

37  
377

37  
377

37  
377

37 37  
773 \* 773 527

35  
307

49  
301

DATE: 10/10/77

21 3

21

21

21

**POOR ORIGINAL**

230 121

DATE	DESCRIPTION	AMOUNT	BALANCE
1950			
1951			
1952			
1953			
1954			
1955			
1956			
1957			
1958			
1959			
1960			
1961			
1962			
1963			
1964			
1965			
1966			
1967			
1968			
1969			
1970			
1971			
1972			
1973			
1974			
1975			
1976			
1977			
1978			
1979			
1980			
1981			
1982			
1983			
1984			
1985			
1986			
1987			
1988			
1989			
1990			
1991			
1992			
1993			
1994			
1995			
1996			
1997			
1998			
1999			
2000			
2001			
2002			
2003			
2004			
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			
2016			
2017			
2018			
2019			
2020			
2021			
2022			
2023			
2024			
2025			
2026			
2027			
2028			
2029			
2030			
2031			
2032			
2033			
2034			
2035			
2036			
2037			
2038			
2039			
2040			
2041			
2042			
2043			
2044			
2045			
2046			
2047			
2048			
2049			
2050			
2051			
2052			
2053			
2054			
2055			
2056			
2057			
2058			
2059			
2060			
2061			
2062			
2063			
2064			
2065			
2066			
2067			
2068			
2069			
2070			
2071			
2072			
2073			
2074			
2075			
2076			
2077			
2078			
2079			
2080			
2081			
2082			
2083			
2084			
2085			
2086			
2087			
2088			
2089			
2090			
2091			
2092			
2093			
2094			
2095			
2096			
2097			
2098			
2099			
2100			

**POOR ORIGINAL**

230 122

C

11-17

THE V. C. ...

2

11

**POOR ORIGINAL**

230 123