

TMI DOCUMENTS

DOCUMENT NO: TM-0650

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RAA
Supervisor, Document Control, NRC

7906180 698

229 110

"TEMPORARY CHANGE"

Work

AP 1001

Figure 1001 - 5

Three Mile Island Nuclear Station
Temporary Change Notice (TCN)

SIDE 1

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

TCN NO. 2-79-02
(From TCN Log Index)
Unit No. 3
Date 1-4-79

1. Procedure 2303 m26 DN-P.14/c Functional Test
No. Title

2. Change (Include page numbers, paragraph numbers, and exact wording of change.)
By G.O. DELATA STAP 616

3. Reason for Change:
By G.O. DELATA STAP 621
By G.O. DELATA STAP 622
By G.O. DELATA STAP 623

4. Recommended by [Signature] 1-4-79 Date
5. [Signature] 1-4-79 Supervisor's Signature Date

6. Duration of TCN - No longer than ninety days from effective date of TCN or as in (a) or (b) below whichever occurs first.
(a) TCN will be cancelled by a procedure revision issued as a result of a Procedure Change Request to be submitted by [Signature] (Submit PCR as soon as possible)
Supervisor Submitting TCN
(b) TCN is not valid after 1-4-79
(fill in circumstances which will result in TCN being cancelled)

7. (a) Is the procedure on the Nuclear Safety Related Procedure List? (Ser. AP 1001 - Appendix 3)
If "Yes", complete Nuclear Safety Evaluation. (Side 2 of this Form) Yes No
(b) Is the procedure on the Environmental Impact Procedure List? (Sec. AP 1001 - App. 1)
If "Yes", complete Environmental Evaluation. (Side 2 of this Form) Yes No
(c) Does the change effect the intent of the original procedure? Yes No
NOTE: If all answers are "no" the change may be approved by the Shift Supervisor. If question (c) is answered "yes", the change must be reviewed by the PORC and approval by the Station/Unit Superintendent prior to implementation. If the answer to question (c) is "no" the change may be approved by two members of the plant management staff at least one of whom holds a senior reactor operators license on the unit affected in accordance with paragraph 3.6.4.2 of AP 1001.

8. Review and Approval
Block (c) "yes" Block (c) "no"
Approved [Signature] 1-4-79 Approved [Signature] 1-4-79
Shift Supervisor/Foreman Date G.O. License Date
Reviewed [Signature] 1-4-79
Member Plant Mgmt Staff Date
Members Of PORC Reviewed [Signature] Date
Chairman of PORC Date
Contacted [Signature] Date
PORC Members Date
Approved [Signature] Date
Unit Superintendent Date

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

9. Approval
Manager, Generation Quality Assurance [Signature] Date 1-4-79
NOTE: M.G.Q.A. approval required only on certain Administrative Procedures listed in Enclosure 7 of AP 1001

10. TCN is Cancelled

229 112

"EVALUATION"

AP-1001

Three Mile Island Nuclear Station

SIDE 2

Figure 1001-4

Nuclear Safety/Environmental Impact Evaluation

1. Procedure 2303-M2B DH-P-1A/B Functional Test 279002
No. Title Temporary Change Notice No.

2. Nuclear Safety Evaluation

Does the attached procedure change:

- * (a) increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety? yes no
- * (b) create the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report? yes no
- * (c) reduce the margin of safety as defined in the basis for any technical specification? yes no

Details of Evaluation (Explain why answers to above questions are "no". Attach additional pages if required.)

The change was not about nuclear safety. It allows us to test the DH-P-1A without changing the east-coast piping in the venting system. DH-P-1A still has SCRAM from MUR-T-1

Evaluation By A. Miller Date 1-4-79

3. Environmental Impact Evaluation

Does the attached procedure change:

- (a) possibly involve a significant environmental impact? yes no
(if 3(a) is "yes", answer questions (b) and (c) and fill in "Details of Evaluation" below. If "no", state why by filling in the "Details of Evaluation" below)
- * (b) have a significant adverse effect on the environment? yes no
- * (c) involve a significant environmental matter or question not previously reviewed and evaluated by the N.R.C. yes no

Details of Evaluation (Attach additional pages if required)

Evaluation By _____ Date _____

4. Unit Superintendent requests PORC review Check if YES.

5. Approval

Evaluation Accompanying PCR

Evaluation Accompanying TCN

Unit Superintendent Date

Approval A. Miller 1-4-79
SRO Licensee Date

Reviewed GA King 1-4-79
Member of Staff Date

Approval _____
Unit Superintendent Date

NOTE: The Evaluation "Accompanying a PCR" evaluation and approval chain may be followed at anytime.

229 113

CONTROLLED COPY THREE MILE ISLAND NUCLEAR STATION
UNIT #2 SURVEILLANCE PROCEDURE 2303-2MA/B
CONTROL COPY DECADE HEAT REMOVAL PUMP FUNCTIONAL TEST
AND VALVE OPERABILITY TEST
WORKING COPY Table of Effective Pages

Page	Date	Revision	Page	Date	Revision	Page	Date	Revision
1.0	12/01/77	1	26.0	12/01/77	1	51.0		
2.0	12/01/77	1	27.0	12/01/77	1	52.0		
3.0	12/01/77	1	28.0	02/27/78	3	53.0		
4.0	12/01/77	1	29.0	03/30/78	4	54.0		
5.0	04/18/78	5	30.0	03/30/78	4	55.0		
6.0	06/20/78	7	31.0	03/30/78	4	56.0		
7.0	06/20/78	7	32.0	05/10/78	6	57.0		
8.0	06/20/78	7	33.0	03/30/78	4	58.0		
9.0	06/20/78	7	34.0	03/30/78	4	59.0		
10.0	06/20/78	7	35.0	02/27/78	3	60.0		
11.0	06/20/78	7	36.0	03/30/78	4	61.0		
12.0	06/20/78	7	37.0	03/30/78	4	62.0		
13.0	06/20/78	7	38.0	03/30/78	4	63.0		
14.0	06/20/78	7	39.0	01/23/78	2	64.0		
15.0	06/20/78	7	40.0	03/30/78	4	65.0		
16.0	06/20/78	7	41.0	03/30/78	4	66.0		
17.0	06/20/78	7	42.0			67.0		
18.0	06/20/78	7	43.0			68.0		
19.0	06/20/78	7	44.0			69.0		
20.0	06/20/78	7	45.0			70.0		
21.0	06/20/78	7	46.0			71.0		
22.0	06/20/78	7	47.0			72.0		
23.0	12/01/77	1	48.0			73.0		
24.0	12/01/77	1	49.0			74.0		
25.0	12/01/77	1	50.0			75.0		

Unit 1 Staff Recommends Approval

Approval MA Date
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval MA Date
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

MA Date
Chairman of PORC

Unit 2 PORC Recommends Approval

J.F. Thibish Date 6.19.78
Chairman of PORC

Unit 1 Superintendent Approval

MA Date

Unit 2 Superintendent Approval

J.D. Seelinger Date 6/20/78

Manager Generation Quality Assurance Approval

MA Date

DATA SHEET A1

DECAY HEAT REMOVAL PUMP "A" FUNCTIONAL TEST
Recirculation Test

1. DH-V128A Original position 65 41.5 psig
2. Pump Running Inlet Pressure (Temporary gage) 211 psig
3. Pump Running Discharge Pressure (DH-5-P11)
4. Pump Differential Pressure (#2-#1) as calculated in 6.1.44 or 6.3.15) 169.5 psi
4851 inches H₂O
5. Minimum recirculation line orifice ΔP
6. Corresponding recirculation line flow
(Flow (gpm)=1.39√ΔP("H₂O)) 97 gpm
1850 gpm
7. Pump flow rate to BWST (DH-FI-1) 1947 gpm
8. Total Flow (#2 + #3) MD
9. Lube Oil Level (Initial if Satisfactory) H .13
10. Inboard pump bearing vibration (mils) V .15

QUANTITY	MEASURED VALUE	ACCEPTABLE RANGE	ALERT RANGE		REQUIRED ACTION RANGE		REFERENCE VALUES
			LOW	HIGH	LOW	HIGH	
PUMP IDLE INLET PRESSURE (PSIG)	42.5	0 to 300	NA	NA	< 0	> 300	36
PUMP RUNNING INLET PRESSURE (PSIG)	41.5	0 to 300	NA	NA	< 0	> 300	34
PUMP OUTLET PRESS. (PSIG)	211	≥ 151	NA	NA	< 151	NA	206
PUMP DIFF PRESS. (PSI)	169.5	160 to 175	155 to 160	175 to 177	< 155	> 177	172.0
FLOW RATE (GPM)	1947	1804 to 1957	1727 to 1804	1957 to 1976	< 1727	> 1976	1919
PUMP INBOARD BEARING TEMP. * (°F)	N/A	< 180.	NA	NA	NA	≥ 180	97.8
PUMP OUTBOARD BEARING TEMP * (°F)	N/A	< 180	NA	NA	NA	≥ 180	100.1
MAX. VIBRATION (mils)	V-.15	0 to 1	NA	1 to 1.5	NA	> 1.5	0.45H

* NOTE: Measured only once per year.

229 115

Temporary Suction Pressure Gage:

Model AISI 316 tube + socket
Serial # 57G-II-2007

Scale Range 0-60
Manufacturer Duragauge

Pressure Gage @ DH-V222

Model AISI 316 tube + socket
Serial # 2300-24

Scale Range 0-800
Manufacturer Duragauge

Pressure Gage @ DH-V221

Model AISI 316 tube + socket
Serial # 2300-25

Scale Range 0-800
Manufacturer Duragauge

Vibration Detector:

Model 306
Serial # OPS-1 (514811449)

Scale Range 0-1
Manufacturer Mechanalysis

Performed by: M Demmy Time: 1000 Date: 3/3/79
Approved by: _____ Date: _____

me

Analysis:

SEE PAGE 341

Analyzed By: _____ Time: _____ Date: _____

Analysis performed within 96 hours? Yes _____ No _____

DATA SHEET B1

2303-M2 A/B
Revision 3
02/27/78

DECAY HEAT REMOVAL PUMP "B" FUNCTIONAL TEST
Recirculation Test

1. DH-V128B Original position 81
2. Pump Running Inlet Pressure (Temporary gage) 35 ^{me} 30 psig
3. Pump Running Discharge Pressure (DH-5-PI2) 195 psig
4. Pump Differential Pressure ((#2-#1) as calculated in 6.2.4.7 or 6.4.15) 165 psi
5. Minimum recirculation line orifice ΔP 4321.2 inches H₂O
6. Corresponding recirculation line flow
Flow(gpm) = 1.39 ΔF ("H₂O). 91 gpm
7. Pump flow rate to BWST (DH-FI-1) 2660 gpm
8. Total Flow (#2 + #3) 2751 gpm
9. Lube Oil Level (Initial if Satisfactory) NO
10. Inboard pump bearing vibration (mils)
H .1
V .17

QUANTITY	MEASURED VALUE	ACCEPTABLE RANGE	ALERT RANGE		REQUIRED ACTION RANGE		REFERENCE VALUES
			LOW	HIGH	LOW	HIGH	
PUMP IDLE INLET PRESSURE (PSIG)	35	0 to 300	NA	NA	< 0	> 300	41.6
PUMP RUNNING INLET PRESSURE (PSIG)	30	0 to 300	NA	NA	< 0	> 300	38.0
PUMP OUTLET PRESS. (PSIG)	195	≥ 151	NA	NA	< 151	NA	200
PUMP DIFF PRESS. (PSI)	165	150.7 to 165.2	145.8 to 150.7	165.2 to 166.9	<145.8	>166.9	162
FLOW RATE (GPM)	2751	2420 to 3075	2330 to 2420	3075 to 3350	<2330	>3350	2440
PUMP INBOARD BEARING TEMP. (°F) *	N/A	< 180	NA	NA	NA	≥ 180	95.9
PUMP OUTBOARD BEARING TEMP (°F) *	N/A	< 180	NA	NA	NA	≥ 180	95.2
MAX. VIBRATION (MILS)	V-.17	0 to 1	NA	1 to 1.5	NA	>1.5	0.53V

* NOTE: Measured once per year.

Temporary Suction Pressure Gage:

Model AISI 316

Scale Range 0-600

Serial # NA

Manufacturer Barton

Pressure Gage @ DH-V224

Model NA

Scale Range 0-500

Serial # 26920

Manufacturer Acco

Pressure Gage @ DH-V223

Model NA

Scale Range 0-500

Serial # 26920

Manufacturer Acco

Vibration Detector:

Model 306

Scale Range 0-1

Serial # 514811449

Manufacturer IRD

Performed by: J. Deming Time: 1030 Date: 3-23-79 *ml*

Approved by: _____ Date: _____

Analysis:

SEE PAGE 34!

Analyzed By: _____ Time: _____ Date: _____

Analysis performed within 96 hours? Yes _____ No 229 119

*TCN
2-27-79
CA 034
New
18.1
10/27/81*

Pump testing performed by: M DEMMY Date 3/2/79 Time 10 30

Pump Testing approved by: M. Lawrence Date 3/2/79

FLUID TESTING ANALYSIS: Data obtained this test meets acceptance criteria.

Pump analysis by: M. Lawrence Date 3/2/79 Time 1330

Pump analysis performed within 96 hours? Yes M No

Valve testing performed by: Date Time
 Valve testing approved by: Date
 VALVE TESTING ANALYSIS:

Valve analysis by: Date Time

* Fill out only when valve testing is performed.

34.1

229 120

DATE PRINTED
01/03/79

SURVEILLANCE PERFORMANCE FORM
MET-FO T M I UNIT 2

EARLY DATE 01-08-79
SCHED DATE 01-30-79
LATE DATE 02-20-79

PROCEDURE NO 2303-M 2
TECH/SPEC REF 4.0.5
4.5.2

DEPT RESP - OPERATIONS
TASK NO - 2303-M2A
DH-PIA/B & VALVE FUNCTIONAL TEST

ASMF SECTION XI

DEPENDENT TASK

WORK ORDER NO. - 036000326
ACCOUNT NO. - 520.1
GC CODE - 20
COMPONENT NO - TMI-2303-M 2-A
COMPONENT DESC - STANDARD TECH SPEC ITEM
COMP LOCATION - RDG LVL GRID

SPECIAL COMMENT -

PLANT CONDITION 1-1-1-1-1-0-1

ASSIST DEPT

FREQUENCY 0 QUALITY CONTROL 1

SPECIFIC DAY

CONTRACTOR 0 INTERFERENCE 0

PRIORITY 1 COMPONENT STATUS 1

*** COMPLETE THIS SECTION ***

(1) (5) (38)
401CTMI2303M 2A036002TS2303-M2A790300
* COMP NO ** CSU* * TASK **SCHED*

RESULTS(51)	DATE PERFORMED(39)	LOLI	L2L7I	L7L7I
(4) PERFORMED OK		MONTH	DAY	YEAR
() 2 EXCEPTIONS	ACTUAL MAN-HOURS	7000 4.101		
() 3 DEFICIENCIES	ACTION TAKEN	LLI		
() 4 BOTH E S AND D S	REASON NOT PERFORMED(54)	LLI		
() 5 NOT PERFORMED	ABNORMAL OCC REPT(56)	LLLLLI		

PERFORMED BY EMPLOYEE NUMBER(60)	LOW E/L U/I	SIGNATURE	- J. Turner
APPROVED BY EMPLOYEE NUMBER(65)	05455	SIGNATURE	-
WITNESSED BY EMPLOYEE NUMBER(70)	LLLLLI	SIGNATURE	-
CORRECTIVE MAINTENANCE JOB TICKET NUMBER(75)	LLLLLI		

403A (1) DUPLICATE AS ABOVE (5-38)	RESULTS DESCRIPTION	402A (1) DUPLICATE AS ABOVE (5-38)	ASSISTING DEPARTMENTS
	LOLI L L I 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 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
	LOLI L I (39)		HOURS(55) L L L L L I . L I
	L I (61)		

"TEMPORARY CHANGE"

Work

AP 1001

Figure 1001 - 5

Three Mile Island Nuclear Station
Temporary Change Notice (TCN)

SIDE 1

TCN NO. 2-79-002
(From TCN Log Index)
Unit No. #
Date 1-4-79

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

1. Procedure 2303 M26 No. DI-P-1A/E Title FUNCTIONAL TEST

2. Change (Include page numbers, paragraph numbers, and exact wording of change.) pg. 6.0 DELATA STAP 6.1.6

3. Reason for Change: pg. 15.0 DELATA STAP 6.5.1
pg. 15.0 DELATA STAP 6.5.2
pg. 18.0 STAP 6.5.2.1 200 OPR-DAV-147H

4. Recommended by [Signature] Date 1-4-79 5. [Signature] Supervisor's Signature Date 1-4-79

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

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

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

8. Review and Approval
Block (c) "yes"
Approved _____ Date _____
Reviewed _____
Members Of PORC _____
Contacted _____
Approved _____
Block (c) "no"
Approved [Signature] Date 1-4-79
[Signature] Member Plant Mgmt Staff
Reviewed _____
Approved _____

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

9. Approval
Manager, Generation Quality Assurance _____ Date 229 123
NOTE: M.G.Q.A. approval required only on certain Administrative Procedures listed in Enclosure 7 of AP 1001

10. TCN is Cancelled _____
Shift Supervisor/Shift Foreman _____

"EVALUATION"

AP-1001

Three Mile Island Nuclear Station

SIDE 2

Figure 1001-4

Nuclear Safety/Environmental Impact Evaluation

1. Procedure 2303-M2B DH-P-1A/B Functional Test 2-79-002
No. Title Temporary Change Notice No.

2. Nuclear Safety Evaluation

Does the attached procedure change:

- * (a) increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety? yes no
- * (b) create the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report? yes no
- * (c) reduce the margin of safety as defined in the basis for any technical specification? yes no

Details of Evaluation (Explain why answers to above questions are "no". Attach additional pages if required.)

The change does not affect nuclear safety. It allows us to test the DH-P-1A without changing the cross-connect piping in the marking system. DH-P-1A still has suction from MU-T-1

Evaluation By Amell Date 1-4-79

3. Environmental Impact Evaluation

Does the attached procedure change:

- (a) involve a significant environmental impact? yes no
If "no", answer questions (b) and (c) and fill in "Details of Evaluation" below.
(If "yes", answer by filling in the "Details of Evaluation" below) yes no
- * (b) have a significant adverse effect on the environment? yes no
- * (c) involve a significant environmental matter or question not previously reviewed and evaluated by the N.R.C. yes no

Details of Evaluation (Attach additional pages if required)

Evaluation By _____ Date _____

4. Unit Superintendent requests PORC review Check if YES.

5. Approval

Evaluation Accompanying PCR

Evaluation Accompanying TCN

Unit Superintendent Date

Approval Amell 1-4-79
SRO License Date

Reviewed Ya Key 1-4-79
Member of Plant Staff Date

Approval _____
Unit Superintendent Date

NOTE: The Evaluation "Accompanying a PCR" evaluation and approval chain may be followed at anytime.

229 124

CONTROLLED COPY THREE MILE ISLAND NUCLEAR STATION

CONTROL ROOM UNIT #2 SURVEILLANCE PROCEDURE 2303-2MA/B
DECAY HEAT REMOVAL PUMP FUNCTIONAL TEST
AND VALVE OPERABILITY TEST

WORKING COPY Table of Effective Pages

Page	Date	Revision	Page	Date	Revision	Page	Date	Revision
1.0	12/01/77	1	26.0	12/01/77	1	51.0		
2.0	12/01/77	1	27.0	12/01/77	1	52.0		
3.0	12/01/77	1	28.0	02/27/78	3	53.0		
4.0	12/01/77	1	29.0	03/30/78	4	54.0		
5.0	04/18/78	5	30.0	03/30/78	4	55.0		
6.0	06/20/78	7	31.0	03/30/78	4	56.0		
7.0	06/20/78	7	32.0	05/10/78	6	57.0		
8.0	06/20/78	7	33.0	03/30/78	4	58.0		
9.0	06/20/78	7	34.0	03/30/78	4	59.0		
10.0	06/20/78	7	35.0	02/27/78	3	60.0		
11.0	06/20/78	7	36.0	03/30/78	4	61.0		
12.0	06/20/78	7	37.0	03/30/78	4	62.0		
13.0	06/20/78	7	38.0	03/30/78	4	63.0		
14.0	06/20/78	7	39.0	01/23/78	2	64.0		
15.0	06/20/78	7	40.0	03/30/78	4	65.0		
16.0	06/20/78	7	41.0	03/30/78	4	66.0		
17.0	06/20/78	7	42.0			67.0		
18.0	06/20/78	7	43.0			68.0		
19.0	06/20/78	7	44.0			69.0		
20.0	06/20/78	7	45.0			70.0		
21.0	06/20/78	7	46.0			71.0		
	06/20/78	7	47.0			72.0		
	11/77	1	48.0			73.0		
	12/01/77	1	49.0			74.0		
25.0	12/01/77	-	50.0			75.0		

Unit 1 Staff Recommends Approval

Approval MA Date _____
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval MA Date _____
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

MA Date _____
Chairman of PORC

Unit 2 PORC Recommends Approval

J.F. Thelish Date 6.19.78
Chairman of PORC

Unit 1 Superintendent Approval

MA Date _____

Unit 2 Superintendent Approval

J.D. Seelinger Date 6/20/78

Manager Generation Quality Assurance Approval

MA Date _____

DATA SHEET A1

Valve No.	Valve Operating Time	Acceptable Time Limit
DH-V6A	35.3	≤ 108
DH-V5A	10.5	≤ 14
DH-V8A	21.9	≤ 25
DH-V100A	50.1	≤ 75
DH-V102A	67.7	≤ 82
DH-V128A	67.4	≤ 90
DH-V4A	3.4	≤ 14
DH-V7A	27.4	≤ 30
DH-V193A		≤ 53

Valve No.	Valve Function Requirement	Date/Initial
DH-V113A	Open	1/27/79 [Initials]
DH-V103A	Open	1/27/79 [Initials]

PERFORMED BY _____ DATE _____ TIME: _____

APPROVED BY C Guthrie DATE 1/29/79

229 126

DATA SHEET A2

DECAY HEAT REMOVAL PUMP "A" FUNCTIONAL TEST

Normal Operating Mode

1. DH-V128A original position 74
2. Pump Running Inlet Pressure (Temp. gage) 270 psig
3. Pump Running Discharge Pressure (DH-5-PI1) 300 psig
4. Pump Differential Pressure (#2-#1) 30 psi
5. Minimum recirculation line orifice ΔP 1.0 inches H_2O
6. Corresponding recirculation line flow
(Flow (gpm) = 1.39 $\sqrt{\Delta P ("H_2O)}$) 39.6 gpm
7. Pump flow rate to RC System (DH-FI-1) 300 gpm
8. Total Flow (#2 + #3) 330 gpm
9. Lube Oil Level (Initial if Satisfactory) ASC
10. Inboard pump bearing vibration (mils) H .58
V .65

QUANTITY	MEASURED VALUE	ACCEPTABLE RANGE	ALERT RANGE		REQUIRED ACTION RANGE		REFERENCE VALUES
			LOW	HIGH	LOW	HIGH	
PUMP IDLE INLET PRESSURE (PSIG)	275	0 to 300	NA	NA	< 0	> 300	297.0
PUMP RUNNING INLET PRESSURE (PSIG)	270	0 to 300	NA	NA	< 0	> 300	295.0
PUMP OUTLET PRESS. (PSIG)	367	≥ 151	NA	NA	< 151	NA	433.0
PUMP DIFF. PRESS. (PSI)	139	128.3 to 141.0	124.2	141.0	< 124.2	> 142.0	138.0
FLOW RATE (GPM)	2500 2004 250	2854. to 3097.	2733.	3097.	< 2733.	> 3127	3036.4
PUMP INBOARD BEARING TEMP. * (°F)	60.3	< 180	NA	NA	NA	≥ 180	98.6
PUMP OUTBOARD BEARING TEMP. * (°F)	50.1	< 180	NA	NA	NA	≥ 180	97.1
MAX. VIBRATION (MILS)	.65V	0.0 to 1.0	NA	1.0	NA	> 1.5	.44 V

* NOTE: Measured only once per year.

229 127

DATA SHEET A2

Bearing Temperatures

NOTE: To be measured yearly.

Bearing Temps. should be measured until

$$.97t_1 \leq t_2 \leq 1.03t_3$$

$$\text{and } .97t_1 \leq t_3 \leq 1.03t_1$$

where t_1 = third to last temp. measured

t_2 = second to last temp. measured

t_3 = last temp. measured

<u>Time</u>	<u>Inboard Bearing Temp.</u>	<u>Outboard Bearing Temp.</u>
<u>0912</u>	<u>57.5</u>	<u>60.1</u>
<u>0922</u>	<u>60.0</u>	<u>60.1</u>
<u>0957</u>	<u>60.5</u>	<u>60.1</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

229 128

Temporary Suction Pressure Gage:

Model DUPP GAGE **NOT USED** Scale Range 0-60
Serial # _____ Manufacturer ASHCROFT

Pressure Gage @ DH-V222

Model DUPP GAGE Scale Range 0-800
Serial # _____ Manufacturer ASHCROFT

Pressure Gage @ DH-V221

Model DUPP GAGE Scale Range 0-800
Serial # _____ Manufacturer ASHCROFT

Vibration Detector:

Model 306 Scale Range 0-300
Serial # C 499517473 Manufacturer IRD MECHANICALYSIS INC.

Performed by SAMTA Time: 1030 Date: 1/29/79

Approved by Luthie Date: 1/29/79

Analysis: DATA APPEARS TO MEET ACCEPT. CRITERIA

Analyzed By: C. Luthie Time: 1900 Date: 1-29-79

Analysis performed within 96 hours? Yes No 229 124

DATA SHEET B1

Valve No.	Valve Operating Time	Acceptable Time Limit
DH-V6B	Open in 95.6	≤ 108
DH-V5B	Open in 12.0	≤ 14
DH-V8B	Open in 18.3	≤ 25
DH-V100B	Open in 59.6	≤ 75
DH-V102B	Open in 67.7	≤ 82
DH-V128B	Open in 71.3	≤ 90
DH-V4B	Open in 10.0	≤ 14
DH-V7B	Open in 21.0	≤ 30
DH-V193B	Open in 40.5	≤ 53
DH-V3	Open in 55.5	≤ 90
DH-V3	Close in 55	≤ 75

Valve No.	Valve Function Requirement	Date/Initial
DH-V113B	Open	1/27/79 MSC
DH-V103B	Open	1/27/79 MSC

PERFORMED BY: *Olson* DATE 1/29/79 TIME: 1345
 APPROVED BY: *Cuthbert* DATE 1/29/79

229 130

DATA SHEET B2

DECAY HEAT REMOVAL PUMP "B" FUNCTIONAL TEST
Normal Operating Mode

2303-M2 A/B
Revision 2
01/23/78

1. DH-V128B Original position 77
2. Pump Running Inlet Pressure (Temporary gage) 270 psig
3. Pump Running Discharge Pressure (DH-5-PI2) 430 psig
4. Pump Differential Pressure (#2-#1) 160 psi
5. Minimum recirculation line orifice ΔP 4432 inches H₂O
6. Corresponding recirculation line
(Flow (gpm) = 1.39 $\sqrt{\Delta P ("H_2O)}$) 92.5 gpm
7. Pump flow rate to RC System (DH-FI-1) 2099 gpm
8. Total Flow (#2 + #3) 2095 gpm
9. Lube Oil Level (Initial if Satisfactory) ✓
10. Inboard pump bearing vibration (mils)
H .6
V .7

QUANTITY	MEASURED VALUE	ACCEPTABLE RANGE	ALERT RANGE		REQUIRED ACTION RANGE		REFERENCE VALUES
			LOW	HIGH	LOW	HIGH	
PUMP IDLE INLET PRESSURE (PSIG)	300	0 to 300	NA	NA	< 0	> 300	263 <u>298</u>
PUMP RUNNING INLET PRESSURE (PSIG)	270	0 to 300	NA	NA	< 0	> 300	252
PUMP OUTLET PRESS. (PSIG)	430	≥ 151	NA	NA	< 151	NA	419
PUMP DIFF PRESS. (PSI)	160	155 to 170	150 to 155	170 to 172	< 150	> 172	167
FLOW RATE (GPM)	2095.5	1983 to 2152	1899 to 1983	2152 to 2173	< 1899	> 2173	2110
PUMP INBOARD BEARING TEMP. (°F) *	✓	< 180	NA	NA	NA	≥ 180	128.6
PUMP OUTBOARD BEARING TEMP. (°F) *	✓	< 180	NA	NA	NA	≥ 180	129.8
MAX. VIBRATION (MILS)	.7	0 to 20	NA	2.0 to 3.0	NA	> 3.0	1.0

*NOTE: Measured once per year.

39.0

229 131

DATA SHEET B1

Bearing Temperatures

NOTE: To be measured yearly.

Bearing temps. should be measured until

$$.97t_1 \leq t_2 \leq 1.03t_3$$

$$\text{and } .97t_1 \leq t_3 \leq 1.03t_1$$

where t_1 = third to last temp. measured

t_2 = second to last temp. measured

t_3 = last temp. measured

<u>Time</u>	<u>Inboard Bearing Temp.</u>	<u>Outboard Bearing Temp.</u>
<u>0912</u>	<u>59.5 #</u>	<u>60.1</u>
<u>0932</u>	<u>59.0</u>	<u>59.1</u>
<u>0957</u>	<u>59.7</u>	<u>59.1</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Temporary Suction Pressure Gage:

Model 1/12 # gage

Scale Range 0-300

Serial # SP 2-17-16

Manufacturer H. H. ROSE

Pressure Gage @ DH-V224

Model manometer

Scale Range 0-300

Serial # SP 2-25

Manufacturer Rolett

Pressure Gage @ DH-V223

Model manometer

Scale Range 0-800

Serial # SP 2-24

Manufacturer Rolett

Vibration Detector:

Model 306

Scale Range .1 - 100 m/s

Serial # 540057223

Manufacturer W. C. Analysis

Performed by: Zimmer Time: 1925 Date: 1-29-79

Checked by: Chutue Date: 1-29-79

Analysis: DATA APPEARS TO MEET ALL ACCEPT. CRITERIA

Analyzed By: Chutue Time: 1900 Date: 1-29-79

Analysis performed within 96 hours? Yes No 229 133

CONTROLLED COPY THREE MILE ISLAND NUCLEAR STATION
CONTROL COPY UNIT #2 SURVEILLANCE PROCEDURE 2303-2MA/B
WORKING COPY DECAY HEAT REMOVAL PUMP FUNCTIONAL TEST
 AND VALVE OPERABILITY TEST
 Table of Effective Pages

Page	Date	Revision	Page	Date	Revision	Page	Date	Revision
1.0	12/01/77	1	26.0	12/01/77	1	51.0		
2.0	12/01/77	1	27.0	12/01/77	1	52.0		
3.0	12/01/77	1	28.0	02/27/78	3	53.0		
4.0	12/01/77	1	29.0	03/30/78	4	54.0		
5.0	04/18/78	5	30.0	03/30/78	4	55.0		
6.0	06/20/78	7	31.0	03/30/78	4	56.0		
7.0	06/20/78	7	32.0	05/10/78	6	57.0		
8.0	06/20/78	7	33.0	03/30/78	4	58.0		
9.0	06/20/78	7	34.0	03/30/78	4	59.0		
10.0	06/20/78	7	35.0	02/27/78	3	60.0		
11.0	06/20/78	7	36.0	03/30/78	4	61.0		
12.0	06/20/78	7	37.0	03/30/78	4	62.0		
13.0	06/20/78	7	38.0	03/30/78	4	63.0		
14.0	06/20/78	7	39.0	01/23/78	2	64.0		
15.0	06/20/78	7	40.0	03/30/78	4	65.0		
16.0	06/20/78	7	41.0	03/30/78	4	66.0		
17.0	06/20/78	7	42.0			67.0		
18.0	06/20/78	7	43.0			68.0		
19.0	06/20/78	7	44.0			69.0		
20.0	06/20/78	7	45.0			70.0		
21.0	06/20/78	7	46.0			71.0		
22.0	06/20/78	7	47.0			72.0		
23.0	12/01/77	1	48.0			73.0		
24.0	12/01/77	1	49.0					
25.0	12/01/77	1	50.0					

Unit 1 Staff Recommends Approval
 Approval MA Date _____
 Cognizant Dept. Head

Unit 2 Staff Recommends Approval
 Approval MA Date _____
 Cognizant Dept. Head

Unit 1 PORC Recommends Approval
MA Date _____
 Chairman of PORC

Unit 2 PORC Recommends Approval
J.F. Thelish Date 6.19.78
 Chairman of PORC

Unit 1 Superintendent Approval
MA Date _____

Unit 2 Superintendent Approval
J.D. Hoelinger Date 6/20/78

Manager Generation Quality Assurance Approval MA Date _____

DATA SHEET A1
 DECAY HEAT REMOVAL PUMP "A" FUNCTIONAL TEST
 Recirculation Test

Revision 3
 02/27/78

1. DII-V128A Original position 410-790
2. Pump Running Inlet Pressure (Temporary gage) 45^{psi}
3. Pump Running Discharge Pressure (DH-5-PI1) 210 psig
4. Pump Differential Pressure (#2-#1) as calculated in 6.1.44 or 6.3.15) 165 psi
5. Minimum recirculation line orifice ΔP 20-10^{psi} 1.70 inches H₂O
6. Corresponding recirculation line flow
 (Flow (gpm)=1.39 $\sqrt{\Delta P(\text{H}_2\text{O})}$) 1915 gpm
7. Pump flow rate to BWST (DH-FI-1) 2240 gpm
8. Total Flow (#2 + #3) 1919.15 gpm
9. Lube Oil Level (Initial if Satisfactory) OK
10. Inboard pump bearing vibration (mils)
 H .55
 V .6

QUANTITY	MEASURED VALUE	ACCEPTABLE RANGE	ALERT RANGE		REQUIRED ACTION RANGE		REFERENCE VALUES
			LOW	HIGH	LOW	HIGH	
PUMP IDLE INLET PRESSURE (PSIG)	<u>45^{psi}</u>	0 to 300	NA	NA	< 0	> 300	36
PUMP RUNNING INLET PRESSURE (PSIG)	<u>45^{psi}</u>	0 to 300	NA	NA	< 0	> 300	34
PUMP OUTLET PRESS. (PSIG)	<u>210</u>	≥ 151	NA	NA	< 151	NA	206
PUMP DIFF PRESS. (PSI)	<u>165</u>	160 to 175	155 to 160	175 to 177	< 155	> 177	172.0
FLOW RATE (GPM)	<u>1919.15</u>	1804 to 1957	1727 to 1804	1957 to 1976	< 1727	> 1976	1919
PUMP INBOARD BEARING TEMP. * (°F)	<u>52.4</u>	< 180	NA	NA	NA	≥ 180	97.8
PUMP OUTBOARD BEARING TEMP * (°F)	<u>50.4</u>	< 180	NA	NA	NA	≥ 180	100.1
MAX. VIBRATION (mils)	<u>.6V</u>	0 to 1	NA	1 to 1.5	NA	> 1.5	0.45H

* NOTE: Measured only once per year.

DATA SHEET A1

Bearing Temperatures

NOTE: To be measured yearly.
Bearing temps. should be measured until
 $.97t_1 \leq t_2 \leq 1.03t_3$
and $.97t_1 \leq t_3 \leq 1.03t_1$
where t_1 = third to last temp. measured
 t_2 = second to last temp. measured
 t_3 = last temp. measured

<u>Time</u>	<u>Inboard Bearing Temp.</u>	<u>Outboard Bearing Temp.</u>
0918	<u>52.3</u>	<u>50.3</u>
0928	<u>52.3</u>	<u>50.4</u>
0938	<u>52.4</u>	<u>50.4</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

DATA SHEET A1

Valve No.	Valve Operating Time	Acceptable Time Limit
DH-V6A	<u>pr A</u>	<u>≤ 108</u>
DH-V5A		<u>≤ 14</u>
DH-V8A		<u>≤ 25</u>
DH-V100A		<u>≤ 75</u>
DH-V102A		<u>≤ 82</u>
DH-V128A		<u>≤ 90</u>
DH-V4A		<u>≤ 14</u>
DH-V7A		<u>≤ 30</u>
DH-V193A	<u>↓</u>	<u>≤ 53</u>

Valve No.	Valve Function Requirement	Date/Initial
DH-V113A	<u>Open</u>	<u>pr A</u>
DH-V103A	<u>Open</u>	<u>↓</u>

PERFORMED BY J. Kevin Lorenson DATE 1-4-79 TIME: 0831
 APPROVED BY A Miller DATE 1-4-79

Temporary Suction Pressure Gage:

Model AISI 316
Serial # _____

Scale Range 0-600
Manufacturer DURABOND

Pressure Gage @ DH-V222

Model AISI 516
Serial # _____

Scale Range 0-800
Manufacturer DURABOND

Pressure Gage @ DH-V221

Model AISI
Serial # _____

Scale Range 0-800
Manufacturer DURABOND

Vibration Detector:

Model # 306
Serial # 0499517423

Scale Range 0-100 DISPLACEMENT
Manufacturer PRO-ANALYSIS

Performed by: J. L. Luccas Time: 0930 Date: 1-4-79

Approved by: A. Miller Date: 1-4-79

Analysis:

Data is satisfactory

Analyzed By: A. Miller Time: 1135 Date: 1-4-79

Analysis performed within 96 hours? Yes No _____

DATA SHEET B1

2303-M2 A/B
Revision 3
02/27/78

DECAY HEAT REMOVAL PUMP "B" FUNCTIONAL TEST
Recirculation Test

1. DH-V128B Original position 80%
2. Pump Running Inlet Pressure (Temporary gage) 35 psig
3. Pump Running Discharge Pressure (DH-5-PI2) 190 203 psig
4. Pump Differential Pressure ((#2-#1) as calculated in 6.2.4.7 or 6.4.15) 163 psi
5. Minimum recirculation line orifice ΔP 190-35=155 psi 4.19 inches H₂O
6. Corresponding recirculation line flow Flow(gpm) = 1.39 ΔF ("H₂O). 91 gpm
7. Pump flow rate to BWST (DH-FI-1) 2400 gpm
8. Total Flow (#2 + #3) 2400 gpm
9. Lube Oil Level (Initial if Satisfactory)
10. Inboard pump bearing vibration (mils) H .75
V .58

QUANTITY	MEASURED VALUE	ACCEPTABLE RANGE	ALERT RANGE		REQUIRED ACTION RANGE		REFERENCE VALUES
			LOW	HIGH	LOW	HIGH	
PUMP IDLE INLET PRESSURE (PSIG)	37	0 to 300	NA	NA	< 0	> 300	41.6
PUMP RUNNING INLET PRESSURE (PSIG)	35	0 to 300	NA	NA	< 0	> 300	38.0
PUMP OUTLET PRESS. (PSIG)	203	≥ 151	NA	NA	< 151	NA	200
PUMP DIFF PRESS. (PSI)	163	150.7 to 165.2	145.8 to 150.7	165.2 to 166.9	<145.8	>166.9	162
FLOW RATE (GPM)	2400	2420 to 3075	2330 to 2420	3075 to 3350	<2330	>3350	2440
PUMP INBOARD BEARING TEMP. (* °F)	56.3	< 180	NA	NA	NA	≥ 180	95.9
PUMP OUTBOARD BEARING TEMP (* °F)	56.8	< 180	NA	NA	NA	≥ 180	95.2
MAX. VIBRATION (MILS)	0.75	0 to 1	NA	1 to 1.5	NA	>1.5	0.53V

* NOTE: Measured once per year.

229 140

DATA SHEET B1

Bearing Temperatures

NOTE: To be measured yearly.

Bearing temps. should be measured until

$$.97t_1 \leq t_2 \leq 1.03t_3$$

$$\text{and } .97t_1 \leq t_3 \leq 1.03t_1$$

where t_1 = third to last temp. measured

t_2 = second to last temp. measured

t_3 = last temp. measured

<u>Time</u>	<u>Inboard Bearing Temp.</u>	<u>Outboard Bearing Temp.</u>
0700	56.3	56.8
0716	56.3	56.8
0725	56.3	56.8
0730	56.3	56.8
—	—	—
—	—	—

229 141

DATA SHEET B1

Valve No.	Valve Operating Time	Acceptable Time Limit
DH-V6B	Open in _____	≤ 108
DH-V5B	Open in _____	≤ 14
DH-V8B	Open in _____	≤ 25
DH-V100B	Open in _____	≤ 75
DH-V102B	Open in _____	≤ 82
DH-V128B	Open in _____	≤ 90
DH-V4B	Open in _____	≤ 14
DH-V7B	Open in _____	≤ 30
DH-V193B	Open in _____	≤ 53
DH-V3	Open in _____	≤ 90
DH-V3	Close in _____	≤ 75

Valve No.	Valve Function Requirement	Date/Initial
DH-V113B	Open _____	_____
DH-V103B	Open _____	_____

PERFORMED BY: C Faust DATE 1-4-79 TIME: 0530

APPROVED BY: A Miller DATE 1-4-79

Temporary Suction Pressure Gage:

Model _____

Scale Range 0-600

Serial # DH-PI 2004

Manufacturer ASHCROFT

Pressure Gage @ DH-V224

Model _____

Scale Range 0-800

Serial # STG-II 25

Manufacturer ASHCROFT

Pressure Gage @ DH-V223

Model _____

Scale Range 0-800

Serial # STG-II 24

Manufacturer ASHCROFT

Vibration Detector:

Model LRD

Scale Range 0-3

Serial # C-499517413

Manufacturer _____

Performed by: Craig C. Faust Time: 0:530 Date: 1/4/79

Approved by: A. Miller Date: 1-4-79

Analysis:

Data is satisfactory.

Analyzed By: A. Miller Time: 1135 Date: 1-4-79

Analysis performed within 96 hours? Yes No 229-143