AP 1001
Figure 1001-3

Three Mile Island Nuclear Station
Special Operating Procedure

SIDE 1

SOP NO. 1-80-29A
(From SOP Log Index)

This SOP incorporates and supercedes SOP 1-80-29

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

Unit No. 1

Date 5/30/80

1. Title DRAIN DOWN AND MAINTAIN RCS LEVEL Between 314' 10" and 315' 3" ELEVATION

2. Purpose (Include purpose of SOP)

To prepare RCS For HPI Tie-in and Valve inspection.

This new revision does not alter safety evaluation of SOP-1-80-29.

3. Attach procedure to this form written according to the following format.

A. Limitations and Precautions
   1. Nuclear Safety
   2. Environmental Safety
   3. Personnel Safety
   4. Equipment Protection
B. Prerequisites
C. Procedure

} see Attached

4. Generated by H B Shipman Date 5/30/80

5. Duration of SOP - Shall be no longer than 90 days from the effective date of the SOP or (a) or (b) below – whichever occurs first.

(a) SOP will be cancelled by incorporation into existing or new permanent procedure submitted by _____ ☐

(b) SOP is not valid after 90 ☑

(Fill in circumstances which will result in SOP being cancelled)

6. (a) Is the procedure Nuclear Safety Related?
If "yes", complete Nuclear Safety Evaluation. (Side 2 of this Form) . . . . . Yes ☑ No ☐

(b) Does the procedure affect Environmental Protection?
If "yes", complete Environmental Evaluation. (Side 2 of this Form) . . . . . Yes ☐ No ☑

(c) Does the procedure affect radiation exposure to personnel? . . . . . Yes ☑ No ☐

NOTE: If all answers are "no", the change may be approved by the Shift Supervisor. If any questions are answered "yes", the change must be approved by the Unit Superintendent.

7. Review and Approval

Approved – Shift Supervisor M J Cross Date 5/30/80

Reviewed – List members of PORC contacted H B Shipman Date 5/30/80

W F Conway 5-30-80 Date

C E Hartman Date 5/30/80

R W Dubiel Date 5/30/80

Approved – Unit Superintendent G Toole Date 5-30-80

Reviewed – Sup. Quality Control (If required) _____ Date

SOP is Cancelled L A Smith 8-5-80
Shift Supervisor/Shift Foreman Date

THIS DOCUMENT CONTAINS POOR QUALITY PAGES

8101230 737

TMI-63 REV. 8-79

"EVALUATION"

AP-1001
Figure 1001-8

Three Mile Island Nuclear Station
Nuclear Safety/Environmental Impact Evaluation

SIDE 2
SOP No. _____

1. Title Drain Down & Maintain RCS Level Between 314' 10" and 315' 3"

2. Nuclear Safety Evaluation

Does this SOP:

* (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 maryin 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.)

Reducing RCS Level to the elevations described in the procedure has been evaluated and tested to ensure adequate core cooling can be maintained, therefore nuclear safety and the safety of the public is not adversely affected.

(see additional evaluation on attached page)

Evaluation By HR Shipman Date 5/30/80

3. Environmental Impact Evaluation

Does this SOP:

* (a) possibly involve a significant environmental impact? . . . . . 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

Evaluation By _____ Date _____

* NOTE: If these questions are "Yes", the change must receive N.R.C. approval.

4. Unit Superintendent requests PORC review ☐ Check if YES.

5. Approval

_____ _____
Station Superintendent/Unit Superintendent Date

DRAIN DOWN & MAINTAIN RCS LEVEL
BETWEEN 314' 10" and 315' 3"

Safety Evaluation (cont'd)

While in the drained down condition, the BWST shall be maintained as the emergency source of borated water. Should an unexpected loss of Decay Heat Removal occur, the operator would follow the guidance of E.P.1202-35 "Loss of Decay Heat Removal" and flood the RCS from the BWST. Because of the RCS openings, the Reactor Coolant would spill over to the Rx Bldg. Sump, and long term recirculation cooling from the sump to the Rx Vessel would be initiated. This mode of cooling has previously been reviewed in Chapter 6 and 14 of the FSAR.

APPROVED R J Toole — 5-23-80
SOP 1-80-29 Manager Unit I — Date

SOP 1-80-29A R J Toole — 5-30-80
Manager Unit 1 — DATE

DRAIN DOWN AND MAINTAIN RCS LEVEL BETWEEN 314' 10" & 315' 3" ELEVATION

A. LIMITS AND PRECAUTIONS

1. Nuclear Safety - core cooling shall be thru normal Decay Heat Removal System, taking precautions to prevent vortex formation in Reactor vessel or Decay Heat Drop Line. Should vortex formation occur, as detected by the incore thermocouples, and/or DH-P-1A/B cavitation several RCS inventory schemes are available in order to eliminate the vortex and provide adequate core cooling.

   ~~a) The boron concentration shall be maintained at greater than or equal to 2200 ppm boron.~~ HBS

2. Environmental Safety - N/A

3. Personnel Safety - An RWP shall be provided to permit 24 hour surveillance. The location of the level monitor shall be coordinated with HP such that radiation exposure is minimized and need for respirators is minimized.

4. a. Equipment Protection - If DHR pump cavitates and/or the low flow alarm is activated, secure pump and refill RCS. (See Procedure step 18).

   b. With the RCS drained to the repair level, ensure the RCS system remains vented to atmosphere to ensure the tygon tubing levels are accurate.

B. PREREQUISITES

1. While the RCS is drained below 45 inches in the Pressurizer and the RCS boundary is open at the ~ 315' elevation, the following criteria shall be inforce:

   a. The boron concentration shall be maintained at ~~not less than that required for refueling shutdown~~. ≥ 2200 ppm boron. HBS

2. Incore thermocouples (all 52 <u>if</u> available, a minimum of 1 in each quadrant, plus the center T/C) shall be monitored on the computer (or other available read out device) and the average compared (plotted on graph at least once per hour) with DH-6-TE 1 or 2. The DH-6-TE 1 or 2 and average incore thermocouples temperatures shall be plotted and analyzed for indication of vortex formation/ inadequate core cooling trend. If an anomaly of 5-10°F develops between DH-6-TE-1 or 2 and the selected incore thermocouples, notify the Shift Supervisor.

3. Continuous communications between the CRO and the tygon tube level monitor in the containment building shall be established whenever the RCS is drained below 45 inches in the pressurizer. The requirement to maintain an operator at the tygon tube after draindown may be WAIVERED by Supervisor of Operations if accurate reliable remote indication is available.

   NOTE: The above waiver does not extend beyond having the tygon tube level compared to the remote indicator if either level indicator is in question or routinely comparing the indicators at least once per shift.

4. Pipe plugs and/or soft patches available in the Shift Supervisors' Office.

5. Both Decay Heat Removal trains operable prior to draining RCS. With less than two Decay Heat Removal trains operable while RCS is drained below 45 inches in pressurizer, notify Supervisor of Operations. It is recommended that the "B" DHR loop be inservice, using the cross connects when auxiliary pressurzier spray is required.

6. BWST contains a minimum of 30 feet of water borated to $\geq$ 2270 ppm.

7. Decay removal flow throttled and maintained between 800-1000 gpm.

8. Tygon level monitoring rig (See attached Dwg.) installed at PX-462 and PX-464. Do not open the isolation valves for the tygon level indicators until the RCS is vented to the Rx building. Tygon tubing should extend to top of D-Ring. Do not valve in level transmitter until RCS level is within 60" of level transmitter.

9. RCS on the Vent Header with hot leg water level equalized with pressurizer level.

10. Pressurizer temperature < 150°F. RCS temperature between 95° and 120°F.

11. During initial draining below 45" in pressurizer, station man in operating DH vault to monitor for pump cavitation.

12. CF-V-1A/1B closed.

13. Decay Heat Removal Lo flow alarm shall be set for 700 gpm.

14. Low pressure containment integrity shall be capable of being established. (i.e., Equipment Hatch on, no new bldg. penetrations left open, etc).

15. Verify Rx Bldg. Sump Recirculation path i.e. flange not installed, DH-V-6A/B operable.

C. PROCEDURE

___1. Perform valve line up per enclosure I. Select Bleed Tank to be filled (assure adequate capacity).

___2. Verify the following additional prerequisites.

___a. Reactor Coolant System shutdown and cooldown as per OP 1102-10 and 1102-11.

___b. Decay Heat System in operation maintinaing RCS temperature between 95°F and 120°F.

___c. Makeup and Purification System shutdown as per OP 1104-2.

___d. OTSG secondary side in layup in accordance with OP 1106-16.

___e. Nitrogen is available for RC blanketing through the Waste Gas System to the RC Drain Tank using makeup N_2 or recycled N_2 from Waste Gas Decay Tanks depending on gas quality.

___f. Feed tank select switch is in the off position or selected for a Bleed Tank other than the one to be filled.

___g. RC Drain Pump WDL-P16 tested, as necessary by using reclaimed water as follows:

a. Open inlet valve (WDL-V17, 18 or 19) for PCBT to be filled.

b. Open WDL-V303, 304, 161 and CA-V208.

c. Assure WDL-V52, 45, 46, 47, 48, 55 and 56 are closed.

d. Start the RC drain pump and check to assure no seal leakage

e. Pump for about 2 minutes and stop pump.

f. Close valves opened in (a) and (b) above.

___3. Allow N_2 from the Vent Header to bleed thru the RC Drain Tank into the RCS as the system is drained.

___4. Open RC-V-20 and RC-V-21.

___5. Open inlet to the RC Bleed Tank to be filled.

WDL-V-17 - A Bleed Tank

(or) WDL-V-18 - B Bleed Tank

(or) WDL-V-19 - C Bleed Tank

___6. Start RC Drain pump WDL-P-16 and reduce pressurizer level to less than 184". Then stop WDL-P-16.

___7. Reduce vent header pressure to zero and Red Tag and close WDG-V-3 and WDG-V-4.

___8. Open, and remove vent plugs of three highest CRD tubes. With N_2 spool pieces removed, open hot leg vents to Bldg. atmosphere through RC-V15-A/B and RC-V-16A/B. With N_2 spool piece removed, vent pressurizer to the Bldg. atmosphere through RC-V-17 and RC-V-19.

___9. Open isolation valves for tygon level indicators and verify correlation with pressurizer level indication. Do not valve in temporary RCS level transmitter at this time.

___10. Start RC Drain Pump WDL-P-16 and reduce pressurzier level to approximately 60", verifying correlation with temporary tygon level indication as level is decreased.

___11. Open RC-V-4 and DH-V-64 and continue to decrease pressurizer level to an indicated 45 inches in the pressurizer. Verify correlation with temporary tygon indication. Stop WDL-P-16 as necessary if not prepared to proceed.

NOTE: Due to surge line loop seal, pressurizer level will stabilize at ~ 42 inches. Monitor tygon tube level and T/C's per prereq. #2 from this point on.

___12. Establish continuous communications between CRO and tygon level monitor in the containment building. See prerequisite #3 for waiver requirements.

___13. Reduce or verify DH removal flow 800-1000 gpm by throttling DH-V-19A/B.
CAUTION: RCS level must be maintained ≥ 10 inches indicated level.

___14. Carefully reduce RCS level to an indicated + 10 to + 15 inches on temporary tygon level indicator. This corresponds to + 10 → + 15 inches above center line of 28" pipe. When level is ~ 60" above level transmitter, valve in temporary level transmitter.

CAUTION: Station operator in the vault of the operating DH pump to monitor for pump cavitation, (i.e. pressure oscillation, noise). The Shift Supervisor shall personally brief the selected operators to insure their recognition of pump cavitation. If cavitation occurs, stop draining and refill per step 17 until cavitation stops, then notify Supervisor of Operations.

___15. Stop WDL-P-16, close RC-V-4 and DH-V-64 and close inlet to Bleed Tank.

NOTE: Any change in level indication shall be reported to Shift Supervisor.

___16. Plot incore T/C and DH-6-TE 1 or 2 as per prerequisite #2 every hour. Log tygon level or equivalent (if approved) every hour on attachment 1.

NOTE: Should an unexpected loss of Decay Heat Removal occur the volume of water in the vessels is predicted to heat up at a rate of 13°F/hr. Therefore at least 7 hours is available before boiling would occur. This time would be available to first attempt to correct the problem, then to swap DHR loops, and as a last resort gravity drain the BWST into the RCS by opening DH-V-5A/B. Refer to EP 1202-35 "Loss of Decay Heat Removal" if adequate core cooling cannot be established by the above means.

ADDENDUM I to SOP 1-80-29A

1. When RCS level control has been established and the 'B' OTSG COLD LEGS needs to be drained for 'B' OTSG Lower MANWAY Removal, perform the following:

_____ Insure tygon tubing for B OTSG is valved in and RC-V-7C and RC-V-7D are closed.

_____ A. Insure WDL-P-16 is secured

_____ B. Close RC-V-20 and RC-V-21

_____ C. Open RC-V-29B and RC-V-30B and WDL-V-18

_____ D. Start WDL-P-16 and pump the 'B' OTSG COLD Legs down to 24" on the tygon tubing associated with the 'B' OTSG, Then stop WDL-P-16.

SEE ADDENDUM II

_____ E. Station operator at WDL-P-16 in communication with control room. Start WDL-P-16 to pump down remaining 24" and stop the pump when the operator indicates the pump has lost suction.

_____ F. Close RC-V-29B and RC-V-30B and WDL-V-18

_____ G. Re-open RC-V-20 and RC-V-21

_____ H. Drain remaining coolant in cold leg loop (Bottom) to floor drain by opening RC-V-6D and RC-V-1033. Insure RC-V-7D remains closed.

PORC Reviewed:

HB Shuman 5/30/80
M F Cowan 5/30/80
R.O. Barley telecon 2035 5/30/80 HBS
R.W. Dubiel telecon 2040 5/30/80 HBS
V.P. Orlandi telecon 2100 5/30/80 HBS

Duty Superintendent G.P. Miller telecon 265 5/30/80 HBS

Shift Supervisor [signature]

ADDENDUM II TO SOP-180-291

(1) IF INADEQUATE SUCTION TO WDL-P16 IS NOTED BY NO INCREASE IN RCBT OL LEVEL DECREASE IN TYGON TUBE STOP WDL-P16.

(2) CLOSE RC-V 29B & 30B.

(3) OPEN RC-V 6/7(D) & RE-START WDL-P16

(4) WHEN LEVEL IN TYGON REACHES 24" STATION AN OPERATOR IN RC DRAIN TK ROOM. WHEN PUMP STARTS TO LOSE SUCTION STOP WDL-P16.

(5) CLOSE RC-V 6/7(D). ~~[redacted]~~ GLH

(6) RE-OPEN RC-V 20 AND RC-V 21.

PORC	Reviewed		
H.B. SHIPMAN	5/31/80	2025	GLH
M.J. ROSS	5/31/80	2027	GLH
V.P. ORLANDI	5/31/80	2035	GLH
ED FUHRER	5/31/80	2040	GLH
JOHN PEARCE	5/31/80	2110 5/5 GLH	

SUPT: G.P. MILLER 5/31/80 2045 GLH

___17. Control of level at 10 to 15 inches on tygon level indicator shall be by carefully (manually) opening DH-V-5A(B to make up for any small losses from the system. (See Attached Dwg.) To reduce level repeat steps 10 thru 15.

___17A SEE ADDENDUM I TO PUMP DOWN 'B' OTSG COLD LEGS

___18. If DHR low flow alarm is received verify alarm and trip running DHR pump, and establish proper level indication (i.e. 10 to 15 inches per step 17).

CAUTION: Monitor RCS level while venting DHR pump to prevent overfill by gravity flow. Vent DHR pump and system high points, DH-V-48A/B. Then restart a DHR pump. If flow of 800-1000 gpm cannot be maintained temporarily plug RCS openings at the ∿ 315' elevation and fill RCS until adequate decay heat removal can be maintained.

___19. Attachment 2 provides the procedure sequence of work associated with the HPI Tie-ins.

___20. Exclusion requirements of AP 1030 shall be satisfied.

___21. As the check valves (HPI) are opened for inspection, install temporary pipe plug on vessel side.

___22. Remove temporary pipe plugs prior to closing up check valves.

___23. When conditions permit refilling, refer to OP 1103-2 insure CRDM vent plugs have been re-installed.

___24. When RCS has been returned to normal refueling shutdown status, return DHR low flow alarm to previous setting, 1500 gpm.

ENCLOSURE I
VALVE CHECKLIST

Valve No.	Valve Description	Position	
RC-V14A	R. C. Vent Valve	Open	____
RC-V14B	R.C. Vent Valve	Open	____
RC-V15A	R.C. Vent Valve	Open	____
RC-V15B	R.C. Vent Valve	Open	____
RC-V16A	Nitrogen Connection to R.C. System	Closed	____
RC-V16B	Nitrogen Connection to R.C. System	Closed	____
RC-V17	Pressurizer Isolation to Vent & Nitrogen	Open	____
RC-V18	Pressurizer Vent Valve	Closed	____
RC-V19	Nitrogen Connection to Pressurizer	Closed	____
RC-V4	D.H. Spray Line Isolation Valve	Closed	____
RC-V20	Pressurizer Drain Valve	Closed	____
RC-V21	Pressurizer Drain Valve	Closed	____
RC-V6A	R.C. Drain Valve	Closed	____
RC-V6B	R.C. Drain Valve	Closed	____
RC-V6C	R.C. Drain Valve	Closed	____
RC-V6D	R.C. Drain Valve	Closed	____
RC-V7A	R.C. Drain Valve	Closed	____
RC-V7B	R.C. Drain Valve	Closed	____
RC-V7C	R.C. Drain Valve	Closed	____
RC-V7D	R.C. Drain Valve	Closed	____
RC-V28	Pressurizer Vent Valve	Open	____

ENCLOSURE I
VALVE CHECKLIST

Valve No.	Valve Description	Position	
WDL-V161	Feed valve to R.C. Bleed Tks. from WDL-P16 or P8	Open	____
WDL-V300	Inlet to R.C. Drain Tank HX (CG-1)	Open	____
WDL-V301	Outlet from R.C. Drain Tank HX (CG-1)	Open	____
WDL-V302	Outlet from R.C. Drain Tank Pump (PG-8) to R.C. Drain Tank (T-3)	Closed	____
WDL-V303	Outlet from Reactor Drain Pump (P-16) to R.C. Bleed Tanks	Open	____
WDL-V304	Outlet from Reactor Drain Pump (P-16) to R.C. Bleed Tanks	Open	____
WDL-V305	Outlet from R.C. Tank Pump (P-8) to R.C. Bleed Tanks	Open Closed	____
WDL-V307	R.C. Drain Pump (P-16) Suction Valve	Open	____
WDL-V374	R.C. Drain Pump (P-16) Discharge Valve	Open	____
WDL-V375	Isol Test and Drain Valve	Closed	____
WDL-V376	Isol. Test and Drain Valve	Closed	____
WDL-V306	R.B. Sump Isolation Valve	Closed	____
WDL-V55	Aux. Building Drain Header Isol. Valve	Closed	____
WDL-V56	Aux. Building Drain Header Isol. Valve	Closed	____
WDG-V2	R.C. Drain Tank Vent Valve	Open	____
WDG-V3	R.B. Vent Header Interior Isol. Valve	Open	____
WDG-V4	R.B. Vent Header Exterior Isol. Valve	Open	____
WDG-V60	Isol. Test Valve, Penetration 330, Inside R.B.	Closed	____
WDL-V45	Precoat Filter Outlet (A)	Closed	____
WDL-V46	Precoat Filter Outlet (B)	Closed	____

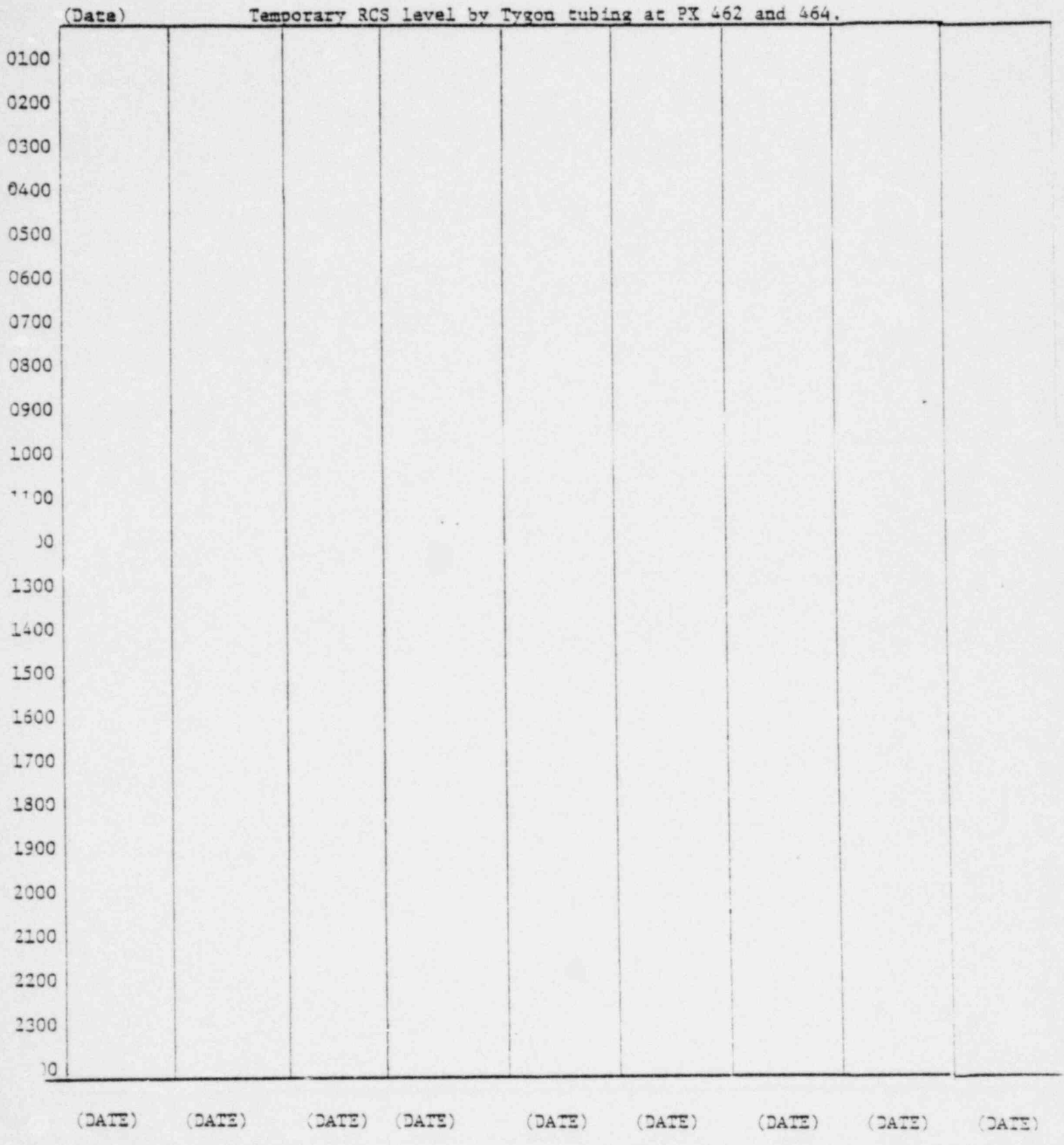
ENCLOSURE I
VALVE CHECKLIST

Valve No.	Valve Description	Position	
WDL-V47	Cation A Outlet	Closed	_____
WDL-V48	Cation B Outlet	Closed	_____
WDL-V52	Inlet to Precoat Filter Inlet	Closed	_____
WDL-V62	Boric Acid to R.C. Bleed Tanks	Closed	_____
Valve positions if A RCBT is selected for fill:			
WDL-V3	A RCBT Inlet	Closed	_____
WDL-V14	A RCBT Inlet	Closed	_____
WDL-V17	A RCBT Inlet	Closed	_____
WDL-V18	B RCBT Inlet	Closed	_____
WDL-V19	C RCBT Inlet	Closed	_____
Valve positions if B RCBT is selected for fill:			
WDL-V4	B RCBT Inlet	Closed	_____
WDL-V15	B RCBT Inlet	Closed	_____
WDL-V18	B RCBT Inlet	Closed	_____
WDL-V17	A RCBT Inlet	Closed	_____
WDL-V19	C RCBT Inlet	Closed	_____
Valve positions if C RCBT is selected for fill:			
WDL-V5	C RCBT Inlet	Closed	_____
WDL-V16	C RCBT Inlet	Closed	_____
WDL-V19	C RCBT Inlet	Closed	_____
WDL-V17	A RCBT Inlet	Closed	_____
WDL-V18	B RCBT Inlet	Closed	_____

Performed By_____ Date_____
Signature

Reviewed By SRO
or RO License_____ Date_____

ATTACHMENT I



ATTACHMENT 2

Procedure Sequence for EPT Re-Ins

Prerequisites

1. Switching and Tagging per AP1002
2. RWP's shall be initiated.
3. Weld histories approved
4. Work crews briefed as to the RCS condition and their response to unexpectad emergincies (ie: Loss of Decay Heat Removal and/or system overfill).

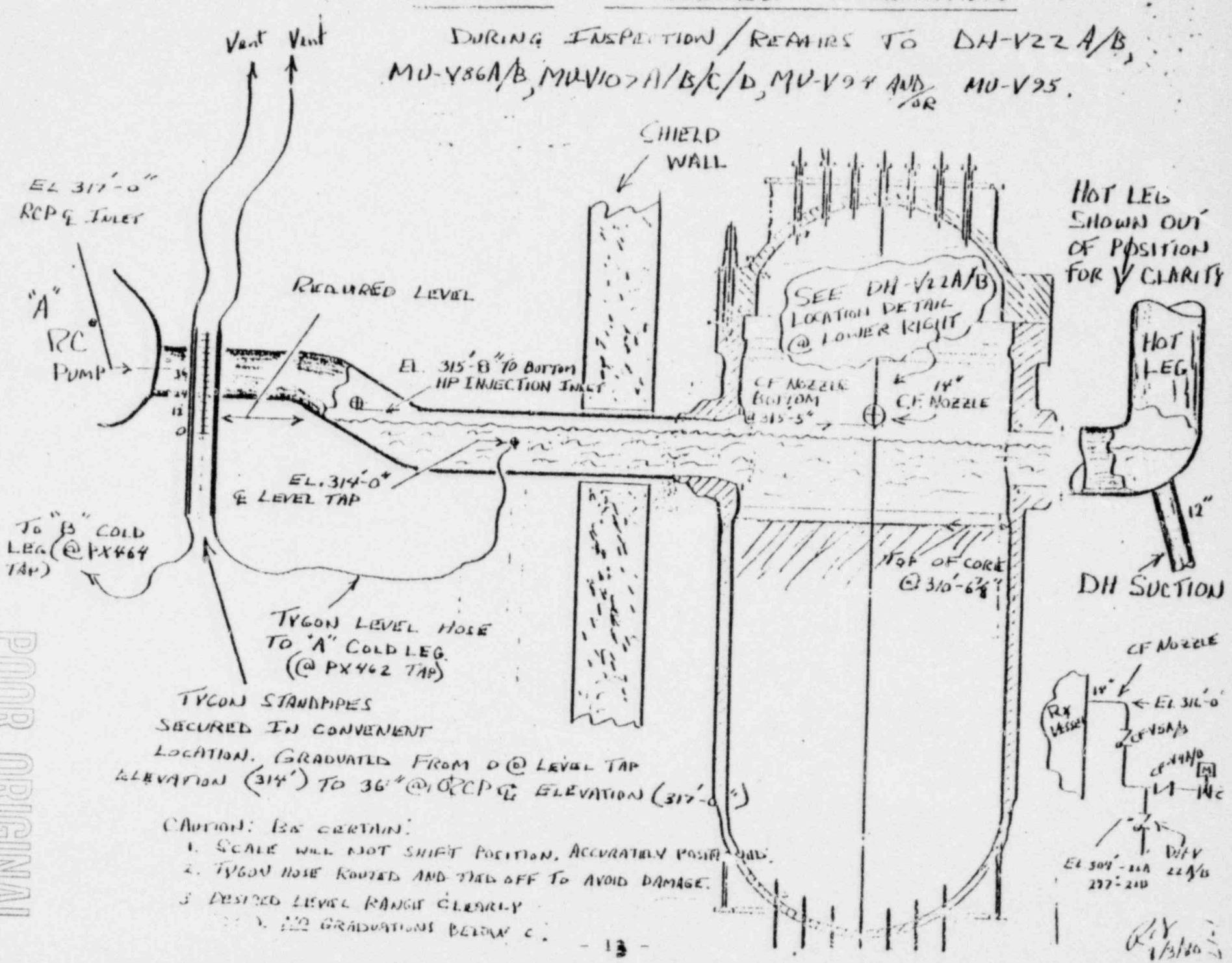
Work Sequence

1. Work will be performed using two shifts
   1st shift work B & D Loops
   2nd shift work A & C Loops

2. Make cuts and prepare pipe end as per the weld histories.
3. Weld Root and Hot pass
4. RT joints and repair as necessary
5. Weld out joints
6. Perform final RT.

TEMPORARY LEVEL INDICATION

DURING INSPECTION/REPAIRS TO DH-V22 A/B, MU-V86A/B, MU-V107 A/B/C/D, MU-V94 AND/OR MU-V95.



CAUTION: BE CERTAIN:

1. SCALE WILL NOT SHIFT POSITION, ACCURATELY POSITIONED.
2. TYGON HOSE ROUTED AND TIED OFF TO AVOID DAMAGE.
3. DESIRED LEVEL RANGE CLEARLY [illegible] GRADUATIONS BELOW ℄.

RLY 1/31/80

GPU Service | NUCLEAR SAFETY RELATED | ATTACHMENT 2

ENGINEERING CHANGE MEMO

TMI UNIT NO. 1

DESIGN ORGANIZATION
X GAI
GPUSC
OTHER

S-ECM NO. 007 REV. 5
DISCIPLINE Mechanical
SUBJECT: HPI Modifications
TASK NO. RM-14

CHANGE

A. Valve MU-V217 has been installed as a part of previous modifications but requires a support. This revision of SECM-007 includes a support design.

B. Pipe support MK No.-MUE-19 is installed but requires modification

C. All installation fabrication, and welding shall be in accordance with approved GPU/~~nuclear~~ procedures ~~or CAI Atlantic procedure~~.
The Nuclear Safety/Environmental Evaluation, Safety Evaluation, and Fire Hazards Analysis (pg 2,3&4) are not affected by this change.
S.E. Rogers 10/3/80

REASON FOR CHANGE

A. As a result of makeup pipe rerouting, MU-V217 was installed, but not according to manufacturer's instructions. To ensure proper operation, a support for the valve is require. RESOLVES FC R185.

B. Support MK No. MUE-19 was installed, but not according to Basic Engineering Dwg. 3363-M5 Sheet MU-296. The as-built condition is not acceptable and requires modification for acceptance. RESOLVES FC R247

C. This revision to the ECM does not affect the restart report.

VALIDATED NED-ED/TMI

REMARKS

None.

NOTE: ATTACHMENT #94, DWG. S-317-816 REV 1A-C, HILTI QUIK BOLTS, ITEM #2 ARE NOT TO BE INSTALLED. ECM S-007 REV. 5A WILL CORRECT THIS.

M. E. Stewart 8/13/80 ORIG. ENGINEER DATE
J. Goldenberg SUPERVISOR

☐ PORC APPROVAL REQUIRED
☐ FOR INSTALLATION

REVISE SPEC. N/A REVISE DWG. Attachments 98, 99 this SECM

SAFETY CLASSIFICATION
XX NUCLEAR SAFETY RELATED
☐ IMPORTANT TO SAFETY
☐ NOT IMPORTANT TO SAFETY

QC CLASSIFICATION
XX QC YES
☐ QC NO

GAI QA APPROVAL (AS REQUIRED) 9/24/80
GPUSC QA APPROVAL (AS REQUIRED)

RELEASED 9/4/80

REV. _____ APPROVED FOR ISSUE AND CONSTRUCTION:

N/A TO UNIT 1 — J. Faulkner 10/30/80
GPUSC CONST. SITE MANAGER DATE

ACKNOWLEDGEMENT
NOV 13 1980
GPUSC
James Rondeau 11/4/80
OOCC/DATE
NOV 04 1980

Service	ECM SECM-007 Rev 5
	TASK RM-14
TITLE HPI Modifications	PAGE 1 OF 6 SHEET 1 OF 2

REV	SUMMARY OF CHANGE	APPROVAL	DATE
4	THE IMPACT EVALUATION, SAFETY EVALUATION AND FHA HAVE NOT BEEN AFFECTED BY THIS REVISION. HOWEVER, THE LIST OF ATTACHMENTS AND THE LIST OF REFERENCES HAVE BEEN REVISED AND ATTACHED.		
5	The impact evaluation, safety evaluation, and fire hazards analysis have been unaffected by this revision. The list of attachments and list of references have been revised and attached.	G. H. Fritzen for A. P. Rochino 10/7/92	

J Wright 1-11-258

GPU Service

NUCLEAR SAFETY RELATED

ENGINEERING CHANGE MEMO

STATION TMI-1

DESIGN ORGANIZATION

X ____ GPUSC Site Liaison

____ OTHER

SECM 007 REV 5A

PAGE 1 OF 6

SHEET 1 OF 1

TASK RM-14

TITLE HPI Modification

CHANGE

1. Install disc skirt in MU-V217 in accordance with Attachments FA-1 and FA-2. Prior to re-assembly ensure valve stem is not bent.
2. Install MU-V217 motor operator support in accordance with the modified requirements of Attachment FA-3.
3. Prepare, if necessary, welds identified in Attachment FA-4 for ultrasonic examination in accordance with the procedure of Attachment FA-5. Perform baseline inservice Examination of welds identified in Attachment FA-4.

The Nuclear Safety/Environmental Evaluation, Safety Evaluation, and Fire Hazards Analysis are not affected by this change.

REASON FOR CHANGE

1. To upgrade MU-V217 for operations with the operator in the horizontal position. This change resolves/closes out FQ-R-Y85 Rev 1.
2. To correct the design for MU-V217 motor operator support to reflect the correct orientation of the installed valve and to specify an approved type anchor bolt.
3. To incorporate/define the requirements for inservice base line inspections.

FOR INFORMATION ONLY

VALIDATED/REJECTED/TMI

J. F. Fretzen — Responsible Engineer — 10/20/80 Date — B Cavadanno — Supervisor

J. F. Fretzen 10/28/80 — Project Engineering Manager/Date

SAFETY CLASSIFICATION

☒ Nuclear Safety Related

☐ Important to Safety

☐ Not Important to Safety

QC CLASSIFICATION

☒ QC Yes ☐ QC No

AE/A-E Approval (As Required)

L. O. Barkhuff — GPUSC QA Approval (As Required) 10/28/80

GPU Section Mgr Sign/Date

B. Cavadanno 10-23-80

Released — Date

Conditional Release (No turn over until verification is completed)

DCN OT0028

NA TO UNIT NO. 1 J Faulkner 11/4/80

GPUSC Const Site Manager/Date

ACKNOWLEDGEMENT

MLM MLM

James Kordas

DDCC/Date

A0000300 5-80

GPU Service | NUCLEAR SAFETY RELATED

ENGINEERING CHANGE MEMO

STATION TMI-1

DESIGN ORGANIZATION
✓ GPUSC SITE LIAISON
OTHER

ECM S-007 REV 5B
PAGE 1 OF 6
SHEET 1 OF 1
TASK RM-14

TITLE: HPI CROSS CONNECT FLOW INDICATION

CHANGE: Show actual controlotron terminations on the drawings as actually on physical equipment. Revise term. sheets for actual termination information.

THE NUCLEAR/ENVIRONMENTAL IMPACT EVALUATION, SAFETY EVALUATION AND FIRE HAZARDS ANALYSIS REMAIN UNCHANGED.

REASON FOR CHANGE
the dwg's did not show actual terminations on the equipment for control & instrumentation wiring.

this SECM resolve FQ-R220

VALIDATED FOR TMI

RECEIVED
DEC 4 1980

FOR INFORMATION ONLY

R.G. Wittenstein 11/19/80 R.L. Fuhs
Responsible Engineer Date Supervisor

GPUSC QA
G.F. Trowbridge 11/25/80
Project Engineering Manager/Date

SAFETY CLASSIFICATION
☒ Nuclear Safety Related
☐ Important to Safety
☐ Not Important to Safety
QC CLASSIFICATION
☒ QC Yes ☐ QC No

AE-QA Approval (As Required)
GPUSC QA Approval (As Required) 11/24/80

GPU Section Mgr Sign/Date
Gerald Lehmann 11/19/80
Released Date

Conditional Release (No turn over until verification is completed)
DCN 1CAI-0T0039

GPUSC Const Site Manager/Date

ACKNOWLEDGEMENT
MLM MLM
James Kondras
DDCC/Date
DEC 12 1980

A0000300 5-80

GPU Nuclear

NUCLEAR SAFETY RELATED

ENGINEERING CHANGE MEMO

STATION TMI-1

DESIGN ORGANIZATION

___ GPUSC

X GAI

___ OTHER

S ECM 007 REV 6

PAGE 1 OF 6

SHEET 1 OF 1

TASK RM-14

TITLE HPI Modification

CHANGE

1. Modify hanger for MUH-330 (See Attachment 95)
2. Change dimensions to provide clearance for a cable tray at MUH-331. Revised weld symbols. (See Attachment 96)
3. Provide revised design details for MUH-335. (See Attachment 94)
4. Provide corrected drawing for MUH-293 (See Attachment 97) The Nuclear Safety/Environmental Evaluation and Fire Hazards Analysis are not affected by this change.

REASON FOR CHANGE

1. MUH-330 requires a trapese hanger per FQ R-395 (See Ref. 15)
2. Clearance must be provided for a cable tray at MUH-331 per FQ R-396 (See Reference 16). Weld symbols changes to reflect As constructed conditions.
3. Since hanger base plate/holes cannot be relocated, hanger MUH-335 must be redesigned per FQ R-366 (See Reference 14)
4. Revised drawing for MUH-293 to reflect correct As-built condition of existing hanger per EIN Drawing

W. E. Howard 12/24/80 — Responsible Engineer / Date

J. Shollenberger — Supervisor

J. F. Fenton 1/12/81 — Project Engineering Manager/Date

SAFETY CLASSIFICATION
- ☒ Nuclear Safety Related
- ☐ Important to Safety
- ☐ Not Important to Safety

QC CLASSIFICATION
- ☒ QC Yes ☐ QC No

AE-QA Approval (As Required) 1/7/81

N/A per EnPR 008.2.7 Appendix B — GPUSC QA Approval (As Required)

GPU Section Mgr Sign/Data

R. Wolfe for A. Rochino (Released) 1/6/81 (Date)

Conditional Release (No turn over until verification is completed)

DCN N/A

GPUSC Const Site Manager/Date

ACKNOWLEDGEMENT

MLM

James Kondras — PDCC/Date JAN 13 1981

A0000300 6-80

VALIDATED-ED/IMI-1

FOR INFORMATION ONLY

JAN 13 1981

GPU Service

SAFETY EVALUATION
TMI-1 NUCLEAR STATION

S-ECM 007 Rev 6
Page 1 of 5
Sheet 1 of
Task RM-14

Safety Evaluation

~~To be supplied by GPUNC~~

The Nuclear Safety/Environmental Evaluation ARE this change NOT ~~Affected~~ by

1SH 1/4/90

Included ECM(s)	NSR	ITS	NITS	Verified
SECM-007 Rev. 6	X			

	Yes	No	TR #
FSAR deviation must be documented	☐	☐	
Station Technical Specification amendment is required	☐	☐	
Quality Classification List amendment is required	☐	☐	
Other	☐	☐	

M. F. Stewart
RESPONSIBLE ENGINEER

NRC APPROVAL HAS BEEN OBTAINED

~~EMERGENCY~~ CHANGE MEMO

TMI UNIT NO. 1

RESTART

DESIGN ORGANIZATION

✓ GAI

— GPUSC

— OTHER

SER. NO. 5-007 REV. 0

DISCIPLINE Mechanical

SUBJECT: HPI System in Small Break LOCA

TASK NO. RM 14

REFERENCES

Purchase Requisition 100-1689-ST
S.P.-5501
S.P.-5544

ATTACHMENTS

See Sheet 2

QUANTITY 45

CHANGE

Add cross connects inside containment between loop A and B high pressure injection lines. ~~Add control valves MU-V384, 385, 386 and 387 to the high pressure injection lines.~~ Add bypasses, with their associated values, around value MU-V17. ~~and control valves MU-V388, V389.~~

REASON FOR CHANGE

This change is necessary to provide adequate high pressure injection flow and pressure pump runout under all postulated conditions during a small break LOCA.

R.J. Shelton 6/12/79
Originating Engineer Date

Supervisor 6/21/79

☐ M&T-ED Approval Required

☒ For INSTALLATION 6/21/79 1600 RO

FOLLOW-UP ACTION

Issue ~~REVISE~~ SPEC. S.P.-367

REVISE DWG.
C-302-661 EA-2
C-301-504 EA-2
E-304-661 EA-2

REV. 0 APPROVED FOR ISSUE AND CONSTRUCTION

GPUSC CONSTRUCTION MANAGER

DATE: 6/21/79 TIME: 1600

ACKNOWLEDGEMENT

David J. Barilla
ACCEPTED BY

JUN 22 1979
DATE

METROPOLITAN EDISON COMPANY Subsidiary of General Public Utilities Corporation

Subject MODIFICATIONS FOR LONG TERM CORRECTIVE ACTION, SMALL BREAK LOCA

Location Reading

Date June 5, 1979
GEM 2137

To T. HAWKINS

BACKGROUND

The mechanical piping cross connect has been accepted by the NRC as a viable long term solution for additional corrective action on the small break LOCA issue. The issue, and the scenario to arrive at the solution are extensive, well documented, and will not be repeated in this memo.

The basic concept is derived from B&W's B-SAR-205. Various analyses to verify the proper operation of the HPI system with the cross-connects installed, have been done in-house and by GAI. Results of these analyses have been reviewed and concurred with by B&W.

CONCLUSION

Generation Engineering approves the design of the HPI and Make-up System modification as shown in the attached drawings, and concurs with the installation of the modifications.

REFERENCES

1. C-301-055 Rev. IA-1
2. B-326-004 Rev. IA-0
3. E-301-054 Rev. IA-2
4. E-304-666 Rev. IA-2
5. S-317-809 Rev. IA-0 through S-317-818 Rev. IA-0
6. C-302-661 Rev. IA-2
7. Basic Engineers Hanger Drawings (Shop Order 8563-MU)
8. B&W Letter TMI-79-17 dated 2/5/79

Spool Piece Drawing
Schedule of Valve Stem Leakoffs
Erection Diagram
Piping Diagram
GAI Hanger Drawings

Flow Diagram, MU&P
Sheet numbers: MU45, 46, 86, 87, 88, 90, 91, 243, 244, 245, 252, 296, 421

DISCUSSION

By memo GEM 0899, dated March 9, 1979, Generation Engineering approved core boring of the 308' level floor in the Reactor Building to accommodate the routing of the cross-connect piping.

The flow diagram C-302-661, Rev. IA-2, is enclosed to schematically show the changes. The high pressure injection lines are cross-connected inside containment downstream of the MU-V-107 valves. Under normal operation, the cross-connect would introduce a second make-up flow path through the "D" injection nozzle. To avoid this, it is necessary to change the normal make-up line. It will be routed through a new containment penetration (utilizing an existing sleeve) and rejoined to the "B"

ATTG SECM 007
R-0

INTER-OFFICE MEMORANDUM

Pg 1 of 3

injection line downstream of the cross-connect. A new check valve, MU-V-220 will prevent the cross flow to the "D" injection line. Check valve MU-V-219 will be the new containment isolation valve, and gate valve MU-V-222 will facilitate local leak rate testing.

An additional by-pass loop is added to the make-up line, with MU-V-217, to allow a higher rate of make-up under certain upset conditions. After installation of the cross connects and make-up modification, MU-V-16B will no longer be used for high rate make-up due to the cross-connect to the "D" nozzle. The by-pass loop with MU-V-217 will not be added at this time but will be installed in the future during a refueling outage. The cavitating venturies will not be installed as was previously planned.

The mechanical piping additions for penetration 323, and valves MU-V-217, 219, 220, and 222 are being secured on specifications through Generation Engineering. The penetration was purchased to the original GAI design specification 5490. The check valves (MU-V-219, 220) were purchased from Rockwell to GED-CS-10.3 Rev. 0. MU-V-217 is a motor operated 2½ in. N-2,S-1 1500# globe valve to be purchased to GED-CS-25.3 Rev. 0 and MU-V-222 is a 2½ in. N-1,S-1 1500# manually operated globe or gate valve to be purchased to GED-CS-10.4 Rev. 0.

Work Order for this job is T8709. To date only design engineering funds have been approved. By GEM 1056 dated 2/26/79, the remainder of the construction project was submitted for GPUSC approval. When this approval is received, the revised CR-8 will be routed for approval, after which funds will be released for TMI use.

Per GP 0026, the TMI Welding Engineer will have control of all welding, including maps, histories and non-destructive examinations.

SAFETY ANALYSIS

Any accident associated with the added portions of the HPI system to affect the cross connect or new make-up line, would be no different than any accident analysed for the existing system.

The addition will not affect the Basis of T.S. 3.3.

In the analysis of May 1, 1978 as provided to the NRC by B&W, the justification was based on 70% of 500 GPM total flow of one make-up pump being added to the RV under the SBL conditions. A Met-Ed computer program was written to model the HPI system with cross-connects. The program was verified correct by direct comparison with GAI's PIPF Code which has been reviewed and accepted by the NRC. Using the Met-Ed program, the worst case flow split under accident conditions was shown to be 66%/34%. The results of this program were then referred to B&W to resolve the discrepancy from the desired 70%/30% split. B&W determined that Unit 1 already operated at a power level which was 7% below the power used in their May 1 analysis. Therefore they do feel the reduced flow to be acceptable. See Reference #8. The results of the Met-Ed and GAI analyses will be outlined in a separate report to be issued in the near future.

ATT 6 TO 5560H 007
RO
Pg 2 of 3

the proposed modifications for the makeup system will allow high pressure injection to handle all small break LOCA's. No operator action is required for twenty minutes following a SBL. During that period of time, the SBL can be identified. If the SBL has occurred in one of the injection lines downstream of the last check valve, the operator must shut the MU-V-16 valve to curtail the abnormally high injection flow in this line.

The subject change/modification will ensure that the requirements of the B&W Small Break Accident Analysis can be satisfied and will result in no degradation in the design of the high pressure injection system.

GP 1008 CHANGES

No changes are required. GP 1008, as presently written, will cover the changes as described in this change/modification.

FSAR CHANGES

The FSAR shall be modified to reflect the modifications as prescribed herein and the analyses required to substantiate the plant changes. The following sections shall be revised: 6.1.3.1, 9.1 (which describe the functions of the makeup and purification system) and 14.2.2.3 (which describes the accident analyses).

TEST/WEIGHT

The piping shall be hydrostatically tested at a multiple of the system nominal operating pressure per Section XI, Section IWB5000 of the ASME Code. An initial flow test of the high pressure injection piping shall be performed. A test resume will be prepared by Generation Engineering which will delineate the test conditions and what parameters are to be measured. Generation Engineering will evaluate the data prior to startup.

THE PENETRATION SHALL BE PRESSURE TESTED USING METHODS AND ACCEPTANCE CRITERIA SIMILAR TO LOCAL LEAK RATE TESTING. DRH

Submitted by: E G Skuchas
E. G. SKUCHAS, EXT. 6543

Reviewed by: J. F. Fritzen
J. F. FRITZEN, EXT. 6542

Approved by: R. M. Klingaman
R. M. KLINGAMAN, EXT. 6515
MANAGER-GENERATION ENGINEERING

Approved by: O. A. Lovin for G. J. Troffer 6/15
G. J. TROFFER, EXT. 6566
MANAGER-GENERATION QUALITY ASSURANCE

GJT:RMK:JFF:EGS:dlw

Attachments

cc: R. R. Lefin
R. L. Summers
R. O. Barley
T. A. Mackey

Task 7202

File: 61.1000.0005

ATTACHMENT 5 ECM 00-20

Pg 3 of 3

ENGINEERING CHANGE MEMO TMI UNIT NO 1 RESTART	DESIGN ORGANIZATION X GAI ___ GPUSC ___ OTHER	SER. NO. S-ECM-007 REV. 1 DISCIPLINE Electrical SUBJECT: HPI System For Small Break Lock TASK NO. R4-19

REFERENCES	ATTACHMENTS (Number each) QUANTITY 3 1. DRAWING LIST 2. DRAWINGS 3. SEPIAS 4. Purchase Req. - 86535, 86536, 86537

CHANGE Transmit Electrical Dwgs for Above Referenced Task

REASON FOR CHANGE

Electrical Dwgs Were Not Transmitted With Original Transmittal

Thomas Earle 6/26/79 [signature] Orig. Engineer Date Supervisor (for safety related GPUSC ECM only) GPUSC QA ______	☐ MET-ED Approval Required	☐ For Installation

FOLLOW-UP ACTION REVISE SPEC. ___ REVISE DWG. ___	REV. 1 APPROVED FOR ISSUE AND CONSTRUCTION: [signature] GPUSC CONSTRUCTION MANAGER DATE: 7-5-79 TIME: 0930	ACKNOWLEDGEMENT James Kondras MET-ED NAME DATE

J. Wright 2-11

Service

ENGINEERING CHANGE MEMO

TMI UNIT NO 1

DESIGN ORGANIZATION

X GAI

____ GPUSC

____ ____ OTHER

SER. NO S-ECM-007 REV. 3

DISCIPLINE I & C

SUBJECT: APPROVED HPI MODIFICATIONS

TASK NO. RM-14

REFERENCES

SEE LIST OF REFERENCES PAGE 6

ATTACHMENTS (Number each) QUANTITY 28

SEE ATTACHMENT LIST - PAGE 5

CHANGE

REMOVE MU-24-FE, MU-24-DPT AND MU-24-FT NARROW RANGE FLOW MEASUREMENTS AND REPLACED WITH SONIC WIDE RANGE FLOW MEASUREMENTS MU-24-FE, MU-24-FT AND MU-24-FY.

LIMITED

REASON FOR CHANGE

FQ-R54 AND PREVIOUS MODIFICATIONS TO REACTOR COOLANT MAKE-UP SYSTEM.

5-14-80

GPUSC

ISSUED MAY - 9 1980

VALIDATED MED-ED/RM

R. B. Fisher — Orig. Engineer — 3-11-80 Date — R. D. Hattenstein — Supervisor

Revise Spec. ____ Revise Dwg. ____

for D. G. SLENK — PORC Approval Required

MAY 11 — For Installation

QA CLASSIFICATION

X CC for ~~B CC No~~ 3

QA APPROVAL (As Req'd) Deleted 3

Engineer w/ CC-No

REV. 3 APPROVED FOR ISSUE AND CONSTRUCTION:

for L. M. ZUBEK

GPUSC Const Site Manager/Date 5/9/80

ACKNOWLEDGEMENT

James Kordas/JMH

MAY 09 1980

DOCC Date

TMI Nuclear Station - Unit 1
Nuclear Safety/Environmental Impact Evaluation

The Unit 1 plant design change, test or experiment, directed by the engineering document identified above, has been reviewed and the following has been concluded:

1. Does it make a change to systems or components as described in the TMI-1 FSAR?
   (If NO, delete #2,#3 & go to #4. If YES, proceed to #2.)
   NO [X] YES [ ]

2. Does it involve a system or component that is Nuclear Safety related?
   (If NO, delete #3 & go to #4. If YES, proceed to #3.)
   NO [ ] YES [ ]

3. (a) Does it increase the probability of occurence or the consequences of an accident or malfunction of equipment important to safety?
   NO [ ] YES [ ]

   (b) Does it create the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report?
   NO [ ] YES [ ]

   (c) Does it reduce the margin of safety as defined in the basis for any technical specification?
   NO [ ] YES [ ]

   Explain why answers to 3(a), (b), or (c) are NO:

   If any of the answers to 3(a), (b), or (c) are YES, the change must be approved by the NRC prior to implementation.

4. It has been determined that this design change, test or experiment does not adversely affect Nuclear Safety; therefore, it is not an "Unreviewed Safety Question" (per 10CFR50.59).

R. B. Fiala 3-11-80 R. J. Hattenstein 3-11-80
Reviewed by Cognizant Engineer — Date — Approved by Project Engineer — Date

(If the statement in 4 above is NOT true, do not sign this form. Return the entire package to the Project Engineer who will convene design review conferences with Project personnel to pursue additional action.)

5. Does it possibly involve a significant environmental impact?
   NO [X] YES [ ]

R. B. Fiala 3-11-80 R. J. Hattenstein 3-11-80
Reviewed by Cognizant Engineer — Date — Approved by Project Engineer — Date

(If 5 is YES, do not sign this form. Return the entire package to the Project Engineer who will convene design review conferences with Project personnel to pursue additional action.)

Items 1 through 5 approval:

M. Crowthers 4-16-80 — Mgr. Generation Eng. (or alternate) — Date
C. W. Smith 4/14/80 — Mgr. Generation QA (or alternate) — Date
[signature] — Unit Superintendent (or alternate) — Date

SED

BEFORE E.M. ISSUE AND PRIOR TO TIE-INS.
[signature] 5/9/80

A0000009

Safety Evaluation

THE COMPONENTS ADDED BY THIS MODIFICATION ARE N.S.-SAFETY RELATED, WHICH PRECLUDES THE PROBABILITIES OR CONSEQUENCES OF ACCIDENTS OR MALFUNCTION OF EQUIPMENT IMPORTANT TO SAFETY. THE INSTRUMENTATION ADDED IS PROVIDED FOR MONITORING NORMAL RC MAKEUP FLOW & SERVES NO SAFETY FUNCTION.

Included ECM(s)	NSR	Non-NSR	Verified
FQ-R54		YES	R.L. Hottenstein S.R.D. 4/16/1980

References

Appendices

R.D. Fish 3-11-80

A00002

GAI Service

ECM S-ECM-007 Rev 3
Page 4 of 6

Fire Hazards Analysis

Job Title RM-14 Date 3-11-80

Task Description APPROVED HPI MODIFICATIONS

RE R.D. Fiske PE Mgr R. M. Augsburger

I. Fire Hazards Preliminary Information

1. Identify the ECM Area. SEE ATTACHMENT
Bldg. ____ Elevation ____ Column ____

*2. Identify the addition or removal of components
List:

COMPONENTS ADDED ARE CABLE AND CONDUIT. THE DRAWINGS AFFECTED ARE AS SHOWN ON THE ATTACHMENT TO THE ECN.

*3. Identify the addition or removal of combustibles

Add Qty	Type	~~Remove Qty~~	~~Type~~

SEE PAGE 4b FOR A LIST OF COMBUSTIBLES IN THE CONT. BLDG. AND FUEL HDLG. BLDG.

*Use attachments if more space is required.

4. Identify and describe any interface on existing fire protection services. (If yes checked - attach reference document or written explanation)

Yes	No	
☐	☐	Penetration of fire barriers
☐	☐	Addition or removal of space separations
☐	☐	HVAC operation or modification
☐	☐	Fire suppression water system
☐	☐	Fire suppression Halon system
☐	☐	Fire suppression CO_2 system
☐	☐	Fire suppression other - including hand extinguishers
☐	☐	Fire protection surveillance system
☐	☐	Fire detection system

*5. Identify and describe the presence of NSR systems/components that may be impacted by a positive response to Items 2, 3 and 4 above. This shall include mechanical or electrical control system components.

Responsible Engineer/Date

II. Fire Hazards Analysis

	Yes	No
1. Fire Hazards Analysis required	☐	☐
2. Fire Hazards Analysis completed	☐	☐
3. Fire Hazards Analysis amendment is required	☐	☐
4. Fire Hazards Analysis amendment has been completed	☐	☐

Date

Fire Protection Program Coordinator Date

Mech. Comp. Sect. Mgr Date

S-ECM-007, Rev 3
TASK RM-14

4. Identify and describe any interface on existing fire protection services. (If yes checked - attach reference document or written explanation)

Yes	No	
X		Penetration of fire barriers
	X	Addition or removal of smoke detectors
X		HVAC operation or modification
	X	Fire suppression water system
	X	Fire suppression halon system
	X	Fire suppression CO_2 system
	X	Fire suppression other - including hand extinguishers
	X	Fire protection surveillance system
	X	Fire detection system

5. Identify and describe the presence of NSR systems components that may be impacted by a positive response to items 2, 3 and 4 above. This shall include mechanical or electrical control system components.

THE ADDITION OF THIS MODIFICATION HAS NO SIGNIFICANT EFFECT ON NUCLEAR SAFETY RELATED SYSTEMS OR COMPONENTS.

R. B. Fuhr 3-11-80
Responsible Engineer Date

II. Fire Hazards Analysis

	Yes	No
1. Fire Hazards Analysis required: RD Anows 3-11-80	X	
2. Fire Hazards Analysis completed		X
3. Fire Hazards Analysis amendment is required		
4. Fire Hazards Analysis amendment has been completed		

Date

[signature] 4/11/80
Fire Protection Program Coordinator Date

[signature] 4-11-80
[illegible] Section Mgr Date

FIRE ZONE	ELEVATION	FLR/WALL	ELEV./COL.	# CABLES
ONT. BLDG. CB-3C	338'-6"	W	WEST	2
ONT BLDG. CB-3d	338'-6"	W	NORTH	2
FUEL HDLG. FH-FZ1	281'-0"	W	WEST	2
FUEL HDLG. FH-FZ2	305'-0"	F	305'-0"	2
FUEL HDLG. FH-FZ5	322'-0"	F	322'-0"	2

12.125 lbs. CABLE INSULATION IN CONTROL BLDG. AREA CB-3C

4.95 lbs. CABLE INSULATION IN CONTROL BLDG. AREA CB-3d

7.14 lbs. CABLE INSULATION IN FUEL HDLG. AREA FH-FZ1

2.55 lbs. CABLE INSULATION IN FUEL HDLG. AREA FH-FZ2

0.535 lbs. CABLE INSULATION IN FUEL HDLG. AREA FH-FZ5

PAGE 4C OF 6
SECM-007-3
RM-14

TMI
ROUTE

Gilbert/Commonwealth engineers and consultants

GILBERT ASSOCIATES, INC., P. O. Box 1498, Reading, PA 19603, Tel. (215) 775-2600, Cable Gilasso, Telex 836-431

March 27, 1980 GAI/TMI-1CS-3100

APR 2 1980

Mr. D.C. Slear
TMI-1 Project Engineering Manager
GPU Service Corporation
100 Interpace Parkway
Parsippany, New Jersey 07054

Re: Three Mile Island Nuclear Station
Unit No. 1
Fire Hazard Analysis
W.O. 044692-502
Task SECM-007, Rev. 3

Dear Mr. Slear:

GAI has performed a fire hazard analysis to assure continued compliance with TMI-1 Fire Hazard Analysis Report (FHAR) for providing approved HPI modifications as outlined in SECM-007, Rev. 3. The following information relates to findings of the analysis.

A. The increased quantity of combustibles added by SECM-007, Rev. 3 does not exceed the limit established for the fire areas or zones as described in the FHAR.

B. The increased quantity of combustibles added by SECM-007, Rev. 3 is insignificant, therefore, the allowable transient combustibles loading will not be adjusted.

C. Control Building Area CB-3C (Elevation 338'-6") contains engineered safeguards actuation cabinets A & B, and engineered safeguards relay cabinets 1,2 & 3 which are redundant. To prevent loss of function of the redundant safe shutdown related equipment within this area, due to a fire, the following protection has been provided:

1. Engineered Safeguards actuation cabinets and engineered safeguards relay cabinets are protected internally with fire resistive material with a 1/2 hour fire resistance rating.

2. Ionization type smoke detectors provide early warning fire detection within the area.

3. Manually actuated, closed fusible link sprinkler system.

4. 1½" fire hose stations outside the area.

5. CO_2 and dry chemical portable fire extinguishers.

For Control Building Area CB-3C and other areas affected by SECM-007, Rev. 3 the safe shutdown of TMI-1 will not be prevented by the change in combustible loading, since the change is insignificant. The addition of components to provide approved HPI modifications, as outlined in SECM-007, Rev. 3, will not prevent safe shutdown in the event of a fire in the area. In the event of a fire within the area, safe shutdown capability will not be prevented by the modifications of systems or components of SECM-007, Rev. 3. The fire suppression or fire detection systems will not be modified or affected by SECM-007, Rev. 3. Where fire barriers are altered due to penetrations, site procedure GED-GS-9, Rev. 1, "Technical Specification - Penetration Seals for Fire Protection at TMI-1" for new penetrations and Met-Ed Maintenance Procedure 1420 FB-1 for repairs to existing penetrations assures that those penetrations will be sealed to provide the required fire resistance of that barrier.

SECM-007, Rev. 3 was also reviewed to assure conformance to the requirements of the point by point comparison of TMI-1 to Appendix "A" of the NRC Branch Technical Position APCSB 9.5-1 as described in the FHAR.

Amendment to the Fire Hazard Analysis Report will not be required.

The incorporation of this ECM completes the recommended requirements of Task RM14.

Very truly yours,

Rodney D. Angus
Fire Protection Engineer

R.M. Rogers
Project Manager

RDA/RMR:daf

cc: D.K. Croneberger
J.P. Moore
G.R. Capodanno
R.M. Rogers (2)
W.F. Itschner
H.N. Goldstein
P.J. Shipper, Jr.
V.H. Willems

GPU Service | NUCLEAR SAFETY RELATED

PAGE 1 OF 6 2-2c
SHEET 1 OF 3

ENGINEERING CHANGE MEMO

TMI UNIT NO. 1

DESIGN ORGANIZATION
X GAI
GPUSC
OTHER

ECM NO. S-ECM-CO1 REV. 4
DISCIPLINE I & C
SUBJECT: APPROVED HPI MODIFICATIONS
TASK NO. 2M-14

CHANGE

REVISED DWG'S SS-201-303 IB-1, SS-202-016 IA-1 SH. 42 RE-1, B-308-813 IA-1, B & W DWG. 22-03-401 IA-1, C-210-710 IB-1, C-302-661 IA-7, B & W DWG. 21-15-009 IA-1, B & W DWG. 22-03-500 IA-1 AND E-304-666 IA-5. ADDED PAGE 1 MAT OF SH. 2 AND PAGES 5 (5 SHEETS) AND 6. REVISED TO RE-DESIGNATE A THE MODIFICATION AS "IMPORTANT TO SAFETY" REQUIRING QUALITY CONTROL INSTALLATION, SURVEILLANCE, INSTRUMENTATION MOUNTING, CONDUIT INSTALLATIONS, CABLE PULLS AND TERMINATION SHALL BE INSPECTED PER ATTACHMENT S [illegible] AND [illegible]. PAGES 2, 3 & 4 NOT CHANGED BY THIS REVISION. CONTINUED ON SHEET 2 OF 3 (SEE ITEM 1)

REASON FOR CHANGE

THIS SECM PACKAGE HAS BEEN REVISED PER GPU COMMENTS IN LETTER TMI-1/E653 AND TO CONFORM TO REVISION 18 OF THE OPERATIONAL QA PLAN GPUNC-MET-ED-1. CONTINUED ON SHEET 2 OF 3 (SEE ITEM 2)
THIS CHANGE RESOLVES FQ-R200 COMMENTS

REMARKS

DRAWINGS B-308-813 IA-1, C-302-661 IA-1, E-304-666 IA-1 AND PURCHASE REQUISITION # 86609 ARE NUCLEAR SAFETY RELATED. ALL OTHER DRAWINGS AND ATTACHMENTS TO THE SECM ARE NON-SAFETY RELATED OR IMPORTANT TO SAFETY, AS SHOWN.

R b Tuibu 5/16/80
ORIG. ENGINEER DATE

C C Stransky
SUPERVISOR
Cycle Section Mgr

PORC APPROVAL REQUIRED 7/17
SRD 7/8/80

FOR INSTALLATION
~~CAT 7/9/80~~

REVISE SPEC. _____ REVISE DWG. _____

SAFETY CLASSIFICATION
☒ NUCLEAR SAFETY RELATED
☐ IMPORTANT TO SAFETY
☐ NOT IMPORTANT TO SAFETY

QC CLASSIFICATION
☒ QC YES
☐ QC NO

GPUSC QA APPROVAL (AS REQUIRED)

GPUSC QA APPROVAL (AS REQUIRED)
R L Wayne

REV. 4 APPROVED FOR ISSUE AND CONSTRUCTION:

N/A TO UNIT NO. 1

GPUSC CONST. SITE MANAGER/DATE
J J Jankowski 8/1/80

ACKNOWLEDGEMENT
dn MLM
MLM

James Kondias
DOCC/DATE
SEP 03 1980

ITEM 1: "CHANGE" PARAGRAPH CONTINUED TASK RM-14

- SECM-007, REV. 0, 1 & 2 DEALT WITH HPI CROSS CONNECT TASK WHILE REV. 3 & 4 ARE PERTAING TO PIPING AND INSTRUMENTATION FOR RC MAKEUP FLOW MONITORING

- SECM-007, REV. 3 DEALT WITH:
  - REMOVAL OF A FLOW NOZZLE (MU-24-FE), DIFFERENTIAL PRESSURE TRANSMITTER (MU-24 dPT — BAILEY TYPE BY XMTR) AND A SQUARE ROOT EXTRACTOR (MU-24-FT)
  - ADDITION OF A PIECE OF PIPE (SPOOL PIECE) IN PLACE OF MU-24-FE (DISCUSSED ABOVE), AND AN ULTRASONIC TYPE TRANSDUCERS/FLOWMETER IN PLACE OF MU-24-dPT. THE ULTRASONIC TRANSDUCERS & FLOWMETER WERE TAGGED MU-24-FE & MU-24-FT RESPECTIVELY.
  - MAKING THE OUTPUT OF ULTRASONIC MU-24-FT COMPATIBLE WITH THE ICS/NNI & TYING-IN THIS OUTPUT INTO THE EXISTING ICS/NNI LOOP # MU-24

  NOTE: SECM-007-REV. 3 WAS RELEASED FOR J.T. FAULKNER'S REVIEW AND APPROVAL ON APRIL 17, 1980 ALONG WITH GPUSC COMMENTS ATTACHED TO IT AS ATTACHEMENT 13. ALSO BY LETTER TMI-1/E653, GPUSC DIRECTED GAI TO INCORPORATE THESE COMMENTS. IN RESPONSE GAI ISSUED SECM-007, REV. 4.

- SECM-007, REV. 4 IS RELEASED FOR CONSTRUCTION WITH ONE EXCEPTION. NOTE THAT THE ATTACHMENT 78 TO THE SECM-007, REV. 4 WHICH IS A B&W DRAWING HAS A HOLD ON THE WIRING TERMINATIONS AT MU-24-FT. GAI SHALL BE DIRECTED TO ISSUE REV. 5 TO THIS ECM SHOWING CORRECT TERMINATIONS.

ITEM 2: "REASON FOR CHANGE" PARAGRAPH CONTINUED

ADDITION OF MU-V217 REQUIRED THE RC FLOW MONITORING INSTRUMENTS TO BE SENSITIVE FOR A FLOW RANGE OF 0-160 GPM DURING NORMAL PLANT OPERATION AND 0-500 GPM IN TRANSIENT MODE WHEN MU-V217 WAS OPENED FOR A FAST MAKEUP PURPOSE (MAXIMUM EXPECTED FLOW OF 425 GPM). THE EXISTING MU-24-dPT WAS CALIBRATED FOR 0-200" H_2O (= 0-160 GPM) AND WAS RATED FOR A MAXIMU ΔP OF 200" H_2O. ∴ THE EXISTING MU-24-dPT WAS RECOMMEDE TO BE REPLACED WITH ULTRASONIC DEVICES (SEE GPUSC's RESPONSE TO FQ-R54 FOR DETAILS)

GPU Service

ECM SECM-007 Rev 4
TASK RM-1d

TITLE

PAGE 1 OF 6
SHEET 3 OF 23

REV	SUMMARY OF CHANGE	APPROVAL	DATE
4	THE IMPACT EVALUATION, SAFETY EVALUATION AND FHA HAVE NOT BEEN AFFECTED BY THIS REVISION. HOWEVER, THE LIST OF ATTACHMENTS AND THE LIST OF REFERENCES HAVE BEEN REVISED AND ATTACHED.	E M I Section Mgr	

GENERATION CORRECTIVE MAINTENANCE SYSTEM
JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND

UNIT 1

ATTACHMENT 3

SYS	COMP TYPE	COMP ID	LOCATION/UNIT	JOB TYPE	JOB TICKET NUMBER	REQUEST DATE MO DAY YR
MU	V	0107C	035001	CM	[redacted] C8	042380

1D

DESCRIBE MALFUNCTION OR MODIFICATION REQUIRED: INSPECT VALVE INTERNALS - DOCUMENT CONDITION

CAUSE OF MALFUNCTION (IF KNOWN):

ORIGINATOR'S EMP. NO. 0 — ORIGINATOR'S SIGNATURE — DATE

SUPERVISOR'S EMP. NO. 06248 — SUPERVISOR'S SIGNATURE [signature] — DATE 4-24-80

T8067/0049/ ~~F...~~

WORK ORDER NUMBER LOCATION	SERIAL	QC CODE	ACCOUNT NUMBER	PLANT CONDITION SU OP HO CD RF	HS LR	PRD FAILURE YR MO DAY	START HR MIN
0350	06187	BE	5301	11111	10		

CHANGE MOD REQ'D	R W P	NUC SAFETY	NP RD	REG AGENCY CODE	CHG/MOD NUMBER
0	1	1	0		

ENV CODE	OUTAGE CAUSE CODE
X	

STATUS HOLD CODE

APPROVAL COMMENCE WORK MO DAY YR: 052380

PRIORITY / RESP. LOCATION OR CONTRACTOR: 2 00969

ALARA REVIEW REQUIRED PRIOR TO COMMENCING WORK COMPLY WITH THE PROVISIONS SET FORTH IN AP 1... 1003 AND MET ED SAFETY MANUAL

INSURE WORK AREA CLEAN UP AT COMPLETION ...

Limits and Precautions:

a) Personnel

b) Equipment

c) Environment

d) Nuclear

Post Maintenance Testing required and Acceptance Criteria.

Attached data/comments sheet filled out. Valve is reassembled and bonnet is leak tight.

ORIGINATOR — SUPERVISOR — SUPERVISOR OF MAINTENANCE — MAINTENANCE FOREMAN — JOB PERFORMER — MAINTENANCE FOREMAN — SUPERVISOR OF MAINTENANCE

COPY 1

GENERATION CORRECTIVE MAINTENANCE SYSTEM
JOB TICKET FORM (WORK REQUEST) - THREE MILE ISLAND — UNIT 1

3-2

COMPONENT DESIGNATION SYS	COMP TYPE	COMP ID	LOCATION / UNIT	JOB TYPE	JOB TICKET NUMBER	REQUEST DATE MO	DAY	YR	RECOMMENDED PRIORITY
MUV	-	0107	C0350	01	CM	C51600	04	22	80	1D

DESCRIBE MALFUNCTION OR MODIFICATION DESIRED

INSPECT VALVE INTERNALS - DOCUMENT CONDITION

CAUSE OF MALFUNCTION (IF KNOWN)

ORIGINATOR'S EMP. NO.	ORIGINATOR'S SIGNATURE	DATE	SUPERVISOR'S EMP. NO.	SUPERVISOR'S SIGNATURE	DATE
0			0624 8		4-24-80

T 5067/0349/ FOR

WORK ORDER NUMBER LOCATION	SERIAL	GC CODE	ACCOUNT NUMBER	PLANT CONDITION SU	OP	HO	CO	RF	HS	LR	NPRO FAILURE START YR	MO	DAY	HR	MIN
0350				1	1	1	1	1		0					

REQ'D	N	NUC SAFETY	WP RO	AGENCY CODE	WO NUMBER	TAGGING APPLICATION NO.	ENV CODE	OUTAGE CAUSE CODE	STATUS HOLD CODE	ESTIMATED DOLLARS
						02306	X			

S/M APPROVAL COMMENCE WORK MO	DAY	YR	S/F APPROVAL COMMENCE WORK MO	DAY	YR	PROCEDURE NUMBER	PRIOR	RESP. LOCATION OR CONTRACTOR	EST CREW SIZE	EST MANHOURS
05	23	80	05	30	80	LH10-Y-31	2	C0569	02	00480

ASSISTING DEPARTMENT RESP. LOCATION OR CONTRACTOR	EST CREW	EST MANHOURS	ASSISTING DEPARTMENT RESP. LOCATION OR CONTRACTOR	EST CREW	EST MANHOURS	ASSISTING DEPARTMENT RESP. LOCATION OR CONTRACTOR	EST CREW	EST MANHOURS

TXN CD	ACT	JOB COMPLETION DATE MO	DAY	YR	FIELD WORK COMPLETION DATE MO	DAY	YR	SIGN OFF REASON CODE	TOTAL ACTUAL MANHOURS	PURCHASE REQUISITION NUMBER	PURCHASE ORDER NUMBER	MATERIAL ORDER NUMBER
807	A				1V	02	80	1	00030			

RESOLUTION DESCRIPTION

TXN CD	ACT	RESOLUTION DESCRIPTION
801	A	07 DISASSEMBLED VALVE CLEANED RENEWED HELIC
801	A	08 OILS AND INTERNALS INSPECTED AND REASSEM
801	A	09 OKKD AS PER SECM 145. THE ECM IS ATTACHE
301	A	10 D TO JOB TICKET C3164

TXN CD	ACT	NPRO FAILURE END YR	MO	DAY	HR	MIN	FAILURE NO.	FAILURE STATUS
308	A							

TXN CD	ACT	NPRO FAIL TYPE	NPRO FAIL MODE	CAUSE OF FAILURE CODES A	B	EFFECT OF FAILURE CODES A	B	FAILURE DETECTION CODE	ACTION TAKEN CODES A	B	LICENSE EVENT REPORTED DATE YR	MO	DAY
309	A												

ORIGINATOR — SUPERVISOR — SUPERVISOR OF MAINTENANCE — MAINTENANCE FOREMAN — JOB PERFORMER — MAINTENANCE FOREMAN — SUPERVISOR OF MAINTENANCE — CM COORDINATOR - DATA ENTRY - SUPERVISOR OF MAINTENANCE CM COORDINATOR - DATA ENTRY

COPY 2

JOB TICKET (WORK REQUEST)
REVIEW – CLASSIFICATION – ROUTING CONTROL FORM

JOB TICKET NUMBER _____

1. Does work represent a change or modification to an existing system or component? If yes, an approved change modification is required per AP 1021.
   C/M No. _____ Yes _____ No ✓

2a. Does work requires an RWP? Yes ✓ No _____

2b. Is an approved procedure required to minimize personnel exposure? Yes _____ No _____

3a. Is work on a QC component as defined in GP 1008? Yes ✓ No _____

3b. If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used. Yes ✓ No _____

4. Agreement that a PORC reviewed, Superintendent approved procedure is not required for this work because it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).

   _____ UNIT SUPERINTENDENT _____ DATE

5a. Is the system on the Environmental Impact list in AP 1026? Yes _____ No ✓

5b. If 5a is YES, is an approved procedure required to limit environmental impact? Yes _____ No _____

6. Agreement that 5b is No. (Required only if 5a is Yes).

   _____ UNIT SUPT./SUPV. OF OPERATIONS _____ DATE

7. Plant status or prerequisite conditions required for work. (Operating and/or shutdown)

8. QC Dept. review, if required in item No. 3.

   _____ QC SUPERVISOR 5/22/80 DATE

9. Does work require code inspector to be notified? Yes _____ No ✓

10. Supervisor of Maintenance approval to commence work:
    _____ Date 5-23-80

11. Maintenance Foreman Assigned: _____

12. Code Inspector Notified. Name: _____ Date _____

13. Shift Foreman's approval to commence work: _____ Date 5-30-80

_____ Initial if Shift Foreman signature is not required.

TMI-154 2-80

JOB TICKET (WORK REQUEST)
REVIEW – CLASSIFICATION – ROUTING CONTROL FORM

JOB TICKET NUMBER _____

14. Retest met acceptance criteria? Yes _____ No _____

15. Work Performed By Date/Time: D. WINTHROE, L.TICE & R. SAWYER 10 OCT 1980

Work Reviewed—Maint. Foreman's Signature: _____

16. Work completed and component aligned for testing.

_____ Initial if S.F. signature is not required.

_____ _____
SHIFT FOREMAN'S SIGN DATE

17. Testing completed and component released for normal use.

_____ Initial if S.F. signature is not required.

_____ _____
SHIFT FOREMAN'S SIGN DATE

18. Quality Control Department review of work and testing completed (QC work only).

_____ _____ _____
SURVEILLANCE RPT. NO. QC DEPARTMENT DATE

19. Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed off as required. Change/modification form has been signed off as required.

_____ _____
SUPV. OF MAINTENANCE SIGN DATE

ATTACHMENT 4

GENERATION CORRECTIVE MAINTENANCE SYSTEM
JOB TICKET FORM (WORK REQUEST) - THREE MILE ISLAND

UNIT 1

COMPONENT DESIGNATION: SYS	COMP TYPE	COMP ID.	LOCATION/UNIT	JOB TYPE	JOB TICKET NUMBER	REQUEST DATE MO DAY YR	RECOMMENDED PRIORITY
EA	ELM	005A	035001	CM	C [illegible]	[illegible]	3

DESCRIBE MALFUNCTION OR MODIFICATION DESIRED

[illegible]

CAUSE OF MALFUNCTION (IF KNOWN)

ORIGINATOR'S EMP. NO. 04732 — ORIGINATOR'S SIGNATURE — DATE

SUPERVISOR'S EMP. NO. 0[illegible] — SUPERVISOR'S SIGNATURE — DATE 6-24-80

WORK ORDER NUMBER: LOCATION	SERIAL	CC CODE	ACCOUNT NUMBER	PLANT CONDITION SU OP HO CD RF HS LR	NPRO FAILURE START YR MO DAY HR MIN
0350	061875H		5305		

CHANGE MOD REQ'D	R W P	NUC SAFETY	NPRD	REG AGENCY CODE	CHG/MOD NUMBER	TAGGING APPLICATION NO.	ENV CODE	OUTAGE CAUSE CODE	STATUS HOLD CODE	ESTIMATED DOLLARS
0	0	0				05749	X			

S/M APPROVAL COMMENCE WORK MO DAY YR	S/F APPROVAL COMMENCE WORK MO DAY YR	PROCEDURE NUMBER	PRIORITY	RESP. LOCATION OR CONTRACTOR	EST. CREW SIZE	EST MANHOURS
[illegible]	062780	1420 / NV 3		[illegible]	02	00016.0

ASSISTING DEPARTMENT RESP. LOCATION OR CONTRACTOR	EST CREW	EST MANHOURS

TXN CD	ACT	JOB COMPLETION DATE MO DAY YR	FIELD WORK COMPLETION DATE MO DAY YR	SIGN OFF REASON CODE	TOTAL ACTUAL MANHOURS	PURCHASE REQUISITION NUMBER	PURCHASE ORDER NUMBER	MATERIAL ORDER NUMBER
807	A	071180	070980	1	00032.0			

RESOLUTION DESCRIPTION

TXN CD	ACT	
801	A	07 FREQ CAPTURE RANGE WAS OUT OF SPEC ADJUS
801	A	08 TED POT TO BRING CAPTURE RANGE WITHIN
801	A	09 SPEC BY KEEPING DOOR CLOSED FOR INTERNAL
801	A	10 HEAT PROCEDURE CHANGE WAS SUBMITTED

TXN CD	ACT	NPRO FAILURE END YR MO DAY HR MIN	FAILURE NO.	FAILURE STATUS
808	A			

ORIGINATOR — SUPERVISOR — SUPERVISOR OF MAINTENANCE — MAINTENANCE FOREMAN — JOB PERFORMER — MAINTENANCE FOREMAN — SUPERVISOR OF MAINTENANCE — CM COORDINATOR - DATA ENTRY - SUPERVISOR OF MAINTENANCE CM COORDINATOR - DATA ENTRY

TXN CD	ACT	NPRO FAIL TYPE	NPRO FAIL MODE	CAUSE OF FAILURE CODES A B	EFFECT OF FAILURE CODES A B	FAILURE DETECTION CODE	ACTION TAKEN CODES A B	LICENSE EVENT REPORTED DATE YR MO DAY
809	A							

COPY 2

POOR ORIGINAL

GENERATION CORRECTIVE MAINTENANCE SYSTEM
JOB TICKET FORM (WORK REQUEST) - THREE MILE ISLAND

UNIT 1

1420-INV-

RECOMMENDED PRIORITY 4-2

COMPONENT DESIGNATION: SYS	COMP TYPE	COMP ID	LOCATION/UNIT	JOB TYPE	JOB TICKET NUMBER	REQUEST DATE MO DAY YR
EL	EL	0005	035001	CM	C34630	06 24 80

3

DESCRIBE MALFUNCTION OR MODIFICATION DESIRED: Inverter 1A swing bus AH blinking. AH swing ... CC

CAUSE OF MALFUNCTION (IF KNOWN):

ORIGINATOR'S EMP. NO. 04737 — ORIGINATOR'S SIGNATURE — DATE 6-24-80

SUPERVISOR'S EMP. NO. 04737 — SUPERVISOR'S SIGNATURE — DATE 6-24-80

T8293

WORK ORDER NUMBER: LOCATION	SERIAL	CC CODE	ACCOUNT NUMBER	PLANT CONDITION: SU OP HD CD RF HS LR	NPRD FAILURE: YR MO DAY	START: HR MIN
0350	001875H		5315	1 1 1 1 1 1 0		

CHANGE MOD REQ'D	RWP	NUC SAFETY	NP PO	REG AGENCY CODE	CHG/MOD NUMBER
0	0	0	1		

ENV CODE	OUTAGE CAUSE CODE
X	

STATUS HOLD CODE

STM APPROVAL COMMENCE WORK: MO	DAY	YR
06	26	80

PRIORITY	RESP. LOCATION OR CONTRACTOR
3	035L

REC'D JUN 25 1980

Limits and Precautions:

a) Personnel

Comply with the Provisions set forth in AP 1002 and Met Ed Safety Manual

b) Equipment

c) Environment

d) Nuclear

INSURE WORK AREA CLEANED UP AT COMPLETION OF JOB

Post Maintenance Testing required and Acceptance Criteria.

as required by 1420-INV-3

ORIGINATOR—SUPERVISOR—SUPERVISOR OF MAINTENANCE—MAINTENANCE FOREMAN—
JOB PERFORMER—MAINTENANCE FOREMAN—SUPERVISOR OF MAINTENANCE

COPY 1

JOB TICKET (WORK REQUEST)
REVIEW – CLASSIFICATION – ROUTING CONTROL FORM

JOB TICKET NUMBER _____

1. Does work represent a change or modification to an existing system or component? If yes, an approved change modification is required per AP 1021.
   C/M No. _____ Yes _____ No ✓

2a. Does work requires an RWP? Yes _____ No ✓

2b. Is an approved procedure required to minimize personnel exposure? Yes _____ No ✓

3a. Is work on a QC component as defined in GP 1008? Yes ✓ No _____

3b. If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used. Yes _____ No ✓

4. Agreement that a PORC reviewed, Superintendent approved procedure is not required for this work because it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).

N/A _____ 1420 INV-3
UNIT SUPERINTENDENT DATE

5a. Is the system on the Environmental Impact list in AP 1026? Yes _____ No ✓

5b. If 5a is YES, is an approved procedure required to limit environmental impact? Yes _____ No _____

6. Agreement that 5b is No. (Required only if 5a is Yes).

N/A _____
UNIT SUPT./SUPV. OF OPERATIONS DATE

7. Plant status or prerequisite conditions required for work. (Operating and/or shutdown)

8. QC Dept. review, if required in item No. 3.

Telefax by Telecon Ellard 6/26/80
QC SUPERVISOR DATE

9. Does work require code inspector to be notified? Yes _____ No ✓

10. Supervisor of Maintenance approval to commence work:

_____ Date 6/26/80

11. Maintenance Foreman Assigned: Crockett

12. Code Inspector Notified. Name: N/A Date _____

13. Shift Foreman's approval to commence work: _____ Date 6-27-80

_____ Initial if Shift Foreman signature is not required.

TMI-154 2-80

JOB TICKET (WORK REQUEST)
REVIEW – CLASSIFICATION – ROUTING CONTROL FORM

JOB TICKET NUMBER C34[illegible]

14. Retest met acceptance criteria? Yes [illegible] No ____

15. Work Performed By Date/Time: [illegible] 6-27-80 1455

Work Reviewed—Maint. Foreman's Signature: [signature]

16. Work completed and component aligned for testing.

____ Initial if S.F. signature is not required.

[signature] 6/27/80
SHIFT FOREMAN'S SIGN DATE

17. Testing completed and component released for normal use.

____ Initial if S.F. signature is not required.

[signature] 7/9/80
SHIFT FOREMAN'S SIGN DATE

18. Quality Control Department review of work and testing completed (QC work only).

____ [signature] 7/11/80
SURVEILLANCE RPT. NO. QC DEPARTMENT DATE

19. Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed off as required. Change/modification form has been signed off as required.

[signature] 7-11-80
SUPV. OF MAINTENANCE SIGN DATE

GENERATION CORRECTIVE MAINTENANCE SYSTEM
JOB TICKET FORM (WORK REQUEST) - THREE MILE ISLAND

UNIT 1 NE

ATTACHMENT 5

COMPONENT DESIGNATION				LOCATION/UNIT	JOB TYPE	JOB TICKET NUMBER	REQUEST DATE			PRIORITY
S-S	COMP TYPE	COMP ID	MS				MO	DAY	YR	
AC	H	0001B		03500	1	CM	C3-1-2	05	22	80

DESCRIBE MALFUNCTION OR MODIFICATION DESIRED

CONDUCT EDDY CURRENT EXAMINATION OF
ABOUT 6% OF TUBES IN SG TS6 TO COMPLY WI
TH TECH. SPEC. 4.19.

CAUSE OF MALFUNCTION (IF KNOWN)

PERIODIC INSPECTION OF OTSG TUBING MAY
PREVENT TUBE LEAKAGE

ORIGINATOR'S EMP NO	ORIGINATOR'S SIGNATURE	DATE	SUPERVISOR'S EMP NO	SUPERVISOR'S SIGNATURE	DATE
06469	J.R. Barbuto	5-22-80	06248	A.E. Burley	5-22-80

T8073 / S30.2

WORK ORDER NUMBER		JOB CODE	ACCOUNT NUMBER	PLANT CONDITION								IMPROPER FAILURE		START	
LOCATION	SERIAL			SU	OP	HO	CO	RF		HS	LR			YR	MO	DAY	HR	MIN
03500	01642	CB	5302	0	0	0	1	1		0	0							

CHANGE MOD REQ'D	A/E	NUC SAFETY	NP AD	REG AGENCY CODE	CHG/MOD NUMBER
0	1	1	0		

ENV CODE	OUTAGE CAUSE CODE
X	

STATUS HOLD CODE

REQUESTED TO COMMENCE WORK		
MO	DAY	YR
06	13	80

RESP LOCATION OR CONTRACTOR
30351

INSURE WORK AREA CLEANED
UP AT COMPLETION OF JOB

Limits and Precautions:

a) Personnel

ALARA REVIEW REQUIRED
PRIOR TO COMMENCING WORK
COMPLY WITH THE PROVISIONS
SET FORTH IN AP1002, 1003
AND MET ED SAFETY MANUAL

b) Equipment

c) Environment

d) Nuclear

Post Maintenance Testing required and Acceptance Criteria:
Requirements of Tech Spec 4.19 satisfactorily met.

ORIGINATOR — SUPERVISOR — SUPERVISOR OF MAINTENANCE — MAINTENANCE FOREMAN —
JOB PERFORMER — MAINTENANCE FOREMAN — SUPERVISOR OF MAINTENANCE

COPY 1

JOB TICKET (WORK REQUEST)
REVIEW – CLASSIFICATION – ROUTING CONTROL FORM

JOB TICKET NUMBER _____

1. Does work represent a change or modification to an existing system or component? If yes, an approved change modification is required per AP 1021.
   C/M No. _____ Yes _____ No ✓

2a. Does work requires an RWP? Yes ✓ No _____

2b. Is an approved procedure required to minimize personnel exposure? Yes _____ No X

3a. Is work on a QC component as defined in GP 1008? Yes ✓ No _____

3b. If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used. Yes ✓ No _____

4. Agreement that a PORC reviewed, Superintendent approved procedure is not required for this work because it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).

J. J. Toole RSI — UNIT SUPERINTENDENT
6/12/80 — DATE

5a. Is the system on the Environmental Impact list in AP 1026? Yes _____ No ✓

5b. If 5a is YES, is an approved procedure required to limit environmental impact? Yes _____ No _____

6. Agreement that 5b is No. (Required only if 5a is Yes).

_____ UNIT SUPT./SUPV. OF OPERATIONS
_____ DATE

7. Plant status or prerequisite conditions required for work. (Operating and/or shutdown)

8. QC Dept. review, if required in item No. 3.

_____ QC SUPERVISOR
6/12/80 DATE

9. Does work require code inspector to be notified? Yes _____ No ✓

10. Supervisor of Maintenance approval to commence work:

D M Shovlin Date 6-13-80

11. Maintenance Foreman Assigned: R. D. Barley

12. Code Inspector Notified. Name: N/A Date _____

13. Shift Foreman's approval to commence work: _____ Date _____

_____ Initial if Shift Foreman signature is not required.

TMI-154 2-80

JOB TICKET (WORK REQUEST)
REVIEW – CLASSIFICATION – ROUTING CONTROL FORM

JOB TICKET NUMBER C 3313

14. Retest met acceptance criteria? Yes ✓ No ____

15. Work Performed By Date/Time: ____

Work Reviewed–Maint. Foreman's Signature: [signature]

16. Work completed and component aligned for testing.

[signature] Initial if S.F. signature is not required.

SHIFT FOREMAN'S SIGN ____ DATE ____

17. Testing completed and component released for normal use.

[signature] Initial if S.F. signature is not required.

SHIFT FOREMAN'S SIGN ____ DATE ____

18. Quality Control Department review of work and testing completed (QC work only).

SURVEILLANCE RPT. NO. ____ QC DEPARTMENT ____ DATE ____

19. Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed off as required. Change/modification form has been signed off as required.

SUPV. OF MAINTENANCE SIGN ____ DATE ____

GENERATION CORRECTIVE MAINTENANCE SYSTEM

CM STATUS ACTIVITY FORM

COMPONENT DESIGNATOR				LOCATION UNIT	JOB TYPE	WORK AUTHORIZATION NUMBER	REQUEST DATE		
SYS 5	COMP. TYPE 8	COMP. ID. 12	LOC 16	17 – 22	23 24	28 – 32	MO 33	DAY	YR 38
RC	H	6601	6	035001	CM	C5818	05	22	80

TXN CD 1	ACT 4
304	A

CHG/MOD NUMBER 47 – 51

TXN CD 1	ACT 4
305	A

66	RESP-LOCATION OR CONTRACTOR 67 – 71
3	0351

TXN CD 1	ACT 4
807	A

PURCHASE REQUISITION NUMBER 50 – 56	PURCHASE ORDER NUMBER 57 – 73

TXN 1	ACT 4
310	A

STATUS HOLD CODE 37-40	START DATE MO 41	DAY	YR 46	RELEASE DATE MO 47	DAY	YR 52	% COMPL. 53 – 55	S/M APPROVAL TO COMMENCE WORK MO 56	DAY	YR 61	FIELD WORK COMPLETION DATE MO 62	DAY	YR 67	
0,1														OUTAGE HOLD
0,2														PART HOLD
0,3														QUALITY CONTROL PART HOLD
0,4														QUALITY CONTROL PROCEDURE HOLD
0,5														OPERATIONS HOLD
0,6														CHANGE MODIFICATION HOLD
0,7														ENGINEERING HOLD
0,8														PLANNING HOLD
5,0														MANPOWER NOT AVAILABLE
5,1														AT PORC
5,2														AT QUALITY CONTROL
5,3														AT UNIT SUPERINTENDENT
5,4														AT READING
5,5														POST MAINTENANCE TEST HOLD
5,6														AT ALARA

TMI-174 4-80

INTERIM ALARA REVIEW (ATTACHMENT 1) 80-6-14

Task Description: Relay Current Examination

Received on: 6-11-80

Review Date: 6-12-80

C-5313

Component Designation

SYS	COMP TYPE	COMP ID
A1C	H	0001B

Type of Review Performed:

Radioactive Materials Movement		Contamination Levels	X
Radiation Levels	X	Airborne Concentrations	X
One-Man Rem Exposure	X	Environmental Release	

Approved _____ Disapproved _____ Conditional Approval X

If disapproved, see Discussion Section for requirements for approval. If conditional approval, RWP must reflect requirements stated in Discussion Section.

Reviewed by: ARTHUR C. TATE

ALARA Consideration Adequate	Yes	No	N/A	Remarks
1. Traffic Pattern-Personnel/Vehicles	X			
2. Proper Access Control Point(s)	X			
3. Sufficient Space to Perform Maintenance	X			
4. Rigging Equipment Installed	X			
5. Remote Readout Instruments			X	
6. Placement and Adequacy of Shielding	X			
7. Background Radiation Levels Considered	X			
8. Provision for Temporary Shielding	X			

ATTACHMENT 1 cont'd

ALARA Consideration Adequate	Yes	No	N/A	Remarks
9. Adequate Communications	X			
10. Location and Adequacy of Monitor	X			
11. Proper Air Flow Patterns/Volumes	X			
12. Proper Air Filtration	X			
13. Appropriate Sampling Mechanisms	X			
14. Provisions for Draining/Flushing			X	
15. Provisions to Minimize Contamination	X			
16. Provisions for Decontamination	X			
17. Provisions for Chemical Flushing/Cleaning			X	
18. Drainage to Proper System			X	
19. Provisions to Prevent Crud Traps			X	
20. Provisions to Isolate Equipment			X	
21. Adequate Waste Storage Facilities			X	
22. Provisions for Confined Area Entry	X			
23. Adequate Supervision	X			
24. Adequate Rad Con Supervision	X			
25. Adequate Job Familiarization	X			
26. Personnel Requirements (# of them)	X			
27. Review of Similar Tasks	X			
28. Use of Special Tools/Remote Operations	X			
29. Training (mock up - audio visual - etc.)	X			
30. Extremity Monitoring	X			
31. Special Anti-C's	X			
32. Adequate Respiratory Devices	X			
33. Rad Con Steps in Procedure				
34. Details of Procedure	X			
35. Other	X			

Dose Assessment (Expected Man-rem, MPC - hours, etc.)

< 1 MAN-REM.

Discussion Section

1. HEAD, HAND, FEET TLD's REQUIRED.
2. HIGH & LOW RANGE POCKET DOSIMETERS REQUIRED
3. DOUBLE COTTON ANTI 'C's, ONE SET of RAIN SUITS - WILL RE-EVALUATE REQUIREMENT AFTER JOB STARTS.
4. FAMILARIZE STM GENERATOR ENTRY PERSONNEL IAW STATION AIR OPERATING PROCEDURE.
5. CONSTANT RAD CON COVERAGE REQUIRED
6. AIR SAMPLE TO BE TAKEN IN STEAM GENERATOR PRIOR TO START OF WORK. RESULTS TO BE AVAILABLE BEFORE EDDY CURRENT CREW ENTRY.
7. BREATHING ZONE AIR SAMPLE, BENEATH HOOD, REQUIRED FOR ENTRY.

ALARA Review By _____ Date 6-12-85

JOB TICKET FORM ("WORK REQUEST)-THREE MILE ISLAND

UNIT 1

ATTACHMENT 6

COMPONENT DESIGNATION SYS	COMP TYPE	COMP ID	LOCATION	JOB TYPE	JOB TICKET NUMBER	REQUEST DATE MO	DAY	YR
BC	H	0001	B035	001	CM	C	37	03	16	80

I

DESCRIBE MALFUNCTION OR MODIFICATION DESIRED

2TS9 LOWER MANWAY BOLTS HAVE BEEN BUILT UP INDICATING POSSIBLE LEAKING. REMOVE CLEAN AND REINSTALL

CAUSE OF MALFUNCTION (IF KNOWN)

ORIGINATOR'S EMP NO	ORIGINATOR'S SIGNATURE	DATE	SUPERVISOR'S EMP NO	SUPERVISOR'S SIGNATURE	DATE
04670	[signature]	3/16/80	04670	[signature]	3/16/80

T0721

WORK ORDER NUMBER LOCATION	SERIAL	QC CODE	ACCOUNT NUMBER	PLANT CONDITION SU	OP	HO	CD	RF	HS	LR	NPRD FAILURE YR	MO	DAY	START HR	MIN
03500	01	57	CB	5302	00	01	1	00							

CHANGE MOD NO	A E U	TECH SPEC SAFETY	NP RD	REG AGENCY CODE	CHG/MOD NUMBER
0	1	1	0		

ENV CODE	OUTAGE CAUSE CODE
X	

STATUS HOLD CODE

DATE APPROVAL TO COMMENCE WORK MO	DAY	YR
03	16	80

P R I O R I T Y	RESP LOCATION OR CONTRACTOR
2	2288

Notify Q.C (4) hours PRIOR TO START. RT [illegible] 3/30/80

Limits and Precautions:

a) Personnel

b) Equipment

c) Environment

d) Nuclear

[illegible] WORK [illegible] PRECAUTIONS [illegible] LABOR, [illegible] AND [illegible] SAFETY MANUAL

INSURE WORK AREA CLEANED UP AT COMPLETION OF JOB

Post Maintenance Testing required and Acceptance Criteria:

ORIGINATOR — SUPERVISOR — SUPERVISOR OF MAINTENANCE — MAINTENANCE FOREMAN — JOB PERFORMER — MAINTENANCE FOREMAN — SUPERVISOR OF MAINTENANCE

COPY 1

GENERATION CORRECTIVE MAINTENANCE SYSTEM
JOB TICKET FORM (WORK REQUEST) - THREE MILE ISLAND UNIT 1

1401-4.4

COMPONENT DESIGNATION SYS	COMP TYPE	COMP ID	LOCATION/UNIT	JOB TYPE	JOB TICKET NUMBER	REQUEST DATE MO DAY YR	RECOMMENDED PRIORITY
RC	H	CC01B	035001CM	C	27	03/16/80	1

DESCRIBE MALFUNCTION OR MODIFICATION DESIRED

OTSG LOWER MANWAY BOLTS HAVE BEEN REMOVED TO ALLOW FOR INSPECTION OF THE TUBE SHEET. REMOVE CLEAN AND REINSTALL

CAUSE OF MALFUNCTION (IF KNOWN)

ORIGINATOR'S EMP NO.	ORIGINATOR'S SIGNATURE	DATE	SUPERVISOR'S EMP NO.	SUPERVISOR'S SIGNATURE	DATE
04547	[signature]	3/16/80	04687	[signature]	3/16/80

T6721

WORK ORDER NUMBER LOCATION	SERIAL	QC CODE	ACCOUNT NUMBER	PLANT CONDITION SU OP HO CO RE HS LR	NPRO FAILURE START YR MO DAY HR MIN
035001	87CB		5302	00011	00

CHANGE MOD REQ'D	3 YR SAFETY	NP RD	REG AGENCY CODE	CHG/MOD NUMBER	TAGGING APPLICATION NO.	ENV CODE	OUTAGE CAUSE CODE	STATUS HOLD CODE	ESTIMATED DOLLARS
0	1	0				X			1920

S/M APPROVAL COMMENCE WORK MO DAY YR	S/F APPROVAL COMMENCE WORK MO DAY YR	PROCEDURE NUMBER	PRIORITY	RESP LOCATION OR CONTRACTOR	EST CREW SIZE	EST MANHOURS
03 04 80	03 06 80		2	C0867		128

ASSISTING DEPARTMENT RESP LOCATION OR CONTRACTOR	EST CREW	EST MANHOURS

ASSISTING DEPARTMENT RESP LOCATION OR CONTRACTOR	EST CREW	EST MANHOURS

ASSISTING DEPARTMENT RESP LOCATION OR CONTRACTOR	EST CREW	EST MANHOURS

TXN CD	ACT	JOB COMPLETION DATE MO DAY YR	FIELD WORK COMPLETION DATE MO DAY YR	SIGN OFF REASON CODE	TOTAL ACTUAL MANHOURS	PURCHASE REQUISITION NUMBER	PURCHASE ORDER NUMBER	MATERIAL ORDER NUMBER
307	A		04 25 80	1	256.3			

TXN CD	ACT	RESOLUTION DESCRIPTION
801	A	07 MANWAY BOLTS HAVE BEEN REMOVED CLEANED
801	A	08 & REINSTALLED & TORQUED TO 3rd SEQUENCE.
801	A	09
801	A	10

TXN CD	ACT	NPRO FAILURE END YR	MO	DAY	HR	MIN	FAILURE NO	FAILURE STATUS
808	A							

ORIGINATOR — SUPERVISOR — SUPERVISOR OF MAINTENANCE — MAINTENANCE FOREMAN — JOB PERFORMER — MAINTENANCE FOREMAN — SUPERVISOR OF MAINTENANCE — CM COORDINATOR-DATA ENTRY-SUPERVISOR OF MAINTENANCE CM COORDINATOR-DATA ENTRY

TXN CD	ACT	NPRD FAIL TYPE	NPRD FAIL MODE	CAUSE OF FAILURE CODES A	B	EFFECT OF FAILURE CODES A	B	FAILURE DESC CODE	ACTION TAKEN CODES A	B	LICENSE EVENT REPORTED DATE YR MO DAY
308	A										

COPY 2

6-3

JOB TICKET (WORK REQUEST)
REVIEW – CLASSIFICATION – ROUTING CONTROL FORM

JOB TICKET NUMBER [illegible]

1. Does work represent a change or modification to an existing system or component? If yes, an approved change modification is required per AP 1021.
   C/M No. _____ Yes_____ No ✓

2a. Does work require an RWP Yes ✓ No_____

2b. Is an approved procedure required to minimize personnel exposure. Yes_____ No_____

3a. Is work on a QC component as defined in GP 1008. Yes ✓ No_____

3b. If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used. Yes ✓ No_____

4. Agreement that a PORC reviewed, Superintendent approved procedure is not required for this work because it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).

1401-84 _____ Unit Superintendent _____ Date

5a. Is the system on the Environmental Impact list in AP 1026 Yes_____ No ✓

5b. If 5a is Yes, is an approved procedure required to limit environmental impact Yes_____ No_____

6. Agreement that 5b is No. (Required only if 5a is Yes).

_____ Unit Superintendent/Supervisor of Operations _____ Date

7. Plant status or prerequisite conditions required for work. Shutdown

8. QC Dept. review, if required in item No. 3
   QC Supervisor Robert F. Price Date 5/30/80
   CODE INSP. REQUIRED? YES_____ NO ✓

9. Supervisor of Maintenance approval to commence work: [signature] Date 5/30/80

10. Maintenance Foreman Assigned: Dave Nichol 6-18-80

11. Shift Foreman's approval to commence work [signature] Date 6-18-80

☐ Initial if Shift Foreman signature is not required

_____ Radiation Work Permit No.

TMI-88 REV. 8/78

JOB TICKET (WORK REQUEST)
REVIEW – CLASSIFICATION – ROUTING CONTROL FORM

JOB TICKET (WORK REQUEST) NUMBER _____

12. Retest met acceptance criteria Yes ☐ No ☐

13. Work Performed by date/time Work Reviewed - Maintenance Foreman's Signature

_____ Date

---

14. Work completed and component alligned for testing.

☐

Initial if S. F. signature is not required. _____ Shift Foreman's Signature _____ Date

15. Testing completed and component released for normal use.

☐

Initial if S. F. signature is not required. _____ Shift Foreman's Signature _____ Date

16. Quality Control Department review of work and testing completed (QC work only).

_____ Surveillance Report No. _____ QC Department _____ Date

17. Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed off as required. Change/modification form has been signed off as required.

_____ Supervisor of Maintenance Signature _____ Date

In accordance with the terms, conditions, and provisions of General Maintenance Contract, Met-Ed P.O. #38735, Catalytic, Inc. is hereby authorized to perform the work described on Work Request No. C-2798 attached hereto and forming a part hereof.

Acceptance:

Date: 6/3/80

Supervisor of Maintenance U.1
D. V. DYCKMAN

Date: 6/17/80

MET-ED BY: (Print Name, Title & Initial

Bede T Portz Planner BTP

CATALYTIC, INC. By: (Print Name, Title &

cc: M. R. Dendler

WORK COMPLETED BY CATALYTIC, INC.

The attached Work Request # C-2798

JO # 11,095

has been completed and hereby returned as noted below.

Remarks:

Torqued to the third stage then returned to Met-Ed.

Bede T. Portz 6/17/80
Planning Department

INTER-OFFICE MEMO

CATALYTIC, INC.

C-337

TO: Dennis Dyckman AT Met-Ed DATE: 9/11/80

FROM: E. Faust AT Catalytic Unit 1 COPY TO:

SUBJECT: Work Requests

As per your note of 9/9/80, the following Work Requests have previously been copied & returned to your office. I have copied only the cover page and first page of them:

C2310 - 10,887
C2309 - 10,888
C2508 - 11,037
C2505 - 11,007
C2577 - 11,049
C3214 - 11,089
23019 - 10,238
22651 - 10,348
C3181 - 11,080

If you need a copy of the complete package of the above listed Work Requests please advise.

A complete copy of the next list is being sent to you. These Work Requests are in our open files. Are they to be closed and returned to you?

C2798 - 11,095
C1871 - 10,777
C3201 - 11,092
C3251 - 11,088
C3854 - 11,112
C3181 - 11,080
C3068 - 11,065

Complete copies of this next list are being sent to you and I have closed them out of our open file with the exception of Work Request #04875 which I show no record of having and #C3202 - 11,084 which was closed previously and copies already sent to your office.

C2619 - 11,004
04875 - No
C3007 - 11,077
C2451 - 11,002
22120 - 10,856
C1624 - 10,745
C1925 - 10,774
C2091 - 10,805
C2557 - 11,034
C3090 - 11,069
C3202 - 11,084 (prev. closed)
C3592 - 11,102

Eileen Faust

Eileen Faust

EF/sk