01-213-91

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION UNIT 2

OPERATING PROCEDURE

N2-OP-35

REVISION 03

REACTOR CORE ISOLATION COOLING

Approved By:
R. B. Abbott for
J. L. Willis

General Superintendent, Nuclear Generation

11/22/89
Date

THIS REVISION IS A GENERAL REWRITE

Effective Date: 11/22/89

THIS PROCEDURE NOT TO BE USED AFTER November 1991
SUBJECT TO PERIODIC REVIEW

LIST OF EFFECTIVE PAGES

Page No.	Change No.
i	TCN-48
ii	TCN-45
iii	TCN-43
1	
2	TCN-46
3	
4	
5	
6	*1
7	TCN-46
8	TCN-46
9	TCN-38
10	
11	TCN-43
12	TCN-43
13	
14	TCN-48
14a	TCN-48
15	
16	
17	TCN-46
18	TCN-43
19	TCN-43
20	TCN-40
21	TCN-40
22	TCN-40
23	*9
24	*9
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	*9
40	*9
41	*9
42	*9
43	*9
44	
45	*9
46	
47	TCN-40
48	*9
49	*9
50	*9
51	TCN-40
52	*9
53	*9
54	*9
55	*9
56	*9
57	*9
58	*9
59	
60	*9
61	
62	*9
63	TCN-40
64	TCN-40
65	*9
66	*9
67	*9
68	TCN-40
69	TCN-40

LIST OF EFFECTIVE PAGES (Cont)

Page No.	Change No.	Page No.	Change No.	Page No.	Change No.
70	*9	94			
71	*9	95			
72	*9	96	*2		
73	*9	97	TCN-44		
74	*9	98			
75	*9	99			
76		100			
77	*9	101			
78	*9	102			
79		103			
80	TCN-40	104			
81	TCN-40	105			
82	*7	106			
83		107	*8		
84	TCN-44	108			
85	TCN-44	109			
86		110	TCN-45		
87		111			
88		112	TCN-45		
89		113			
90					
91					
92					
93					

TABLE OF CONTENTS

A. REFERENCES AND COMMITMENTS

1.0 Technical Specifications

1.1 Section 3/4.3.5 Reactor Core Isolation Cooling System Actuation Instrumentation

1.2 Section 3/4.7.4 Reactor Core Isolation Cooling System

1.3 Section 3/4.3.2 Isolation Actuation Instrumentation

1.4 Section 3/4.6.1.2 Containment Leakage

1.5 Section 3/4.6.3 Containment Isolation Valves

2.0 Licensee Documentation

2.1 USAR

2.1.1 Section 1.2.9.7 Reactor Core Isolation Cooling System

2.1.2 Section 5.4.6 Reactor Core Isolation Cooling System

2.1.3 Table 14.2-53 Reactor Core Isolation Cooling System

3.0 Technical Information

3.1 Flow Diagrams

3.1.1 FSK 27-6.0 through FSK 27-6F Reactor Core Isolation Cooling

3.1.2 PID 35A through 35D Reactor Core Isolation Cooling

3.2 Electrical Diagrams

3.2.1 ESK-6ICS01 RCIC Water Leg P2

3.2.2 ESK-6ICS02 Steam Supply Isolation Valve

3.2.3 ESK-6ICS03 Steam Supply Isolation Valve

3.2.4 ESK-6ICS04 Steam Warmup Isolation Valve

3.2.5 ESK-7ICS01 ERF Computer Input Isolation Circuits

3.2.6 ESK-11ICS01 RCIC Steam Valve to Turbine

A. REFERENCES AND COMMITMENTS (Cont)

3.2.7 ESK-11ICS02 RCIC Pump Suction from Suppression Pool MOV

3.2.8 ESK-11ICS03 RCIC Condensate Storage Tank MOV

3.2.9 ESK-11ICS05 RCIC Injection Shutoff Valve

3.2.10 ESK-11ICS06 RCIC Suction Valve from Condensate Storage Tank

3.2.11 ESK-11ICS07 RCIC Turbine Throttle MOV

3.2.12 ESK-11ICS09 RCIC Turbine Cooling Water Supply Valve

3.2.13 ESK-11ICS10 RCIC Suppression Pool MOV

3.2.14 ESK-11ICS11 RCIC Minimum Flow MOV

3.2.15 ESK-11ICS12 RCIC Gland Seal Air Compressor

3.2.16 ESK-11ICS13 RCIC Vacuum Breaker MOV

3.2.17 ESK-11ICS14 Isolator Outputs

3.2.18 ESK-11ICS16 ERF Computer Input Isolation Circuits

3.2.19 ESK-11ICS17 Bypass Valve to Steam Supply Valve

3.2.20 G.E. Elementary 807E173TY Reactor Core Isolation Cooling System

3.2.21 G.E. Elementary 807E154TY Leak Detection System

3.2.22 G.E. Elementary 807E152TY Nuclear Steam Supply Shutoff System

3.3 Instruction Manuals

3.3.1 Bingham-Willamette Type CP High Pressure Pump Installation, Operation and Maintenance Instructions P800A (S&W File Number 16.350-1-47A)

3.3.2 Terry Turbine Installation and Operation Manual P800A (S&W File Number 16.350-5003A)

3.3.3 Reactor Core Isolation Cooling System GEK-83336A

3.4 Supplemental Information

3.4.1 NRC IE Information Notice 85-76

3.4.2 GE Service information Letter SIL-434 Revision 0

3.4.3 GE Service information Letter SIL-525 | TCN-46

4.0 Commitments

None

B. SYSTEM DESCRIPTION

The RCIC System consists of a steam driven turbine pump unit and associated valves and piping capable of delivering makeup water to the reactor vessel.

The steam supply for the turbine is taken from main steam line "B" through ICS Steam Supply Line Inside isolation valve 2ICS*MOV128 located in the drywell to ICS Steam Supply isolation valve 2ICS*MOV121 located in the reactor building to the turbine control valve located in the reactor building. Exhaust steam from the turbine is dumped to the suppression pool.

The pump can take suction of demineralized water from either condensate storage tank 1A or from the suppression pool. The pump discharges either to the Rx head spray nozzle or to a full flow return test line running to the condensate storage tank 1A and 1B via the HPCS test line. A minimum flow bypass line to the suppression pool provides pump protection. The makeup water is delivered into the reactor vessel through a connection to the Rx head spray line. This nozzle provides thorough mixing with the steam within the vessel. The piping that is connected to the reactor vessel is flanged in three places within the drywell head, to allow for easy reactor vessel head removal.

Cooling water for the RCIC System turbine lube oil cooler is supplied from the RCIC pump discharge.

Following any reactor shutdown, steam generation continues due to heat produced by radioactive decay of fission products. Initially, the rate of steam generation can be as high as approximately 6 percent of rated steam flow. The steam normally flows to the main condenser through the bypass valves or to the suppression pool through the relief valves. The fluid removed from the reactor vessel either can be furnished entirely by the Feedwater System or can be partially furnished by the Control Rod Drive system, which utilizes the control rod drive pumps taking suction from the condensate storage tanks. If makeup water is required to supplement these sources, the RCIC System turbine pump unit either starts automatically upon receipt of a reactor vessel low low water level signal or is started by the control room operator by remote manual controls. The RCIC System delivers its design flow within 30 seconds after actuation.

For events other than pipe breaks, the RCIC System has a makeup capacity (preset for 600 gpm) sufficient to prevent the reactor vessel water level from decreasing to the level where the core is uncovered without the use of ECCS. The pump normally takes suction from condensate storage tank 1A. One hundred and thirty-five thousand gallons in condensate storage tank 1A is reserved for the use of the RCIC System.

B. SYSTEM DESCRIPTION (Cont)

The backup supply of water for the RCIC System is the suppression pool. To ensure positive suction head to the pump, the turbine-pump assembly is located below the level of condensate storage tank 1A and below the minimum water level in the suppression pool. Pump NPSH requirements are satisfied by providing adequate suction head and adequate suction line size. RCIC System piping is kept full by water leg pump P2. All components necessary for operation of the RCIC System are completely independent of emergency a-c power, plant instrument air, and external cooling water systems; only d-c power from a plant battery to operate the valves and the gland seal air compressor is required. The power source for the turbine-pump unit is the steam generated in the reactor vessel by decay heat in the core. The steam is piped directly to the turbine, and the turbine exhaust is piped to the suppression pool.

If a Div 1 ECCS initiation signal is received, the ICS trip and throttle valve 2ICS*MOV150 will be disconnected from the essential bus. If a RCIC turbine trip is received while the Div 1 ECCS signal is present, it is not possible to reset the RCIC turbine trip from the main control room.

If, for any reason, the reactor vessel is isolated from the main condenser, pressure in the reactor vessel increases; however, it is limited by automatic or remote manual actuation of the relief valves. Relief valve discharge is piped to the suppression pool. During the period of RCIC System operation, RHR heat exchangers are used to maintain pool water temperature within acceptable limits, per OP-31.

Upon reaching a reactor pressure vessel high level the steam admittance valve to the RCIC turbine automatically shuts stopping the RCIC turbine/pump. When low low reactor vessel water level is reached, the RCIC turbine steam admittance valve will automatically reopen restarting the RCIC turbine/pump. This automatic action will result in RCIC System automatic initiation and cycling between low low and high reactor vessel water levels.

If during RCIC System operation a low condensate tank 1A water level is sensed, the ICS Pump Suction Isol from Suppression Pool valve 2ICS*MOV136 will open allowing the RCIC pump to take a suction on the suppression pool and the ICS Pump Suction Isol from CST Valve 2ICS*MOV129 will shut when the ICS Pump Suction Isol from Suppression Pool 2ICS*MOV136 is full open.

The RCIC system is capable of taking suction from the RHR heat exchangers during the steam condensing mode of RHR. In this mode the RCIC pump suction is taken from both condensate storage tank 1A and an RHR heat exchanger. Level in the RHR heat exchanger is maintained by automatic modulation of the RHR heat exchanger outlet valve. Condensate storage tank 1A is floated on the RCIC pump suction to provide additional makeup water if required. In this mode of operation, a balance of steam out and water in is maintained. RCIC turbine flow control may be adjusted as required via manual operation of the flow controller, or, automatic operation will occur as previously described. See OP-31, RHR System, for detailed operation.

B. SYSTEM DESCRIPTION (Cont)

The turbine controls provide for the automatic trip of the RCIC System turbine upon receipt of the following signals:

1. Turbine overspeed to prevent damage to the turbine and turbine casing. (120% Mechanical)

2. Pump low suction pressure to prevent damage to the turbine or turbine pump unit due to loss of cooling water. (20" Hg)

3. Turbine high exhaust pressure to indicate turbine or turbine control malfunction. (25 psig)

4. Automatic isolation signal to indicate primary containment isolation required.

Since the steam supply line to the RCIC System turbine is part of the primary containment boundary, the following signals automatically close RCIC steam supply isolation valves and cause shutdown of the System.

1. Manual (only if initiation signal is sealed-in)

2. High RCIC or RHR area temperature.

3. High steam line flow

4. Steam supply low pressure

5. Exhaust diaphragm pressure high

6. RCIC pipe routing area high temperature

The Turbine Control System is positioned by the demand signal from a flow controller, and it satisfies a three-fold purpose.

1. To limit the turbine pump to its maximum normal operating value (600 gpm).

2. To position the turbine governor valve as required to maintain constant pump discharge flow over the pressure range of system operation.

3. Transient Acceleration Control during start-up.

C. OPERATING REQUIREMENTS

1.0	Emergency DC Distribution	N2-OP-74A
2.0	Condensate Storage and Transfer	N2-OP-4
3.0	Residual Heat Removal System	N2-OP-31
4.0	Nuclear Boiler, Automatic Depressurization and Safety Relief Valves	N2-OP-34

C. OPERATING REQUIREMENTS (Cont)

5.0	Main Steam	N2-OP-1
6.0	Primary Containment Isolation	N2-OP-83
7.0	Instrument and Service Air	N2-OP-19

D. PRECAUTIONS AND LIMITATIONS

1.0 Minimize RCIC pump operation on minimum flow with suction from the CST, as water will be transferred from the CST to the Suppression Pool.

2.0 The RCIC Turbine should not be operated for extended periods below its minimum rated speed of 1500 RPM.

3.0 This step has been deleted. *1

4.0 Verify air operated Reactor Injection Outbd and Inbd Check Vlvs, 2ICS*AOV156 and 2ICS*AOV157, to be in the closed position following an opening, then closing operation and prior to the operation of the upstream valve to prevent possible overpressurization of RCIC pump suction piping or loss of RCIC pump suction upon initiation.

5.0 Observe standard precautions for handling radioactive material including the use of finger rings for monitoring extremity dose and observe ALARA practices to minimize radiation exposure and spread of contamination. Obtain an RWP as necessary.

6.0 If reactor water decreases to Level 1 and/or Drywell Pressure increases to 1.68 psig such that a Div 1 ECCS initiation signal is received, the RCIC Turbine Trip Throttle Valve, 2ICS*MOV150 will be disconnected from the essential bus. If a RCIC Turbine Trip occurs while the Div 1 ECCS initiation signal is present, it will not be possible to reset the trip and throttle valve from the Control Room. It will be necessary to dispatch an operator to the RCIC pump room to manually reset the trip and throttle valve.

7.0 Following a RCIC turbine trip, verify that the turbine steam supply drain pot and turbine exhaust drain pot have drained prior to restarting the RCIC turbine. A turbine restart with water in these drain traps may result in severe water hammer in the exhaust piping. Draining of the drain pots may be verified by observing that annunciators 601302 and 601320 have cleared prior to turbine restart.

D. PRECAUTIONS AND LIMITATIONS (Cont)

8.0 If Pump 1 Disch To Reactor, 2ICS*MOV126, is opened and an initiation signal is sealed in, the main turbine will trip. This will result in a reactor scram if power is greater than 30%. The main turbine will not trip if RCIC is manually lined up for injection. If RCIC is manually lined up, the main turbine should be manually tripped prior to opening Pump 1 Disch To Reactor, 2ICS*MOV126, to prevent water damage to the turbine.

9.0 Do not secure the RCIC pump unless the RCIC Water Leg Pump, 2ICS*P2, is running.

10.0 All applicable evolutions described in this procedure shall be monitored and controlled in accordance with Radiation Protection procedures.

11.0 If for some reason RCIC is isolated during power operation, MSS*MOV189, MSS*MOV112 (APP. R) MSS*HCV110 and MSS*MOV111 must be opened every 12 hours for five to ten minutes to drain RCIC steam line, per Section H.6.0 of this procedure.

12.0 The Turbine Trip and Throttle valve, 2ICS*MOV150, should not be tripped from the full open position without steam flow available. Impact between valve seat and disc can damage the valve. Trip testing with no steam flow should be accomplished from a minimum partially open position. (i.e. open just enough to obtain dual red + green light indication to verify valve movement/tripped when desired.) TCN-46

E. START UP PROCEDURE

1.0 Startup From Inoperable To Standby Condition

1.1 Verify Electrical Lineup per Attachment II.

1.2 If RCIC High Point Vent Level Low (601348) annunciator is energized, perform Fill and Vent per E.2.0.

1.3 Verify Valve Lineup per Attachment I, with the following exceptions at P601:

1.3.1 Turbine Steam Supply Outboard Isol Vlv ICS*MOV121, shut.

1.3.2 Turbine Steam Supply Inboard Isol Vlv ICS*MOV128, shut.

1.3.3 Turbine Trip Throttle Valve ICS*MOV150, shut.

1.4 Align the following switches as indicated on P601.

1.4.1 Turbine Stm Supply Drain Pot 1 Exh Vlv ICS*AOV130 control switch in "OPEN".

1.4.2 Turbine Stm Supply Drain Pot 1 Exh Vlv ICS*AOV131 control switch in "OPEN".

1.4.3 Turbine Stm Supply Drain Pot 1 Byp Vlv ICS-LV132 control switch in "CLOSE".

E. START UP PROCEDURE (Cont)

1.4.4 Turbine Exhaust Drain Pot 2 Exh Vlv ICS*AOV109 control switch in "OPEN".

1.4.5 Turbine Exhaust Drain Pot 2 Exh Vlv ICS*AOV110 control switch in "OPEN".

1.5 Verify RPV Pressure greater than 75 psia.

1.6 Reset Div I and Div II Isol Seal In Reset Keylock Switches at P601 and verify white seal-in lights extinguish.

1.7 Open Turbine Trip Throttle Valve ICS*MOV150, at P601.

1.8 Open Turbine Steam Supply Outboard Isol Vlv ICS*MOV121, at P601.

NOTE: During warmup RCIC TURB STM SPLY DRN TRAP LVL HIGH (601302) annunciator may come in with a coincident cycling of ICS-LV132. When this is no longer observed, and RCIC steam line pressure is approximately equal to Rx pressure (as evidenced by RCIC steam line pressure on E51-R602 on P601, then piping warmup is complete.

* *

CAUTION

Opening 2ICS*MOV170 too far/too fast could cause a group 10 Isolation on RCIC Flow Hi (E31-N683A,B) or RHR/RCIC Flow Hi (E31-N684A,B).

* *

1.9 Slowly throttle open Turbine Stm Supply Inside Warm Up Vlv ICS*MOV170 to begin piping warmup.

1.10 When piping warmup is complete as indicated by 2ICS-LV132 no longer cycling, (See note above) open Turbine Steam Supply Inboard Isol Vlv ICS*MOV128, at P601.

1.11 Shut Turbine Stm Supply Inside Warm Up Vlv ICS*MOV170, at P601.

1.12 At panel 2CEC*PNL601, place the control switch for 2ICS*AOV110 to "Close".

1.13 Place in AUTO 2ICS*FC101, RCIC FLOW CONTROL at panel P601.

1.14 Adjust 2ICS*FC101 RCIC FLOW CONTROL setpoint at 600 GPM at panel P601.

1.15 Perform Standby Condition Status Checks per Section F.

1.16 Restore RCIC Manually Out Of Service pushbutton to normal, at P601.

2.0 Fill And Vent

2.1 Perform valve lineup per Attachment I, if required.

2.2 Perform "Shutdown to Inoperable", section of this procedure.

E. START UP PROCEDURE (Cont)

NOTE: When venting from a valve, open until a steady stream of water appears, then shut valve. Direct drains to Radwaste or a suitable container. Ensure container is properly labeled. Contact Radiation Protection for assistance if properly labeled containers are unavailable.

2.3 Perform the following, at P601:

2.3.1 Shut the Pump Suct From Suppression Pool ICS*MOV136.

2.3.2 Open the Pump 1 Suct From Condensate Stor Tk ICS*MOV129.

2.4 Uncap and vent from ICS Pump Suction Line Vent, 2ICS*V233. Replace cap.

2.5 If not running, start RCIC Water Leg Pump P2, per the following:

2.5.1 Unlock and shut Water Leg Pump Discharge Isol, 2ICS*V35.

2.5.2 Unlock and shut Water Leg Pump Recirc Line Isol, 2ICS*V184.

2.5.3 Start RCIC Water Leg Pump ICS*P2, at P601.

2.5.4 Slowly open Water Leg Pump Discharge Isol, 2ICS*V35, to pressurize system. Lock valve open.

2.5.5 Open and lock Water Leg Pump Recirc Line Isol, 2ICS*V184.

2.6 Open ICS Pump Vent, 2ICS*V24.

2.7 Vent from ICS Pump Vent, 2ICS*V25.

2.8 Shut ICS Pump Vent, 2ICS*V24, and ICS*V25.

2.9 Uncap and vent from ICS Pump Suction Vent, 2ICS*V113. Replace cap.

2.10 Open LS221 Inst Vent, 2ICS*V75.

2.11 Uncap and vent from LS221 Inst Vent, 2ICS*V76. Replace cap.

2.12 Shut LS221 Inst Vent, 2ICS*V75.

2.13 Verify RCIC HIGH PT VENT LEVEL LOW (601348) annunciator cleared.

2.14 If pump suction piping has been drained, locally vent the pump seals by loosening the seal water piping unions at the inboard and outboard seals. After seal water lines are properly vented, re-tighten unions which were previously loosened.

F. NORMAL OPERATION

NOTE: The RCIC System will normally be in a standby configuration.

1.0 Standby Condition Status Checks

1.1 Verify the following valve positions, at P601.

1.1.1 Test Return To Condensate Stor Tk ICS*MOV124, shut.

1.1.2 Test Bypass To Condensate Stor Tk ICS*FV108, shut.

1.1.3 Turbine Steam Supply Vlv ICS*MOV120, shut.

1.1.4 Turbine Stm Supply Drain Pot 1 Exh Vlv ICS*AOV131, open.

1.1.5 Turbine Stm Supply Drain Pot 1 Exh Vlv ICS*AOV130, open.

1.1.6 Turbine Stm Supply Drain Pot 1 Byp Vlv ICS-LV132, shut.

1.1.7 Turbine Trip Throttle Valve ICS*MOV150, open.

1.1.8 Turbine Governor Valve ICS*HYV151, open.

1.1.9 Turbine Exhaust Drain Pot 2 Exh Vlv ICS*AOV109, open.

1.1.10 Turbine Exhaust Drain Pot 2 Exh Vlv ICS*AOV110, shut.

1.1.11 Lube Oil Cooling Wtr Supply ICS*MOV116, shut.

1.1.12 Turbine Exhaust To Suppression Pool ICS*MOV122, open.

1.1.13 Turbine Exhaust Suppr Pool Vacuum Brkr ICS*MOV164, open.

1.1.14 Pump Suct From Suppression Pool ICS*MOV136, shut.

1.1.15 Pump Minimum Flow To Suppression Pool ICS*MOV143, shut.

1.1.16 Turbine Exhaust Suppr Pool Vacuum Brkr ICS*MOV148, open.

1.1.17 Pump 1 Suct From Condensate Stor Tk ICS*MOV129, open.

1.1.18 Turbine Steam Supply Outboard Isol Vlv ICS*MOV121, open.

1.1.19 Turbine Steam Supply Inboard Isol Vlv ICS*MOV128, open.

1.1.20 Turbine Steam Supply Inside Warm Up Vlv ICS*MOV170, shut.

1.1.21 Reactor Injection Outbd Test Check Vlv ICS*AOV156, shut.

F. NORMAL OPERATION (Cont)

1.1.22 Pump 1 Disch To Reactor ICS*MOV126, shut.

1.1.23 Reactor Injection Inbd Test Check Vlv ICS*AOV157, shut.

1.1.24 Turbine Steam Supply Bypass Vlv ICS*MOV159, shut.

1.2 Verify Gland Seal System Air Compressor not running, at P601.

1.3 Verify RCIC Flow Controller set at 600 gpm and in "AUTO", at P601.

1.4 Verify Water Leg Pump ICS*P2 running, at P601.

1.5 Verify ICS*P1 Disch Press greater than 60 psig, at P601.

1.6 Locally verify RCIC turbine and pump oil levels.

1.7 Verify both Turbine Trip Throttle Valve ICS*MOV150 indications showing open.

2.0 Manual Initiation

* *

CAUTIONS

1. Manual initiation of RCIC will result in a Main Turbine Trip.

2. This procedure is to be used only if RPV Injection is required by N2-EOP's. Changes to this section of the procedure (including renumbering) are required to be reviewed by the EOP Coordinator. (N2-EOP-6, Att. 18) TCN-43

* *

2.1 Manually initiate RCIC as follows:

2.1.1 Rotate "RCIC" Manual Initiation" pushbutton collar to "Armed".

2.1.2 DEPRESS "RCIC" Manual Initiation" pushbutton.

2.2 Verify the following:

2.2.1 Gland seal system air compressor starts.

2.2.2 2ICS*MOV116, lube oil cooling wtr supply valve, opens.

F. NORMAL OPERATION (Cont)

2.2.3 The Turbine starts as follows:

a. 2ICS*MOV159 opens and turbine speed increases.

b. After approximately 10 seconds, 2ICS*MOV120 opens.

2.2.4 2ICS*MOV126, pump disch to reactor, opens.

2.2.5 2ICS*MOV143, pump minimum flow to suppression pool, shuts when RCIC system total flow exceeds 150 gpm.

2.2.6 RCIC injection testable check valves, 2ICS*AOV156 and 2ICS*AOV157, open.

2.2.7 The RCIC flow controller establishes and maintains an RCIC total flow of 600 gpm injecting to the Reactor pressure vessel.

2.2.8 The following RCIC system drain valves shut.

a. 2ICS*AOV109

b. 2ICS*AOV110

c. 2ICS*AOV130

d. 2ICS*AOV131

3.0 Manual RPV Injection

NOTE: The preferred method of startup for RPV injection is Section F.2.0 "Manual Initiation".

* *

CAUTION

1. This procedure is to be used only if RPV Injection is required by N2-EOP's. Manual startup of the RCIC System for testing purposes will be accomplished using N2-OSP-ICS-Q002.

2. A trip of the Main Turbine will not occur automatically upon RCIC Manual RPV Injection.

3. Changes to this section of the procedure (including renumbering) are required to be reviewed by the EOP Coordinator. (N2-EOP-6, Att. 18) TCN-43

* *

3.1 Place the RCIC flow controller in MANUAL and set to 20% output.

F. NORMAL OPERATION (Cont)

3.2 START the gland seal air compressor.

3.3 OPEN 2ICS*MOV116, Lube Oil Cooling Wtr Supply Valve.

3.4 Start the RCIC Turbine as follows:

3.4.1 Open 2ICS*MOV159 Turbine Steam Supply Bypass Valve.

3.4.2 Verify RCIC Turbine speed increasing.

3.4.3 Open 2ICS*MOV120, Turbine Steam Supply Valve.

3.5 Verify 2ICS*MOV143 opens, pump minimum flow to suppression pool.

3.6 Open 2ICS*MOV126, pump discharge to Reactor.

3.7 Slowly increase RCIC turbine speed using the flow controller in MANUAL.

3.8 Verify the following:

3.8.1 RCIC turbine speed increases.

3.8.2 RCIC pump discharge pressure increases.

3.9 When RCIC pump discharge pressure exceeds reactor pressure, verify the following:

3.9.1 Testable check valves 2ICS*AOV156 and 2ICS*AOV157 open.

3.9.2 RCIC flow increases.

3.9.3 2ICS*MOV143 shuts when system flow exceeds 150 gpm.

3.10 Continue to increase RCIC turbine speed until injection flow reaches 600 gpm.

3.11 Place the RCIC flow controller in "Auto".

4.0 RCIC Startup To Support Steam Condensing

* *

CAUTION

Do not manually start RCIC unless the steam inlet and exhaust drain pots are drained and Annunciators 601302 and 601320 are cleared. Starting the RCIC Turbine with the drain pots not drained could result in severe water hammer in the Turbine Steam Supply And Exhaust Lines.

* *

F. NORMAL OPERATION (Cont)

4.1 Place the RCIC flow controller in manual and set to 20% output.

4.2 Start the gland seal air compressor.

4.3 Open 2ICS*MOV116, Lube oil Cooling Wtr Supply Valve.

4.4 Start the RCIC turbine as follows:

4.4.1 Open 2ICS*MOV159, Turbine Steam Supply Bypass Valve.

4.4.2 Verify RCIC Turbine speed increasing.

4.4.3 Open 2ICS*MOV120, Turbine Steam Supply Valve.

4.5 Verify the following steam drain valves shut.

4.5.1 2ICS*AOV109

4.5.2 2ICS*AOV110

4.5.3 2ICS*AOV130

4.5.4 2ICS*AOV131

4.6 Verify 2ICS*MOV143 opens, pump minimum flow to suppression pool.

4.7 Open 2ICS*MOV124, test return to Condensate Storage Tank.

4.8 Increase RCIC system flow to 600 gpm and RCIC discharge pressure to approximately Reactor pressure by alternately performing the following steps.

4.8.1 Jog 2ICS*FV108 open or closed as required.

4.8.2 Increase or decrease RCIC flow controller in manual as required.

4.9 When RCIC system flow reaches 600 gpm, place the RCIC flow controller in "Auto".

F. NORMAL OPERATION (Cont)

4.10 When required by N2-OP-31, control RCIC Injection to the Reactor as follows: TCN-48

NOTE: Utilize Sections 4.10.1 and 4.10.2 independently or concurrently to control RPV injection.

4.10.1 Controller Setpoint Adjustment

* *

CAUTIONS

1. Maintain turbine speed > 1500 RPM.

2. RCIC System Flow should not exceed 600 GPM.

* *

Verify RCIC FLOW CONTROLLER in "Auto".

Using the RCIC FLOW CONTROLLER setpoint adjustment thumbwheel, lower or raise the RCIC System Flow Setpoint to control system flow.

When no longer required return the controller setpoint to 600 GPM as directed by the SSS.

4.10.2 Flow Rejection to the CST

NOTE: With RPV Water Level less than Level 2 (108.8" inches), 2ICS*MOV124 and 2ICS*FV108 will not open, therefore this section cannot be performed.

* *

CAUTION

Changes in Rx pressure can stop or initiate injection into the RPV while using this procedure. Closely monitor flowrate and adjust as required.

* *

Open 2ICS*MOV124.

Control injection flow by throttling 2ICS*FV108. To LOWER injection flow, throttle open, to RAISE injection flow, throttle close.

4.10.3 When no longer required for throttling injection flow, close the following:

a. 2ICS*FV108

b. 2ICS*MOV124

4.11 When RCIC is no longer required to support steam condensing shutdown the RCIC system per Section G.1.0.

G. SHUTDOWN PROCEDURE

1.0 Shutdown From Operating To Standby Condition

* *

CAUTION

If RCIC is operating in response to an auto initiation signal, system is shut down as directed per N2-EOP's.

* *

1.1 Depress RCIC Initiation Seal-In Reset pushbutton. Verify white light out at P601.

1.2 Verify RCIC Water Leg Pump ICS*P2 running at P601.

1.3 Place the RCIC flow controller in "Manual".

1.4 Using the RCIC flow controller, reduce RCIC turbine speed to between 1500 and 2000 rpm.

NOTE: If RCIC Discharge Flow was being controlled per Section H.1.0 of this procedure, perform or verify both Steps 1.5.1 and 1.5.2 below.

1.5 Secure RCIC Discharge Flow as follows:

1.5.1 If RCIC is injecting to the Reactor Vessel, then shut 2ICS*MOV126.

1.5.2 If RCIC is in full flow test, then close the following valves.

a. 2ICS*FV108

b. 2ICS*MOV124

1.6 Verify RCIC pump minimum flow valve, 2ICS*MOV143, opens.

1.7 Depress Turbine Tripped pushbutton and verify the following at P601:

1.7.1 Turbine Trip Throttle Valve ICS*MOV150 shut.

1.7.2 Pump 1 Disch To Reactor ICS*MOV126 shut.

1.7.3 Pump Minimum Flow To Suppression Pool ICS*MOV143 shut.

1.7.4 RCIC Turbine Speed decreases to 0 rpm.

1.8 Shut Turbine Steam Supply Vlv ICS*MOV120 at P601.

1.9 Verify Turbine Stm Supply Drain Pot 1 Exh Vlv ICS*AOV130 opens at P601.

G. SHUTDOWN PROCEDURE (Cont)

1.10 Stop Gland Seal System Air Compressor at P601.

1.11 Shut Lube Oil Cooling Wtr Supply ICS*MOV116 at P601.

1.12 Set RCIC Flow Controller to 600 gpm and place in "AUTO" at P601.

1.13 Relatch and open RCIC Turbine Trip Throttle Valve, per the following at P601:

1.13.1 Hold Turbine Trip Throttle Valve ICS*MOV150 control switch in "CLOSE" until valve green shut light is indicated.

1.13.2 Open Turbine Trip Throttle Valve ICS*MOV150.

1.14 Verify Standby Condition Status Checks per Section F.

2.0 Shutdown To Inoperable

2.1 Refer to Technical Specifications.

2.2 Depress RCIC Manually Out Of Service pushbutton at P601.

2.3 Shut the following at P601:

2.3.1 Test Bypass To Condensate Stor Tk ICS*FV108.

2.3.2 Lube Oil Cooling Wtr Supply ICS*MOV116.

2.3.3 Turbine Steam Supply Vlv ICS*MOV120.

2.3.4 Pump 1 Disch To Reactor ICS*MOV126.

2.3.5 Test Return To Condensate Stor Tk ICS*MOV124.

2.3.6 Turbine Trip Throttle Valve ICS*MOV150.

NOTE: If performing Fill and Vent, depressurizing RCIC system is not required.

2.4 To depressurize RCIC system, perform the following, at P601:

a. Stop Water Leg Pump ICS*P2.

b. Shut Pump Suct From Suppression Pool ICS*MOV136.

c. Shut Pump 1 Suct From Condensate Stor Tk ICS*MOV129.

H. OFF NORMAL PROCEDURE

1.0 This step has been deleted.

2.0 RCIC Turbine Reset

2.1 Verify cause of Turbine Trip is understood and has been corrected.

2.2 Allow turbine speed to drop to less than 3500 RPM prior to attempting to reset the turbine.

2.3 Shut Turbine Steam Supply Vlv ICS*MOV120, at P601 if an RCIC initiation signal is not sealed in.

2.4 Shut Turbine Steam Supply Bypass Valve ICS*MOV159 (if open).

2.5 Shut Turbine Trip Throttle Valve ICS*MOV150, at P601.

2.6 Locally reset trip mechanism if RCIC turbine tripped on overspeed or was locally tripped (pull springloaded connecting rod against spring force of emergency trip spring).

NOTE: If an initiation signal is sealed in, the following valve should be jogged open. RCIC will restart and this procedure may be exited.

* *

CAUTION

The Turbine Trip and Throttle Valve, 2ICS*MOV150, should not be tripped from full open position without steam flow available (see Precaution D.12.0). TCN-46

* *

2.7 Open Turbine Trip Throttle Valve ICS*MOV150 just until red open light illuminates, at P601.

2.8 Depress Turbine Tripped pushbutton and verify Turbine Trip Throttle Valve ICS*MOV150 shuts, at P601.

2.9 Relatch and open RCIC Turbine Trip Throttle Valve, per the following at P601:

2.9.1 Hold Turbine Trip Throttle Valve ICS*MOV150 control switch in "CLOSE" until valve green shut light is indicated.

2.9.2 Open Turbine Trip Throttle Valve ICS*MOV150.

2.10 Verify Standby Condition Status Checks per Section F.

H. OFF NORMAL PROCEDURE (Cont)

3.0 Manual Isolation

NOTE:- RCIC can only be manually isolated using the Manual Isolation pushbutton if an initiation signal is present.

3.1 Verify RCIC Initiation Seal-In Reset white light on, at P601.

3.2 Depress RCIC Manual Isolation pushbutton, at P601.

3.3 Verify the following, at P601:

3.3.1 Turbine Trip Throttle Valve ICS*MOV150 shut.

3.3.2 Turbine Steam Supply Outboard Isol Vlv ICS*MOV121 shut.

3.3.3 Pump 1 Disch To Reactor ICS*MOV126 shut.

3.4 To recover from isolation and place RCIC in a Standby Condition, perform Steps E.1.2 through E.1.15 of this procedure.

4.0 This step has been deleted.

TCN-43

5.0 This step has been deleted.

6.0 Draining RCIC Steam Line During Power Operation with RCIC Isolated

NOTE: The RCIC steam line should be drained at least every 12 hours during power operation with RCIC isolated.

6.1 Clear Appendix "R" Holdout and energize 2MSS*MOV112 at 2EHS*MCC102A Breaker 7A.

6.2 Open/verify open 2MSS*MOV189

6.3 Open the following valves:

6.3.1 2MSS*MOV111

6.3.2 2MSS*MOV112

NOTE: 2MSS*HCV110 should be cracked open, not fully opened.

6.3.3 2MSS*HCV110

H. OFF NORMAL PROCEDURE (Cont)

6.4 When points 19 and 20 of ADS/Safety Valve Temperature Recorder on 2CEC-P614 approach 500 F, indication presence of steam and not water, then close the valves that were opened in Step H.6.3.

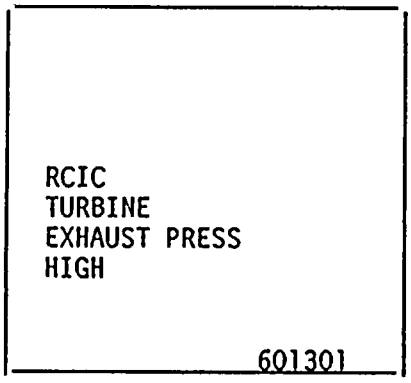
6.5 Deenergize 2MSS*MOV112 and restore the Appendix "R" Holdout.

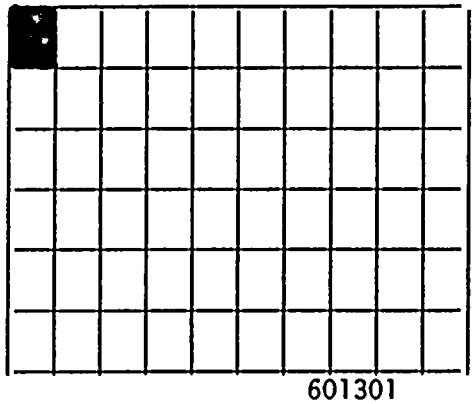
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS

1.0 601301 Reactor Core Isolation Cooling Turbine Exhaust Pressure High

Reflash: No

TCN-40





1.1	Computer Point	Computer Printout	Source
a.	ICSPC01	RCIC TURB EXH PRESSURE	RCIC turbine exhaust pressure greater than 25 psig. (2ICS*PT1A or 1B).

1.2 Automatic Response

a. RCIC trips, per the following:

1. Turbine Trip Throttle Valve ICS*MOV150 shuts.

2. Pump 1 Disch To Reactor ICS*MOV126 shuts.

3. Pump Minimum Flow To Suppression Pool ICS*MOV143 shuts.

1.3 Corrective Action

a. Verify automatic response, at P601.

b. Verify Turbine Exhaust To Suppression Pool ICS*MOV122 open, at P601.

c. Verify isolation signal has cleared by taking DIV I and II Isol Seal-In Reset keylock switches to "RESET", at P601. Verify white lights out.

d. Prior to resuming RCIC operation, reset trip by fully shutting and re-opening Turbine Trip Throttle Valve ICS*MOV150, at P601.

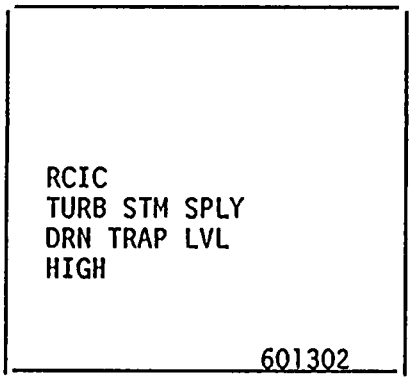
d. Restart RCIC, as required.

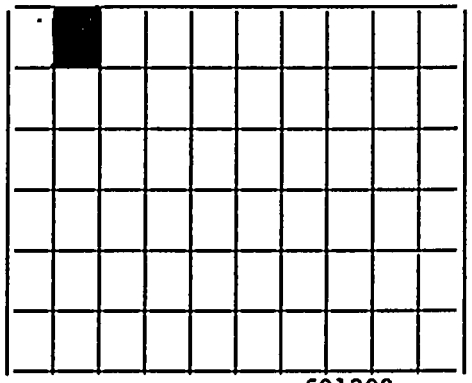
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

2.0 601302 Reactor Core Isolation Cooling Turbine Steam Supply Drain Trap Level High

Reflash: No

TCN-40





2.1	Computer Point	Computer Printout	Source
a.	ICSLC01	RCIC TURB ST DR TRAP LVL	RCIC turbine steam supply Drain Pot ED1 high level (2ICS*LS132).

2.2 Automatic Response

a. Turbine Stm Supply Drain Pot 1 Byp Vlv ICS-LV132 opens.

2.3 Corrective Action

* *

CAUTION

The RCIC Turbine should not be started until the steam supply drain trap has been drained. Starting RCIC with water in the drain trap could result in severe water hammer in the RCIC piping.

* *

a. Verify automatic response, at P601.

b. Verify Turbine Stm Supply Drain Pot 1 Exh Vlvs ICS*AOV130 and AOV131 open, at P601.

c. Verify the following valves locked open:

1. Drain Pot (ED1) Drain Line Trap Isol, 2ICS-V13.

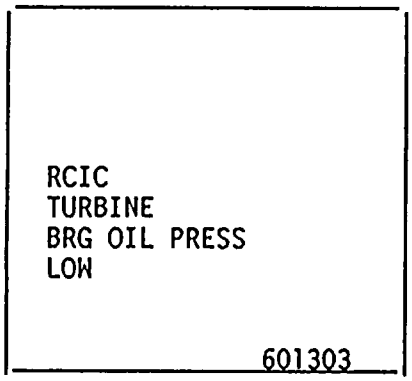
2. Drain Pot (ED1) Drain Line Trap Isol, 2ICS-V14.

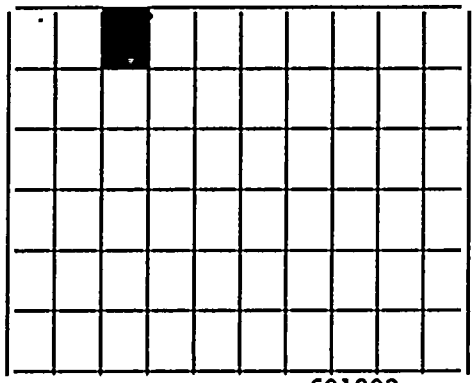
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

3.0 601303 Reactor Core Isolation Cooling Turbine Bearing Oil Pressure Low

Reflash: No

TCN-40





3.1	Computer Point	Computer Printout	Source
	a. ICSPC04	RCIC TURB BRG OIL PRESS	RCIC turbine bearing lube oil pressure less than 3 psig (2ICS*PS1001)

3.2 Automatic Response

a. NONE

3.3 Corrective Action

NOTE: If RCIC is being used to maintain reactor water level, notify the SSS prior to tripping the RCIC turbine. Refer to the plant Technical Specifications.

a. Verify that RCIC Turbine Speed is greater than the minimum rated speed of 1500 RPM. If not, then increase turbine speed above 1500 RPM using RCIC Flow Controller, at P601.

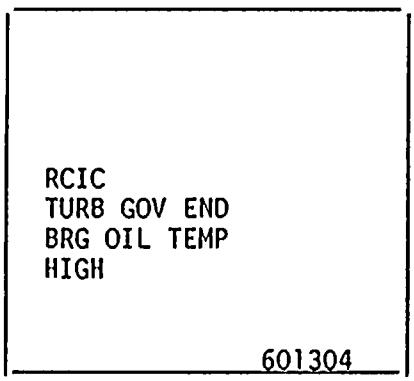
b. If Turbine Speed is at or above 1500 RPM, and annunciator has not cleared then trip the turbine using the RCIC Turbine Trip pushbutton on P601.

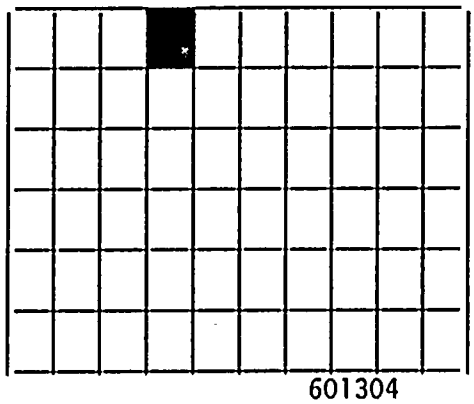
c. If RCIC was being used to makeup water to the reactor, then monitor reactor level and use alternate means to makeup water.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

4.0 601304 Reactor Core Isolation Cooling Turbine Governor End Bearing Oil Temperature High

Reflash: No





4.1	Computer Point	Computer Printout	Source
a.	ICSTC01	RCIC GOV END BRG OIL TMP	RCIC turbine governor end bearing oil temperature greater than 180°F (2ICS*TS1001)

4.2 Automatic Response

a. NONE

4.3 Corrective Action

NOTE: If RCIC is being used to maintain reactor water level, notify the SSS prior to tripping the RCIC turbine. Refer to the plant Technical Specifications.

a. Verify Lube Oil Cooling Water Supply ICS*MOV116 open, at P601.

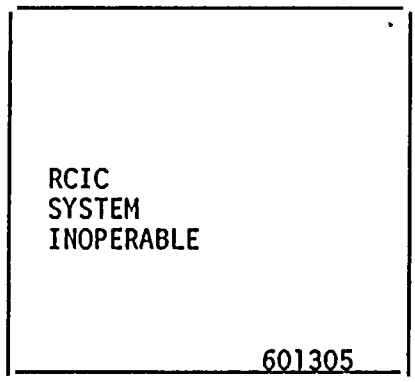
b. Trip the RCIC turbine using the RCIC Turbine Trip pushbutton on P601, if required.

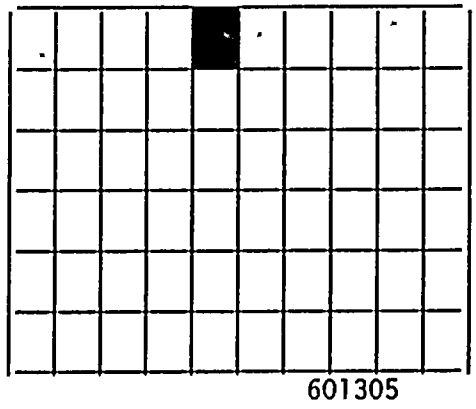
c. If RCIC was making up water to the reactor vessel, monitor reactor vessel and use other available methods of making up water as required.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable

Reflash: No





5.1	Computer Point	Computer Printout	Source	
	a. ICSBC04	RCIC SYS	1. PMP 1 SUCT FROM CNDS TK ICS*MOV129	*
			2. PMP 1 DISCH TO REACTOR ICS*MOV126	
			3. PMP 1 MIN FLOW TO SP ICS*MOV143	
			4. TEST BYPASS TO CNDS TK ICS*FV108	
			5. PMP 1 SUCT FR SUPPR POOL ICS*MOV136	
			6. TURBINE STM SUPPLY VLV ICS*MOV120	
			7. TURB STM SPLY BYPASS VLV ICS*MOV159	
			8. TURB STM SPLY INBD ISOL VLV ICS*MOV128	
			9. TURB STM SPLY INBD WARM UP ICS*MOV170	
			10. TURB EXHAUST SP VAC BRKR ICS*MOV148	
			11. LUBE OIL COOLING WTR ICS*MOV116	

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

5.1	Computer Point	Computer Printout	Source
			12. TEST RETURN TO CNST TK ICS*MOV124
			13. TURB STM SPLY OUTBD ISOL ICS*MOV121
			14. TURB EXHAUST TO SUPP POOL ICS*MOV122
			15. TURB EXHAUST SP VAC BRKR ICS*MOV164
			16. ICS*MOV128 CLOSED/ CS IN CLOSED POSN
			17. WTR LEG PMP ICS*P2
			18. TURBINE TRIPPED
			19. TURBINE TRIP THROTTLE VLV ICS*MOV150
			20. ICS*MOV121 CLOSED/ CS IN CLOSED POSN
			21. ICS*MOV122 CLOSED/ CS IN CLOSED POSN
			22. DIV II LOGIC POWER FAIL
			23. RCIC/RHR A ISOL OOF/POWER LOSS
			24. DIV I ISOL INITIATION
			25. DIV I LOGIC POWER FAIL
			26. RCIC SYS IN TEST STATUS
			27. RCIC/RHR A ISOL OOF/POWER LOSS

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

5.1 Computer Point	Computer Printout	Source
		28. DIV I TRIP UNIT CALIB/FAIL
		29. DIV I TRIP UNIT OOF/PWR FAIL
		30. DIV I 24VDC POWER FAIL
		31. DIV II ISOL INITIATION
		32. DIV II TRIP UNIT CALIB/FAIL
		33. DIV II TRIP UNIT OOF/PWR FAIL
		34. RCIC DIV I MANUALLY OUT OF SVCE
		35. RCIC DIV II MANUALLY OUT OF SVCE

5.2 Corrective Action

a. Refer to the following INOP windows for response.

b. Refer to Technical Specifications.

Window	Source	Automatic Response
1. PMP 1 SUCT FROM CNDS TK ICS*MOV129	Pump 1 Suction From Condensate Stor Tank, 2ICS*MOV129, loss of control power (74-2ICSN14)	None

Corrective Action

a. Verify 2ICS*MOV129 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

Window	Source	Automatic Response
2. PMP 1 DISCH TO REACTOR ICS*MOV126	Pump 1 Disch To Reactor, 2ICS*MOV126, loss of control power. (74-2ICSN12)	None

Corrective Action

a. Verify 2ICS*MOV126 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

Window	Source	Automatic Response
3. PMP 1 MIN FLOW TO SP ICS*MOV143	Pump Minimum Flow To Suppression Pool, 2ICS* MOV143, loss of control power (74-2ICSN06)	None

Corrective Action

a. Verify 2ICS*MOV143 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

Window	Source	Automatic Response
4. TEST BYPASS TO CNDS TK ICS*FV108	Test Bypass To Condensate Stor Tank, 2ICS*FV108, loss of control power (74-2ICSN09)	None

Corrective Action

a. Verify 2ICS*FV108 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

Window	Source	Automatic Response
5. PMP 1 SUCT FR SUPPR POOL ICS*MOV136	Pump Suction From Supp Pool, 2ICS*MOV136, loss of control power (74-2ICSN05)	None

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

Corrective Action

a. Verify 2ICS*MOV136 electrical lineup per Attachment II and Control Power fuses installed.

b. Replace control power fuses, as required.

Window	Source	Automatic Response
6. TURBINE STM SUPPLY VLV ICS*MOV120	Turbine Stm Supply Vlv, 2ICS*MOV120, loss of control power (74-2ICSN03)	None

Corrective Action

a. Verify 2ICS*MOV120 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

Window	Source	Automatic Response
7. TURB STM SPLY BYPASS VLV ICS*MOV159	Turbine Stm Supply Bypass Vlv, 2ICS*MOV159, loss of control power (74-2ICSN30)	None

Corrective Action

a. Verify 2ICS*MOV159 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

Window	Source	Automatic Response
8. TURB STM SPLY INBD ISOL VLV ICS*MOV128	Turbine Stm Supply Inboard Isol Vlv, 2ICS*MOV128, loss of control power (74-2ICSN02)	None

Corrective Action

a. Verify 2ICS*MOV128 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

Window	Source	Automatic Response
9. TURB STM SPLY INBD WARM UP ICS*MOV170	Turbine Stm Supply Inside Warm Up Vlv, 2ICS*MOV170, loss of control power (74-2ICSN24)	None

Corrective Action

a. Verify 2ICS*MOV170 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

Window	Source	Automatic Response
10. TURB EXHAUST SP VAC BRKR ICS*MOV148	Turbine Exhaust Suppr Pool Vacuum Brkr, 2ICS*MOV148, loss of control power (74-2ICSN13)	None

Corrective Action

a. Verify 2ICS*MOV148 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

Window	Source	Automatic Response
11. LUBE OIL COOLING WTR ICS*MOV116	Lube Oil Cooling Wtr Supply, 2ICS*MOV116, loss of control power (74-2ICSN10)	None

Corrective Action

a. Verify 2ICS*MOV116 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

Window	Source	Automatic Response
12. TEST RETURN TO CNST TK ICS*MOV124	Test Return To Condensate Storage Tk, 2ICS*MOV124, loss of control power (74-2ICSN07)	None

Corrective Action

a. Verify 2ICS*MOV124 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

Window	Source	Automatic Response
13. TURB STM SPLY OUTBD ISOL ICS*MOV121	Turbine Stm Supply Outbd Isol Vlv, 2ICS*MOV121, loss of control power (74-2ICSN11)	None

Corrective Action

a. Verify 2ICS*MOV121 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

Window	Source	Automatic Response
14. TURB EXHAUST TO SUPP POOL ICS*MOV122	Turbine Exhaust To Suppression Pool, 2ICS *MOV122, loss of control power (74-2ICSN04)	None

Corrective Action

a. Verify 2ICS*MOV122 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

Window	Source	Automatic Response
15. TURB EXHAUST SP VAC BRKR ICS*MOV164	Turbine Exhaust Suppr Pool Vacuum Brkr, 2ICS *MOV164, loss of control power (74-2ICSN08)	None

Corrective Action

a. Verify 2ICS*MOV164 electrical lineup per Attachment II and control power fuses installed.

b. Replace control power fuses, as required.

Window	Source	Automatic Response
16. ICS*MOV128 CLOSED/CS IN CLOSED POSN	Turbine Steam Supply Inboard Isol Vlv, 2ICS *MOV128, not full open, or control switch in "CLOSE" at P601.	None

Corrective Action

a. Open Turbine Steam Supply Inboard Isol Vlv ICS*MOV128, as required, at P601.

Window	Source	Automatic Response
17. WTR LEG PMP ICS*P2	RCIC Water Leg Pump, 2ICS*P2, loss of control power (74-2ICSN01)	RCIC Water Leg Pump ICS*P2 trips

Corrective Action

a. Verify 2ICS*P2 electrical lineup per Attachment II and control power fuse installed.

b. Replace control power fuse, as required.

c. Verify automatic response, at P601.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

Window	Source	Automatic Response
18. TURBINE TRIPPED	Turbine Trip Throttle Valve, 2ICS*MOV150, not full open (33-2ICSN15)	a. RCIC Turbine trips/fails to start b. Pump 1 Disch To Reactor, 2ICS*MOV 126, shuts c. Pump Minimum Flow To Suppression Pool, 2ICS*MOV143, shuts

Corrective Action

a. Verify automatic response, at P601.

b. Monitor RPV Level and Pressure.

c. If required for RPV Level/Pressure control, start RCIC per Section H.

Window	Source	Automatic Response
19. TURBINE TRIP THROTTLE VLV ICS*MOV150	Turbine Trip Throttle Valve, 2ICS*MOV150, loss of control power (74-2ICSN15)	None

Corrective Action

a. To stop RCIC turbine, shut Turbine Steam Supply Vlv ICS*MOV120, at P601.

NOTE: Do not trip the RCIC turbine if it is being used to maintain vessel level and/or pressure. If the RCIC turbine is tripped without power available to *MOV150, it will be necessary to manually reset the trip and reopen *MOV150 in order to restart RCIC.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

Window	Source	Automatic Response
20. ICS*MOV121 CLOSED/CS IN CLOSED POSN	Turbine Steam Supply Outbd Isol Vlv, 2ICS*MOV 121, not full open, or control switch in "CLOSE" at P601	None

Corrective Action

a. Open Turbine Steam Supply Outboard Isol Vlv ICS*MOV121, as required, at P601.

Window	Source	Automatic Response
21. ICS*MOV122 CLOSED/CS IN CLOSED POSN	Turbine Exhaust To Suppression Pool, 2ICS*MOV 122, not full open, or control switch in "CLOSE" at P601	None

Corrective Action

a. Open Turbine Exhaust to Suppression Pool ICS*MOV122, as required, at P601.

Window	Source	Automatic Response
22. DIV II LOGIC POWER FAIL	RCIC Division II Relay Logic loss of power, or RCIC Bus B Power Test pushbutton (S43B) depressed at P618	None

Corrective Action

a. Verify 2ICSN19 electrical lineup per Attachment II.

b. Verify fuses 2ICSN19-F21 and F22 installed/not blown at P618.

c. Notify I&C.

Window	Source	Automatic Response
23. RCIC/RHR A ISOL OOF/ POWER LOSS	Isolator E21A-AT7 loss of power, or out of file at P601. (E51-K27)	None

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

Corrective Action

a. Notify I&C.

b. Verify 2CSLN07 power supply lineup at 2BYS*PNL201A circuit 2. Place to "ON".

c. Verify fuses 2CSLN07-F20 and F21 installed/not blown at P629.

d. Verify 2CSLN11 power supply lineup at 2BYS*PNL201B circuit 12. Place to "ON".

e. Verify fuses 2CSLN11-F22 and F23 installed/not blown at P601.

Window	Source	Automatic Response
24. DIV I ISOL INITIATION	RCIC Division I isolation due to one or more of the following: 1) High RCIC area ambient or differential temp. 2) Logic Power Monitor Test switch in "TEST" at P634. 3) RCIC steam supply high flow. 4) RCIC steam supply low pressure. 5) RCIC exhaust diaphragm high pressure. 6) Manual Isolation from P601.	RCIC isolates, per the following: 1) Turbine Trip Throttle Vlv ICS*MOV150, shuts. 2) Turbine Steam Supply Outbd Isol Vlv ICS*MOV121 shuts. 3) Pump 1 Disch To Reactor ICS*MOV126 shuts.

Corrective Action

a. Verify automatic response, at P601.

NOTE: High RCIC area temperature isolations can be bypassed at P634.

b. Monitor RPV Level and Pressure.

c. To reset isolation signal, depress DIV I Isol Seal-In Reset pushbutton, at P601. Verify white seal-in light out.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

Window	Source	Automatic Response
25. DIV I LOGIC POWER FAIL	RCIC Division I Relay logic loss of power, or RCIC Bus A Power Test pushbutton depressed, at P621.	NONE

Corrective Action

a. Verify electrical lineup to 2ICSN16 per Attachment II.

b. Verify fuses 2ICSN16-F13 and F14 installed/not blown, at P621.

c. Notify I&C.

Window	Source	Automatic Response
26. RCIC SYS IN TEST STATUS	Division I RCIC Test Jack installed, at P621	NONE

Corrective Action

a. Remove Test Jack when testing is complete.

b. Notify I&C.

Window	Source	Automatic Response
27. RCIC/RHR A ISOL OFF/ POWER LOSS	Isolator E12A-AT8 loss of power, or out of file at P601 (E51-K7)	NONE

Corrective Action

a. Notify I&C.

b. Verify 2RHSB31 electrical lineup at 2VBS*PNL301B, circuit 6. Place to "ON".

c. Verify fuses 2RHSB31-F35 and F53 installed/not blown at P618.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

Window	Source	Automatic Response
28. DIV I TRIP UNIT CALIB/FAIL	One or more Division I RCIC trip units being calibrated or sensing gross failure at P629 (E51-K74A)	NONE

Corrective Action

a. Notify I&C.

b. Complete calibration and restore trip unit to operation.

Window	Source	Automatic Response
29. DIV I TRIP UNIT OOF/PWR FAIL	One or more Division I RCIC trip units out of file or loss of power at P629 (E51-K75A)	NONE

Corrective Action

a. Restore trip units to file, at P629.

b. Notify I&C.

Window	Source	Automatic Response
30. DIV I 24VDC POWER FAIL	Loss of Division I RCIC 24 VDC power supply, or RCIC 24 VDC Power Test pushbutton depressed at P632 (E51-K44)	On loss of power, RCIC turbine speed increases (due to loss of flow signal) resulting in a possible overspeed.

Corrective Action

a. Monitor RPV Level and Pressure.

b. Manually operate RCIC from P601, if turbine speed increases on loss of power.

c. Verify 2ICSN20 power supply lineup per Table II.

d. Verify fuses 2ICSN20-F26 and F27 installed/not blown at P632.

e. Notify I&C.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

Window	Source	Automatic Response
31. DIV II ISOL INITIATION	RCIC Div II isolation due to one or more of the following: 1) High RCIC area ambient or differential temperature 2) Logic Power Monitor Test switch in "TEST" at P642 3) RCIC steam supply high flow 4) RCIC steam supply low pressure 5) RCIC exhaust diaphragm high pressure	RCIC isolates, per the following: 1) Turbine Trip Throttle Vlv ICS* MOV150, shuts 2) Turbine Stm Supply Inside Warm Up Vlv ICS* MOV170, shuts 3) Turbine Steam Supply Inboard Isol Vlv ICS*MOV 128, shuts 4) Pump 1 Disch To Reactor ICS* MOV126, shuts

Corrective Action

a. Verify automatic response, at P601.

NOTE: High RCIC area temperature isolations can be bypassed at P642.

b. Monitor RPV Level and Pressure.

c. To reset isolation signal, depress DIV II Isol Seal-In Reset pushbutton, at P601. Verify white Seal-In light out.

Window	Source	Automatic Response
32. DIV II TRIP UNIT CALIB/FAIL	One or more Division II RCIC trip units being calibrated or sensing gross failure at P618 (E51-K74B)	NONE

Corrective Action

a. Notify I&C.

b. Complete calibration and restore trip unit to operation.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

5.0 601305 Reactor Core Isolation Cooling System Inoperable (Cont)

Window	Source	Automatic Response
33. DIV II TRIP UNIT OOF/PWR FAIL	One or more Division II RCIC trip units out of file or loss of power at P618.	NONE

Corrective Action

a. Restore trip units to file, at P618.

b. Notify I&C.

Window	Source	Automatic Response
34. RCIC DIV I MANUALLY OUT OF SVCE	RCIC DIV I Manually Out Of Service pushbutton depressed, at P601	NONE

Corrective Action

a. Restore RCIC DIV I Manually Out Of Service pushbutton to normal, as required.

Window	Source	Automatic Response
35. RCIC DIV II MANUALLY OUT OF SVCE	RCIC DIV II Manually Out Of Service pushbutton depressed, at P601	NONE

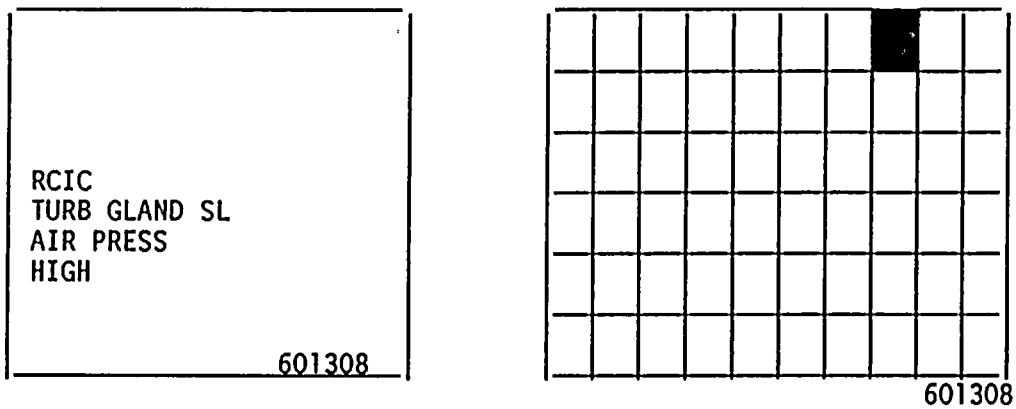
Corrective Action

a. Restore RCIC DIV II Manually Out Of Service pushbutton to normal, as required.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

6.0 601308 Reactor Core Isolation Cooling Turbine Gland Seal Air Pressure High

Reflash: No



6.1	Computer Point	Computer Printout	Source
	a. ICSPC06	RCIC TURB GLD SL AIR PR	RCIC turbine gland seal air pressure greater than 13 psig (2ICS*PS226)

6.2 Automatic Response

a. NONE

6.3 Corrective Action

NOTE: If RCIC is being used to maintain reactor level and/or pressure, do not trip the RCIC turbine unless an alternate means of maintaining reactor level and pressure is available.

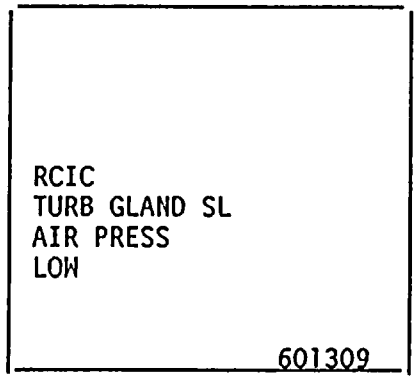
a. Verify proper valve lineup at the gland seal skid.

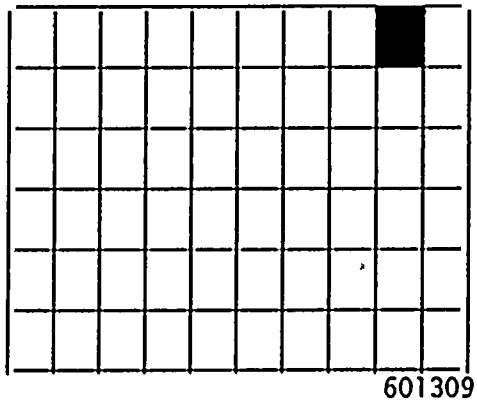
b. Verify proper pressure regulator setting at the gland seal skid.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

7.0 601309 Reactor Core Isolation Cooling Turbine Gland Seal Air Pressure Low

Reflash: No





7.1	Computer Point	Computer Printout	Source
	a. ICSPC05	RCIC TURB GLD SL AIR PR	RCIC turbine gland seal air pressure less than 7 psig (2ICS*PS226)

7.2 Automatic Response

a. NONE

7.3 Corrective Action

NOTES:
1. If RCIC is being used to maintain reactor level and/or pressure, do not trip the RCIC turbine unless an alternate means of level/pressure control is available.
2. Leakage of high temperature steam into the RCIC pump room may result in a high temperature isolation of the RCIC system.

* *

CAUTION

Loss of turbine gland seal pressure will result in leakage of high temperature contaminated steam into the RCIC pump room. Notify radiation protection prior to entering the pump room.

* *

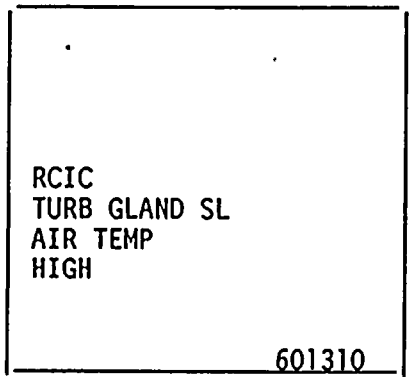
a. Verify proper valve lineup at the gland seal skid.

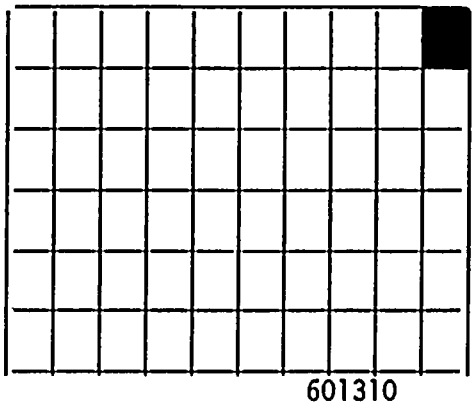
b. Verify proper pressure regulator setting at the gland seal skid.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

8.0 601310 Reactor Core Isolation Cooling Turbine Gland Seal Air Temperature High

Reflash: No





8.1	Computer Point	Computer Printout	Source	
	a. ICSTC04	RCIC TURB GLD SL AIR TMP	RCIC turbine gland seal air temperature greater than 350°F (2ICS*TS225)	*

8.2 Automatic Response

a. NONE

8.3 Corrective Action

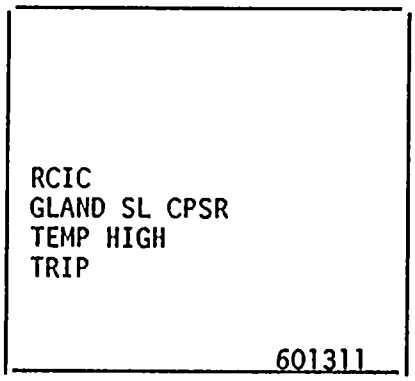
NOTE: If RCIC is being used to maintain reactor level and pressure, do not trip the RCIC turbine unless an alternate means of controlling level and pressure is available, or pressure and level control is no longer required.

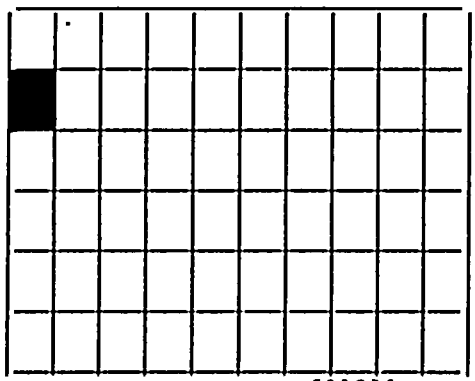
a. Verify proper valve lineup at the gland seal skid.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

9.0 601311 Reactor Core Isolation Cooling Gland Seal Compressor Temperature High Trip

Reflash: No





9.1	Computer Point	Computer Printout	Source
	a. ICSTC05	RCIC GLD CPRSR TEMP	RCIC turbine gland seal compressor temperature greater than 370° F. (2ICS*TS225) *

9.2 Automatic Response

a. NONE

9.3 Corrective Action

NOTES: 1. If RCIC is being used to control reactor level and/or pressure, do not trip the RCIC turbine unless an alternate means of level/pressure control is available.

2. Leakage of high temperature steam into the RCIC pump room may result in a high temperature isolation of the RCIC system.

* *

CAUTION

Loss of turbine gland seal pressure will result in leakage of high temperature contaminated steam into the RCIC pump room. Notify radiation protection prior to entering the pump room.

* *

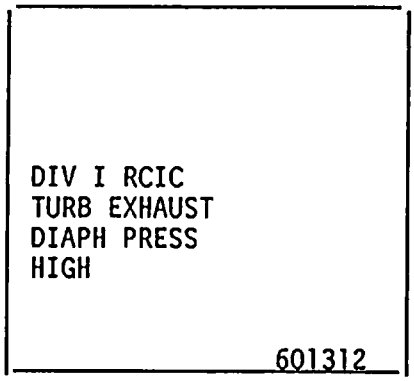
a. If not required for RPV Level/Pressure control, shutdown RCIC.

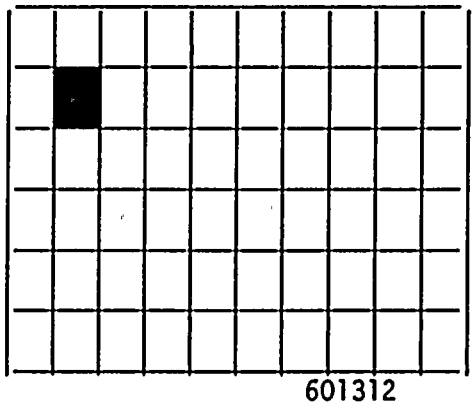
b. Notify Radiation Protection.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

10.0 601312 Division I Reactor Core Isolation Cooling Turbine Exhaust Diaphragm Pressure High

Reflash: Yes





10.1	Computer Point	Computer Printout	Source	
	a. ICSPC09	D1 RCIC TURB DIAPH PR	Pressure between RCIC turbine exhaust rupture diaphragms greater than 10 psig. (2ICS*PT2A)	*
	b. ICSPC10	D1 RCIC TURB DIAPH PR	Pressure between RCIC turbine exhaust rupture diaphragms greater than 10 psig (2ICS*PT2B)	*

10.2 Automatic Response

a. If both channels sense high pressure, RCIC trips per the following:

1. Turbine Trip Throttle Valve ICS*MOV150 shuts.
2. Turbine Steam Supply Outboard Isol Vlv ICS*MOV121 shuts.
3. Pump 1 Disch To Reactor ICS*MOV126 shuts.

10.3 Corrective Action

a. Verify automatic response, at P601.

b. Monitor RPV Level, Pressure and RCIC pump room temperature.

c. Verify Turbine Exhaust To Suppression Pool ICS*MOV122 open, at P601.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

10.3 Corrective Action (Cont)

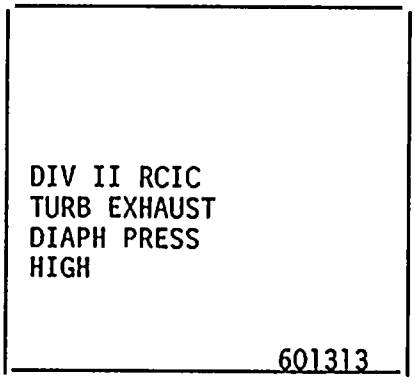
d. Verify Turbine Exhaust Suppr Pool Vacuum Brkrs ICS*MOV148 and ICS*MOV164 open, at P601.

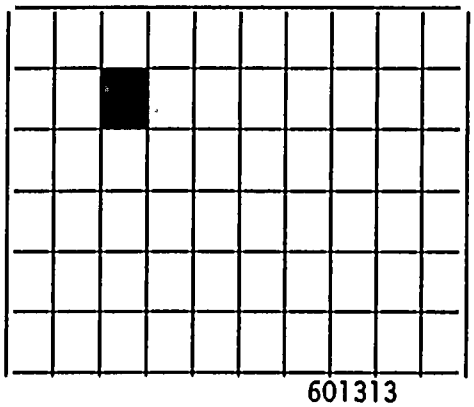
NOTE: This annunciator indicates the first of two RCIC turbine exhaust rupture diaphragms has failed and may need to be replaced.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

11.0 601313 Division II Reactor Core Isolation Cooling Turbine Exhaust Diaphragm Pressure High

Reflash: Yes





11.1	Computer Point	Computer Printout	Source	
	a. ICSPC11	D2 RCIC TURB DIAPH PR	Pressure between RCIC turbine exhaust rupture diaphragms greater than 10 psig (2ICS*PT2C)	*
	b. ICSPC12	D2 RCIC TURB DIAPH PR	Pressure between RCIC turbine exhaust rupture diaphragms greater than 10 psig (2ICS*PT2D)	*

11.2 Automatic Response

a. If both channels sense high pressure, RCIC trips per the following:

1. Turbine Trip Throttle Valve ICS*MOV150 shuts.
2. Turbine Steam Supply Inboard Isol Vlv ICS*MOV128 shuts.
3. Pump 1 Disch To Reactor ICS*MOV126 shuts.

11.3 Corrective Action

a. Verify automatic response, at P601.

b. Monitor RPV Level, Pressure and RCIC pump room temperature.

c. Verify Turbine Exhaust To Suppression Pool ICS*MOV122 open, at P601.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

11.3 Corrective Action (Cont)

d: Verify Turbine Exhaust Suppr Pool Vacuum Brkrs ICS*MOV148 and ICS*MOV164 open, at P601.

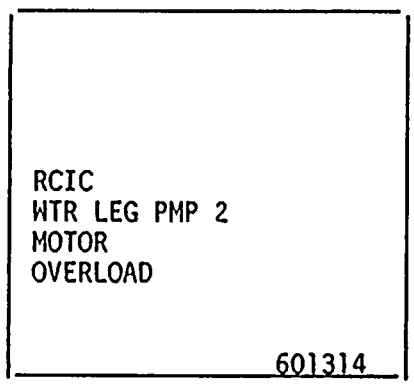
NOTE: This annunciator indicates the first of two RCIC turbine exhaust rupture diaphragms has failed and may need to be replaced.

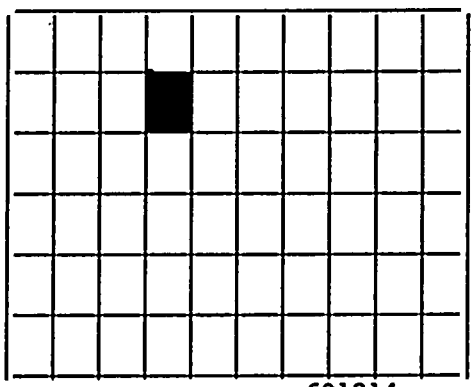
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

12.0 601314 Reactor Core Isolation Cooling Water Leg Pump 2 Motor Overload

Reflash: No

TCN-40





12.1

Computer Point	Computer Printout	Source
a. ICSTC18	RCIC WTR LEG PMP 2 MOTOR	RCIC Water Leg Pump, 2ICS*P2, motor overload (49X-2ICSN01)

12.2 Automatic Response

a. RCIC Water Leg Pump ICS*P2 trips.

12.3 Corrective Action

a. Verify automatic response, at P601.

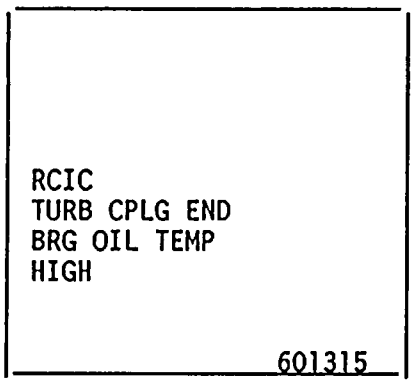
b. Notify Electrical Maintenance.

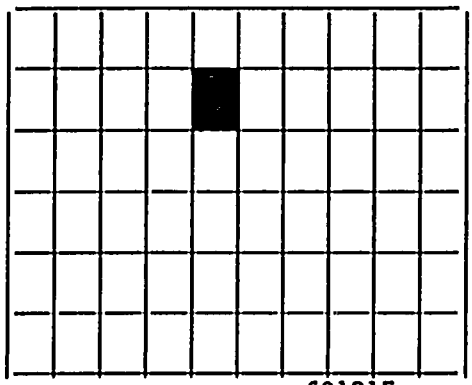
c. Refer to Technical Specifications.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

13.0 601315 Reactor Core Isolation Cooling Turbine Coupling End Bearing Oil Temperature High

Reflash: No





13.1	Computer Point	Computer Printout	Source	
	a. ICSTC02	RCIC CPLG BRG OIL TMP	RCIC turbine coupling end bearing oil temperature greater than 180°F. (2ICS*TS1002)	*

13.2 Automatic Response

NONE

13.3 Corrective Action

NOTE: If RCIC is being used to maintain reactor level and/or pressure then do not trip the RCIC turbine unless alternate means of maintaining level and pressure are available or RCIC is no longer required.

a. Verify Lube Oil Cooling Water Supply ICS*MOV116 open, at P601.

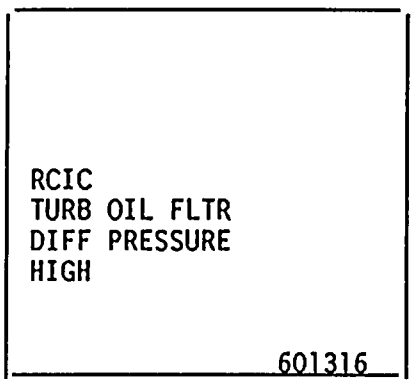
b. If not required for operation, shutdown RCIC.

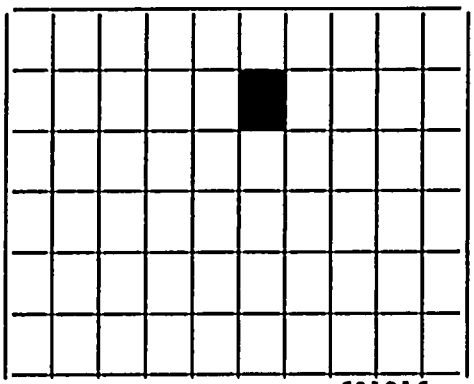
c. Refer to Technical Specifications.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

14.0 601316 Reactor Core Isolation Cooling Turbine Oil Filter Differential Pressure

Reflash: No





14.1

	Computer Point	Computer Printout	Source
a.	ICSPC07	RCIC TURB OIL FLTR D/P	RCIC turbine lube oil filter differential pressure greater than 6 psid (2ICS*PDS1001).

14.2 Automatic Response

NONE

14.3 Corrective Action

NOTE: If RCIC is being used to maintain reactor level and/or pressure do not trip the RCIC turbine unless alternate means of controlling reactor level and pressure are available or RCIC is no longer required.

a. Shift lube oil filters.

b. If the high differential pressure condition still exists, place the filter changeover valve in the mid-position. This will place both filters in service at the same time.

c. If lube oil filter differential pressure exceeds 12 psid, shutdown RCIC if not required for operation.

d. Initiate a Work Request to have the dirty filter(s) changed.

*9

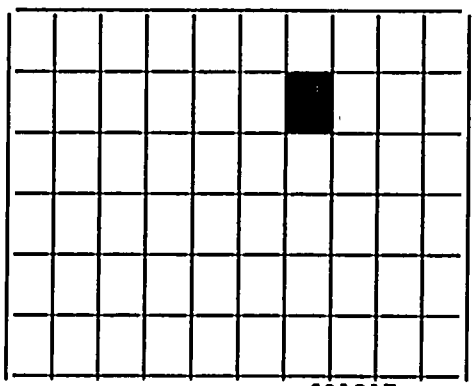
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

15.0 601317 Reactor Core Isolation Cooling Turbine Lube Oil Aftercooler Temperature High

Reflash: No

RCIC
TURB LUBE OIL
AFTERCLR TEMP
HIGH

601317



601317

15.1

Computer Point	Computer Printout	Source
a. ICSTC03	RCIC TB LUBE OIL AFTCLR TMP	RCIC turbine lube oil aftercooler temperature greater than 160°F. (2ICS*TS1003).

15.2 Automatic Response

NONE

15.3 Corrective Action

NOTE: If RCIC is being used to maintain reactor level and/or pressure then do not trip the RCIC turbine unless alternate means of maintaining level and pressure are available or RCIC is no longer required.

a. Verify Lube Oil Cooling Water Supply ICS*MOV116 open, at P601.

b. If not required for operation, shutdown RCIC.

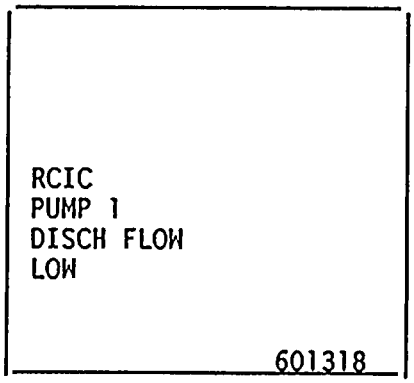
c. Notify I&C.

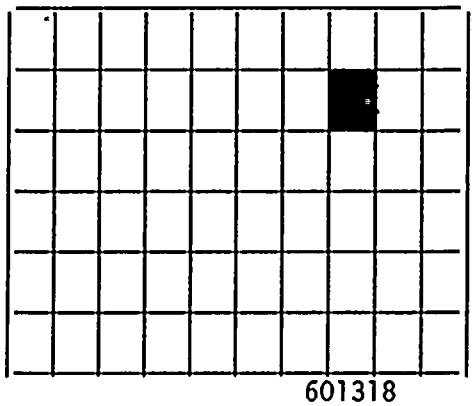
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

16.0 601318 Reactor Core Isolation Cooling Pump 1 Discharge Flow Low

Reflash: No

TCN-40





16.1

Computer Point	Computer Printout	Source
a. ICSFC01	RCIC PMP1 DISCH FLOW	RCIC pump discharge flow less than 110 gpm (2ICS*FT102) coincident with RCIC Turbine Steam Supply ICS*MOV120 not full shut.

16.2 Automatic Response

a. If RCIC ICS*P1 Disch Press is greater than 125 psig, Pump Minimum Flow To Suppression Pool ICS*MOV143 opens.

16.3 Corrective Action

a. Verify automatic response, at P601.

b. Verify RCIC Flow Controller set at 600 gpm and in "AUTO", at P601.

c. Verify RCIC pump discharge flow path established, at P601.

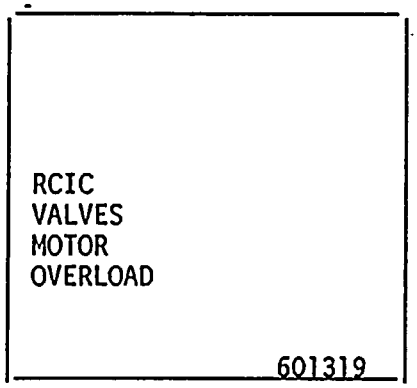
d. Place RCIC Flow Controller in "MAN" and increase flow setpoint, as required, at P601.

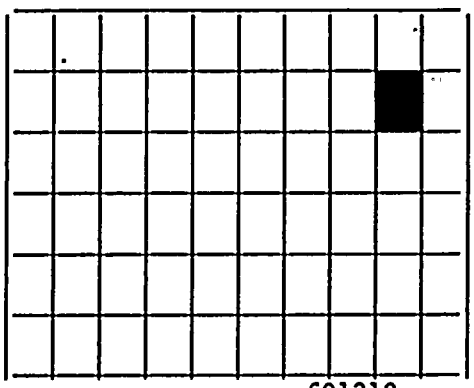
e. Verify RCIC Turbine Speed 1500 to 4500 rpm, at P601.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

17.0 601319 Reactor Core Isolation Cooling Valves Motor Overload

Reflash: Yes





17.1	Computer Point	Computer Printout	Source	
	a. ICSTC06	2ICS*MOV129 MOT	RCIC Pump 1 Suction From Condensate Storage Tank, 2ICS*MOV129, motor overload (72X-2ICSN12)	*
	b. ICSTC07	2ICS*MOV126 MOT	RCIC Pump 1 Disch To Reactor, 2ICS *MOV126, motor overload (72X-2ICSN12)	*
	c. ICSTC08	2ICS*MOV143 MOT	RCIC Pump Minimum Flow To Suppression Pool, 2ICS*MOV143, motor overload (72X-2ICSN06)	*
	d. ICSTC09	2ICS*FV108 MOT	RCIC Test Bypass To Condensate Stor Tk, 2ICS*FV108, motor overload (72X-2ICSN09)	*
	e. ICSTC10	2ICS*MOV136 MOT	RCIC Pump Suction From Suppression Pool, 2ICS*MOV136, motor overload (72X-2ICSN05)	*
	f. ICSTC11	2ICS*MOV120 MOT	RCIC Turbine Steam Supply Vlv, 2ICS* MOV120, motor overload (72X-2ICSN03)	*

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

17.1	Computer Point	Computer Printout	Source (Cont)	
	g. ICSTC12	2ICS*MOV116 MOT	RCIC Lube Oil Cooling Water Supply, 2ICS*MOV116, motor overload (72X-2ICSN10)	*
	h. ICSTC13	2ICS*MOV124 MOT	RCIC Test Return To Condensate Storage Tank, 2ICS*MOV124, motor overload (72X-2ICSN07)	*
	i. ICSTC14	2ICS*MOV121 MOT	RCIC Turbine Steam Supply Outboard Isol Vlv, 2ICS*MOV121, motor overload (49X-2ICSN11)	*
	j. ICSTC15	2ICS*MOV122 MOT	RCIC Turbine Exhaust To Suppression Pool, 2ICS*MOV122, motor overload (72X-2ICSN04)	*
	k. ICSTC16	2ICS*MOV170 MOT	RCIC Turbine Steam Supply Inside Warm Up Vlv, 2ICS*MOV170, motor overload (49X-2ICSN24)	*
	ℓ. ICSTC17	2ICS*MOV128 MOT	RCIC Turbine Steam Supply Inboard Isol Vlv, 2ICS*MOV128, motor overload (49X-2ICSN02)	*
	m. ICSTC19	2ICS*MOV150 MOT	RCIC Turbine Trip Throttle Valve, 2ICS*MOV150, motor overload (72X-2ICSN15)	*
	n. ICSTC21	2ICS*MOV164 MOT	RCIC Turbine Exhaust Suppr Pool Vacuum Brkr, 2ICS*MOV164, motor overload (72X-2ICSN13)	*
	o. ICSTC22	2ICS*MOV148 MOT	RCIC Turbine Exhaust Suppr Pool Vacuum Brkr, 2ICS*MOV148, motor overload (72X-2ICSN13)	*

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

17.1	Computer Point	Computer Printout	Source (Cont)
	p. ICSTC23	2ICS*MOV159 MOT	RCIC Turbine Steam Supply Bypass Vlv, 2ICS*MOV159, motor overload (72X-2ICSN30)

17.2 Automatic Response

a. Valve travel seal-in circuitry is removed, rendering the associated valve throttleable at P601.

17.3 Corrective Action

a. Verify affected component(s) from computer printout.

NOTE: Remote operation may result in motor damage.

b. If operation is required, position affected valve(s) at P601.

c. If required, position valve manually as follows:

1. Place associated power supply to "OFF", per Attachment II.

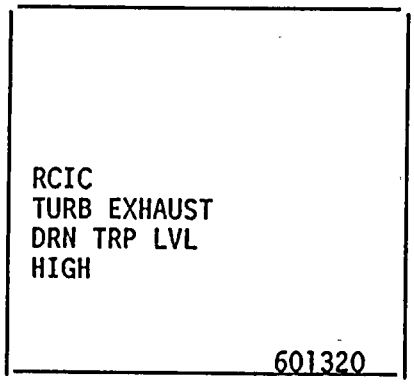
2. Position valve manually.

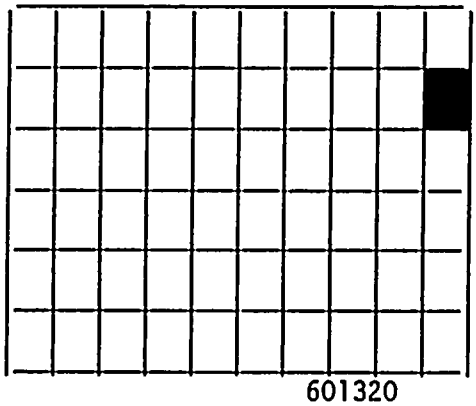
d. Refer to Technical Specifications.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

18.0 601320 Reactor Core Isolation Cooling Turbine Exhaust Drain Trap Level High

Reflash: No





18.1

Computer Point	Computer Printout	Source
a. ICSLC02	RCIC TURB EXH TRAP LVL	RCIC turbine exhaust drain pot, ED2, high level (2ICS*LS206)

18.2 Automatic Response

a. If Turbine Steam Supply Vlv ICS*MOV120 is full, shut Turbine Exhaust Drain Pot 2 Exh Vlv ICS*AOV110 opens.

18.3 Corrective Action

* *

CAUTION

The RCIC Turbine should not be started until the Exhaust Drain Trap has been drained. Starting RCIC with water in the drain trap could result in severe water hammer in the RCIC Turbine Exhaust piping.

* *

a. Verify automatic response, at P601.

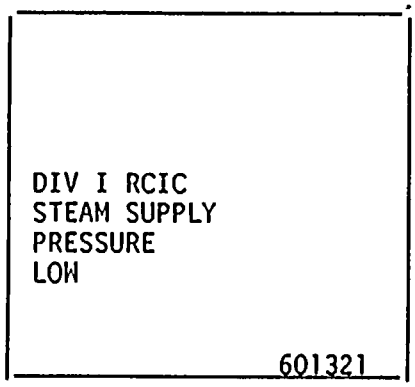
b. Verify Turbine Exhaust Drain Pot 2 Exh Vlv ICS*AOV109 control switch in "OPEN", at P601.

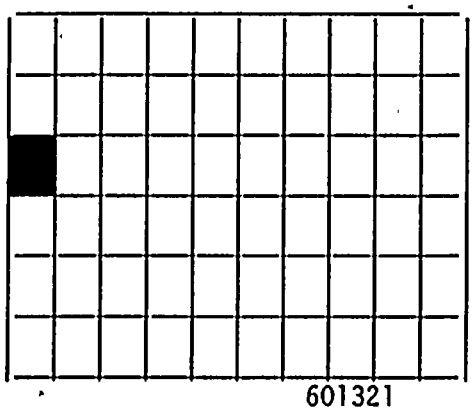
c. Verify Turbine Exhaust Drain Pot 2 Exh Vlv ICS*AOV110 control switch in "SHUT", at P601, as required.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

19.0 601321 Division 1 Reactor Core Isolation Cooling Steam Supply Pressure Low

Reflash: Yes





19.1

Computer Point	Computer Printout	Source	
a. ICSPC13	D1 RCIC STM SUPPLY PR	RCIC turbine steam supply pressure less than 75 psia. (2ICS*PT167Y)	*
b. ICSPC14	D1 RCIC STM SUPPLY PR	RCIC turbine steam supply pressure less than 75 psia. (2ICS*PT167X)	*

19.2 Automatic Response

a. If both channels sense low pressure, RCIC trips per the following:

1. Turbine Trip Throttle Valve ICS*MOV150 shuts.
2. Turbine Steam Supply Outboard Isol Vlv ICS*MOV121 shuts.
3. Pump 1 Disch To Reactor ICS*MOV126 shuts.

19.3 Corrective Action

NOTE: This annunciator is normally energized when reactor pressure is less than 75 psia and should clear as reactor pressure increases. It is normal to receive this alarm if the plant is shutdown.

a. Verify automatic response, at P601.

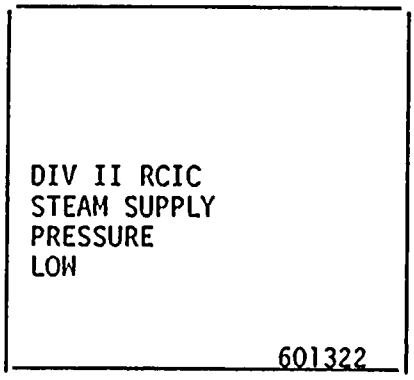
b. Monitor RPV Level and Pressure.

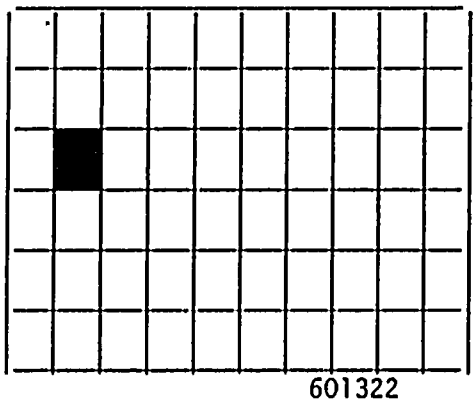
c. Complete RCIC Shutdown, per Section G.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

20.0 601322 Division II Reactor Core Isolation Cooling Steam Supply Pressure Low

Reflash: Yes





20.1

Computer Point	Computer Printout	Source	
a. ICSPC15	D2 RCIC STM SUPPLY PR	RCIC turbine steam supply pressure less than 75 psia (2ICS*PT168Y)	*
b. ICSPC16	D2 RCIC STM SUPPLY PR	RCIC turbine steam supply pressure less than 75 psia (2ICS*PT168X)	*

20.2 Automatic Response

a. If both channels sense low pressure, RCIC trips per the following:

1. Turbine Trip Throttle Valve ICS*MOV150 shuts.
2. Turbine Steam Supply Inboard Isol Vlv ICS*MOV128 shuts.
3. Pump 1 Disch To Reactor ICS*MOV126 shuts.

20.3 Corrective Action

NOTE: This annunciator is normally energized when reactor pressure is less than 75 psia and should clear as reactor pressure increases. It is normal to receive this alarm if the plant is shutdown.

a. Verify automatic response, at P601.

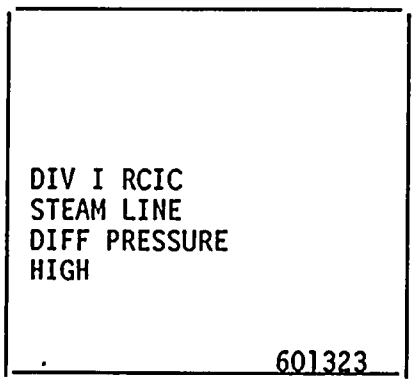
b. Monitor RPV Level and Pressure.

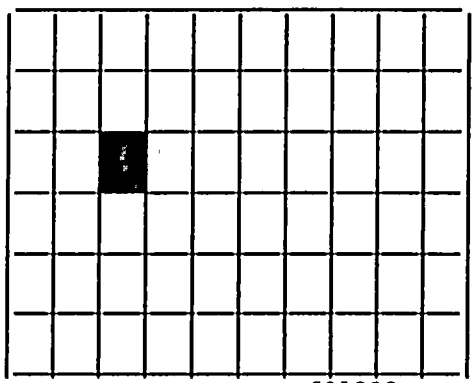
c. Complete RCIC shutdown, per Section G.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

21.0 601323 Division I Reactor Core Isolation Cooling Steam Line Differential Pressure High

Reflash: Yes





21.1

	Computer Point	Computer Printout	Source	
a.	ICSPC17	DIV 1 RCIC STM LN D/P	RCIC steam supply flow elbow diff press greater than 37.4 inches water (trip unit E31-N684A) or less than (-)275 inches water (trip unit E31-N691A)	*
b.	ICSPC18	DIV 1 RCIC STM LN D/P	RCIC steam supply flow elbow diff press greater than 167.1 inches water (trip unit E31-N683A) or less than (-)275 inches water (trip unit E31-N690A	*

21.2 Automatic Response

a. If either channel senses high differential pressure, RCIC isolates. (Steam supply outboard isolation valve 2ICS*MOV121 shuts)

b. If RCIC is operating the following will also occur:

1. Turbine Trip Throttle Valve 2ICS*MOV150 shuts.

2. Pump Discharge to Reactor 2ICS*MOV126 shuts.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

21.3 Corrective Action

a. Verify automatic response, at P601.

b. Monitor RPV Level, Pressure, Primary Containment Parameters and Reactor Building temperatures.

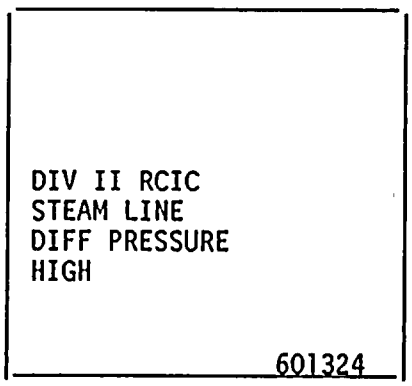
NOTE: This annunciator indicates a high RCIC steam supply flow rate and a possible steam line break. A high negative value on trip units E31-N690A and N691A indicate a possible instrument line break.

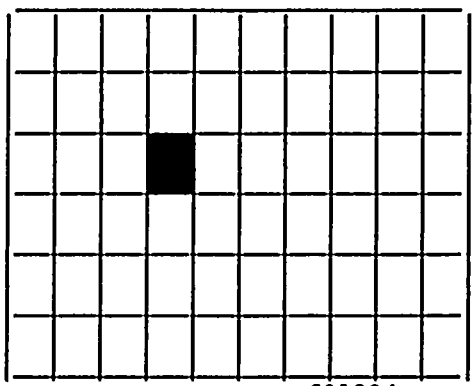
c. Refer to Technical Specifications.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

22.0 601324 Division II Reactor Core Isolation Cooling Steam Line Differential Pressure High

Reflash: Yes





22.1

	Computer Point	Computer Printout	Source	
a.	ICSPC19	DIV 2 RCIC STM LN D/P	RCIC steam flow elbow diff press greater than 167.1 inches water (trip unit E31-N683B) or less than (-)275 inches water (trip unit E31-N690B)	*
b.	ICSPC20	DIV 2 RCIC STM LN D/P	RCIC steam Supply flow elbow diff press greater than 37.4 inches water (trip unit E31-N684B) or less than (-) 275 inches water (trip unit E31-N691B)	*

22.2 Automatic Response

a. If either channel senses high differential pressure, RCIC isolates. (Steam supply inboard isolation valve 2ICS*MOV128 shuts and inboard warmup valve 2ICS*MOV170 shuts, if open)

b. If RCIC is operating the following will occur:

1. Turbine Trip Throttle Valve 2ICS*MOV150 shuts.

2. Pump Discharge to Reactor 2ICS*MOV126 shuts.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

22.3 Corrective Action

a: Verify automatic response, at P601.

b. Monitor RPV Level, Pressure, Primary Containment Parameters and Reactor Building temperatures.

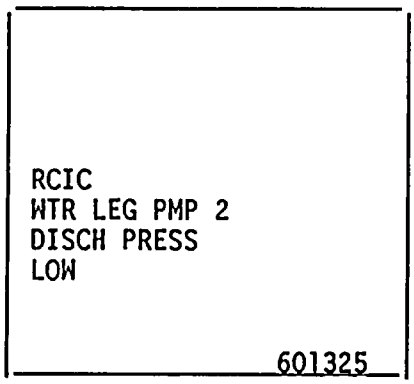
NOTE: This annunciator indicates a high RCIC steam supply flow rate and a possible steam line break. A high negative value on trip unit E31-N690B and N691B indicates a possible instrument line break.

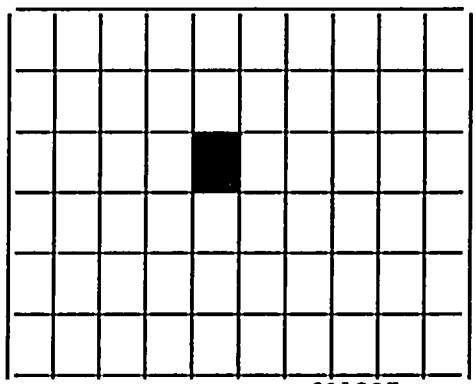
c. Refer to Technical Specifications.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

23.0 601325 Reactor Core Isolation Cooling Water Leg Pump 2 Discharge Pressure Low

Reflash: No





23.1	Computer Point	Computer Printout	Source
	a. ICSPC08	RCIC WTR LEG P2 DISCH PR	RCIC Water Leg Pump, 2ICS*P2, discharge pressure less than 60 psig.

23.2 Automatic Response

NONE

23.2 Corrective Action

a. Verify Water Leg Pump ICS*P2 running, at P601.

b. Verify ICS*P1 Suct Press, at P601.

c. Verify the following valves open:

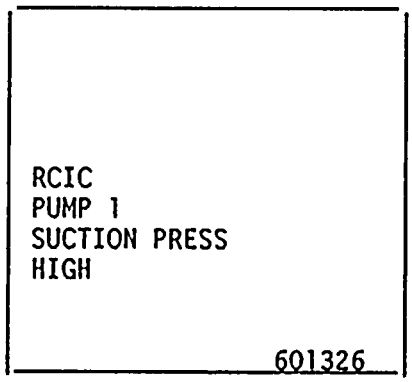
1. Water Leg Pump Discharge Isol, 2ICS*V35.
2. Water Leg Pump Recirc Line Isol, 2ICS*V184.
3. Water Leg Pump Recirc Line Isol, 2ICS*V97.

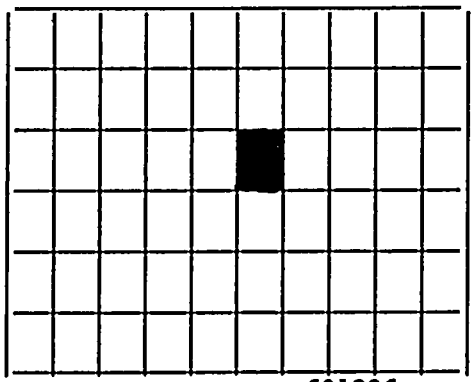
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

24.0 601326 Reactor Core Isolation Cooling Pump 1 Suction Pressure High

Reflash: No

TCN-40





24.1	Computer Point	Computer Printout	Source
	a. ICSPC03	RCIC PMP 1 SUCTION PRESS	RCIC Pump, 2ICS*P1, suction pressure greater than 140 psig (2ICS*PT106)

24.2 Automatic Response

NONE

24.3 Corrective Action

a. Verify ICS*P1 Suct Press, at P601.

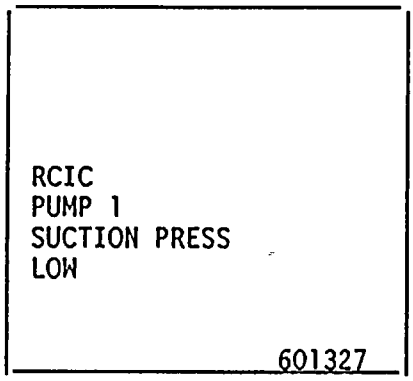
b. If operating RCIC in conjunction with RHR Steam Condensing, reduce Steam Condensate To RCIC Press Controller setpoint to achieve less than 75 psig ICS*P1 Suct Press, at P601.

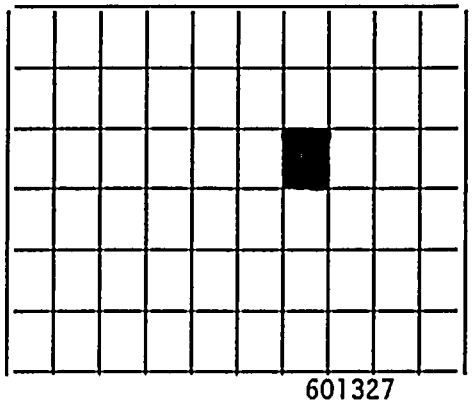
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

25.0 601327 Reactor Core Isolation Cooling Pump 1 Suction Pressure Low

Reflash: No

TCN-40





25.1

Computer Point	Computer Printout	Source
a. ICSPC02	RCIC PMP1 SUCTION PRESS	RCIC Pump, 2ICS*P1, suction pressure less than 20 inches Hg (2ICS*PT105)

25.2 Automatic Response

a. RCIC trips, per the following:

1. Turbine Trip Throttle Valve ICS*MOV150 shuts.
2. Pump 1 Disch To Reactor ICS*MOV126 shuts.
3. Pump Minimum Flow To Suppression Pool ICS*MOV143 shuts.

25.3 Corrective Action

a. Verify automatic response, at P601.

b. Verify ICS*P1 Suct Press, at P601.

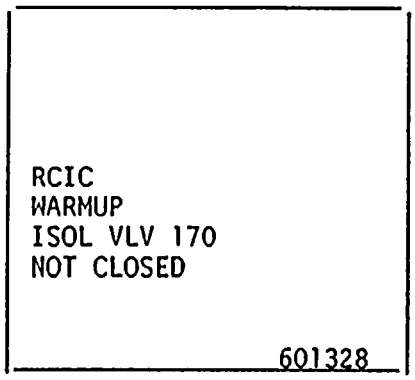
c. Monitor RPV Level and Pressure.

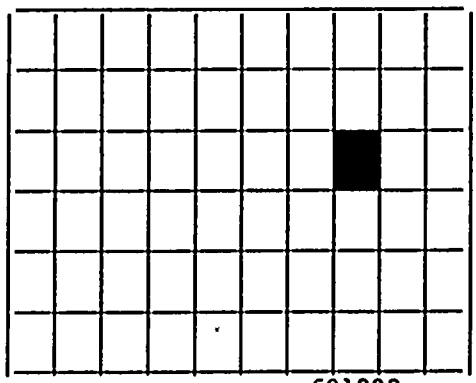
d. Verify RCIC Pump suction path available, at P601.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

26.0 601328 Reactor Core Isolation Cooling Warmup Isolation Valve 170 Not Closed

Reflash: No





26.1	Computer Point	Computer Printout	Source
	a. ICSZC01	2ICS*MOV170 STATUS	RCIC Turbine Steam Supply Inside Warm Up Vlv, 2ICS*MOV170, not full shut.

26.2 Automatic Response

NONE

26.3 Corrective Action

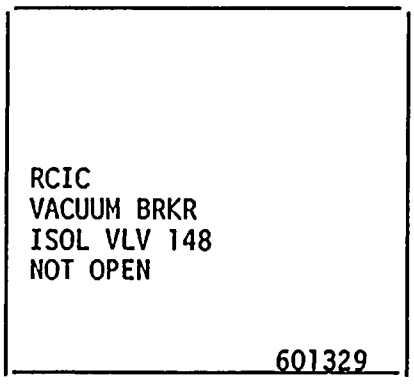
a. Shut Turbine Steam Supply Inside Warm Up Vlv ICS*MOV170, as required at P601.

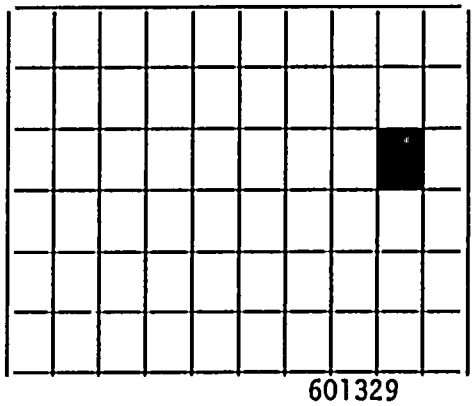
*9

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

27.0 601329 Reactor Core Isolation Cooling Vacuum Breaker Isolation Valve 148 Not Open

Reflash: No





27.1

Computer Point	Computer Printout	Source
a. ICSZC02	2ICS*MOV148 STATUS	RCIC Turbine Exhaust Suppr Pool Vacuum Breaker, 2ICS*MOV148, not full open. *

27.2 Automatic Response

NONE

27.3 Corrective Action

NOTE: RCIC Turbine Exhaust Vacuum Breaker, 2ICS*MOV148, isolates when a high drywell pressure signal (1.68 psig) and low steam supply pressure signal (75 psia) exist simultaneously.

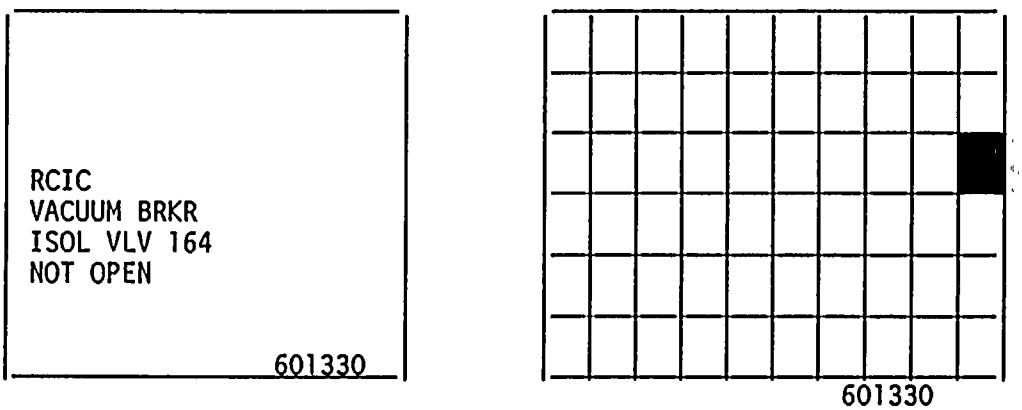
a. Verify that no isolation signal exists, at P601.

b. Open Turbine Exhaust Suppr Pool Vacuum Breaker ICS*MOV148, as required at P601.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

28.0 601330 Reactor Core Isolation Cooling Vacuum Breaker Isolation Valve 164 Not Open

Reflash: No



28.1

Computer Point	Computer Printout	Source
a. ICSZC03	2ICS*MOV164 STATUS	RCIC Turbine Exhaust Suppression Pool Vacuum Breaker, 2ICS*MOV164, not full open. *

28.2 Automatic Response

NONE

28.3 Corrective Action

NOTE: RCIC Turbine Exhaust Vacuum Breaker, 2ICS*MOV164, isolates when a high drywell pressure signal (1.68 psig) and low steam supply pressure signal (75 psia) exist simultaneously.

a. Verify that no isolation signal exists, at P601.

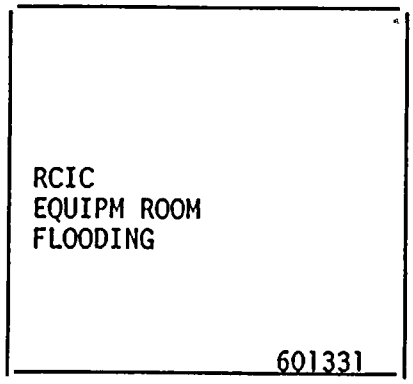
b. Open Turbine Exhaust Suppr Pool Vacuum Breaker ICS*MOV164, as required at P601.

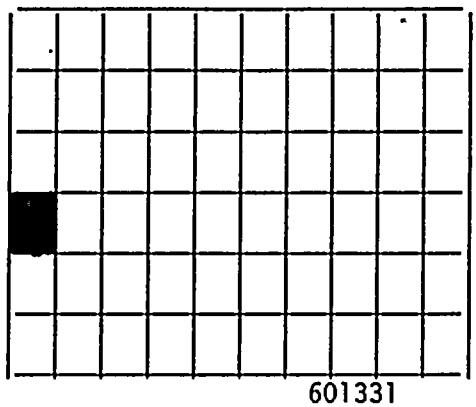
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

29.0 601331 Reactor Core Isolation Cooling Equipment Room Flooding

Reflash: No

TCN -40





29.1

Computer Point	Computer Printout	Source
a. DFRLC15	RCIC EQUIP RM FLOODING	RCIC equipment room flooding (2DFR*LS145)

29.2 Automatic Response

NONE

29.3 Corrective Action

NOTE: If RCIC is being used to control reactor level and/or pressure, do not trip the RCIC Turbine unless an alternate means of level and pressure control is available or until RCIC is no longer required.

a. Verify LPCS Pump Room Floor Drain Pumps, 2DFR-P2G and P2H, running at 2CES-PNL513.

b. Refer to N2-EOP's.

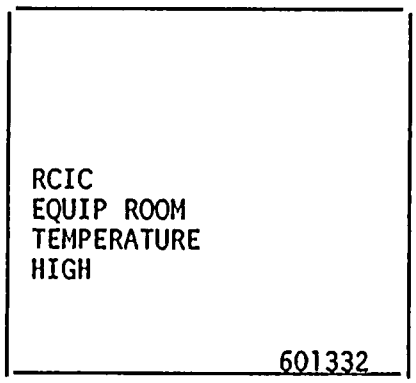
c. Refer to Technical Specifications.

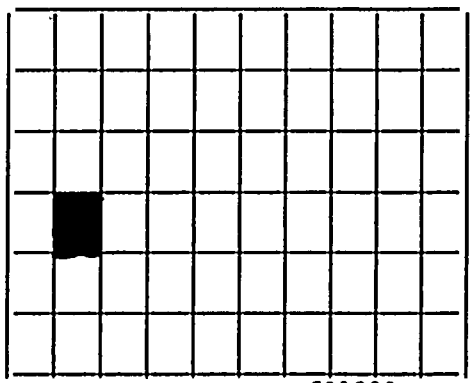
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

30.0 601332 Reactor Core Isolation Cooling Equipment Room Temperature High

Reflash: No

TCN -40





30.1

Computer Point	Computer Printout	Source
a. LDSTC77	RCIC EQPT ROOM TEMP	RCIC equipment room temperature greater than 110°F.

30.2 Automatic Response

NONE

30.3 Corrective Action

NOTE: If RCIC is being used to control reactor level and/or pressure, do not trip the RCIC Turbine unless an alternate means of level and pressure control is available or until RCIC is no longer required.

a. Verify RCIC equipment room temperatures, at P632.

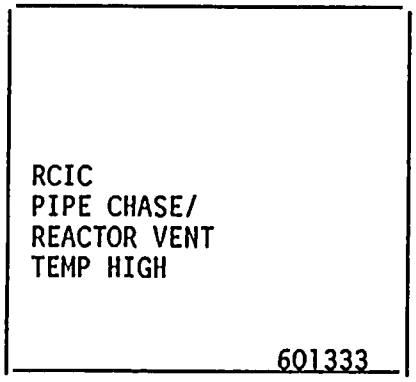
b. Verify RCIC Unit Cooler running.

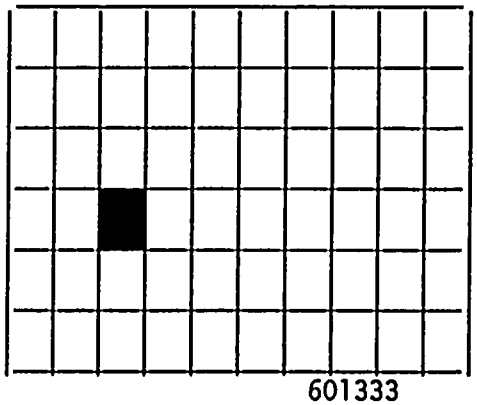
NOTE: High temperature is an indication of a possible steam leak.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

31.0 601333 Reactor Core Isolation Cooling Pipe Chase/Reactor Vent Temperature High

Reflash: No





31.1	Computer Point	Computer Printout	Source
	a. LDSTC76	RCIC PIPE/RX VENT TEMP	RCIC equipment room ventilation/pipe chase temperature greater than 110°F.

31.2 Automatic Response

NONE

31.3 Corrective Action

NOTE: If RCIC is being used to control reactor level and/or pressure, do not trip the RCIC Turbine unless an alternate means of maintaining reactor level and pressure are available or RCIC is no longer required.

a. Verify RCIC equipment room temperatures, at P632.

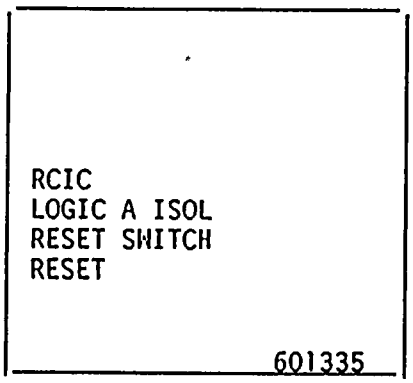
b. Verify RCIC Unit Cooler running.

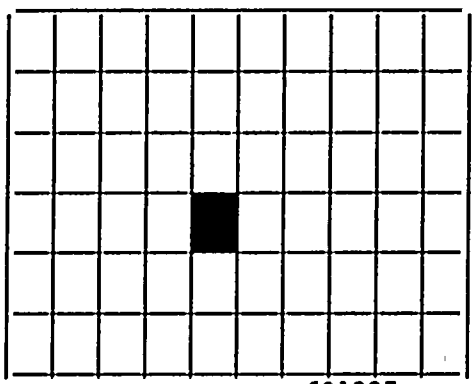
NOTE: High temperature is an indication of a possible steam leak.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

32.0 601335 Reactor Core Isolation Cooling Logic A Isolation Reset Switch Reset

Reflash: No





32.1	Computer Point	Computer Printout	Source
	a. ICSBC01	RCIC LOGIC A ISOL SW POS	DIV I Isol Seal-In Reset keylock switch in "RESET", at P601.

32.2 Automatic Response

NONE

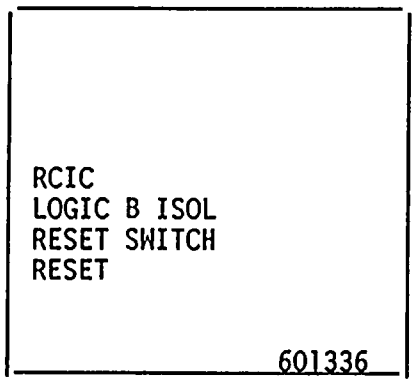
32.3 Corrective Action

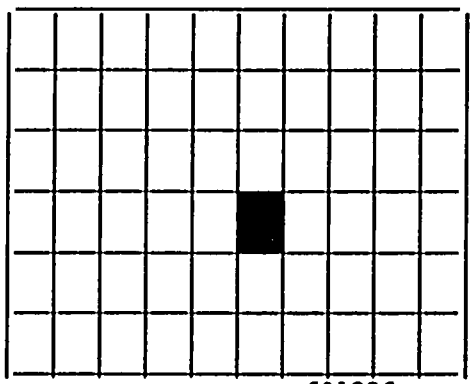
a. Place DIV I Isol Seal-In Reset keylock switch in "NORMAL", as required at P601.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

33.0 601336 Reactor Core Isolation Cooling Logic B Isolation Reset Switch Reset

Reflash: No





33.1	Computer Point	Computer Printout	Source
	a. ICSBC02	RCIC LOGIC B ISOL SW POS	DIV II Isol Seal-In Reset keylock switch in "RESET", at P601.

33.2 Automatic Response

NONE

33.3 Corrective Action

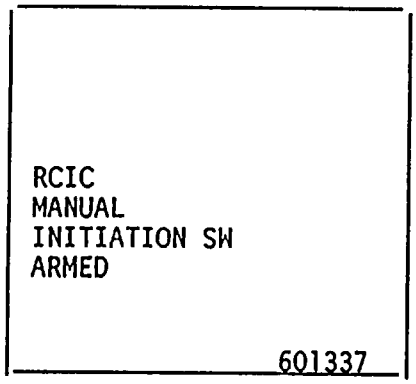
a. Place DIV II Isol Seal-In Reset keylock switch in "NORMAL", as required at P601.

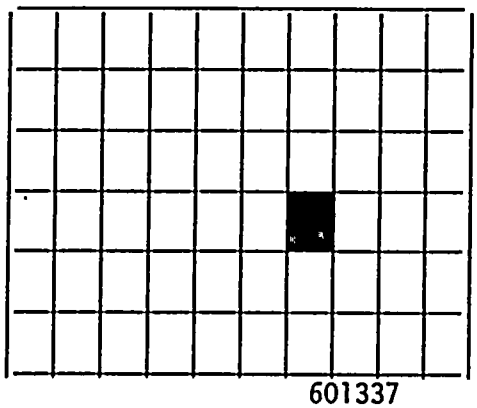
*9

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

34.0 601337 Reactor Core Isolation Cooling Manual Initiation Switch Armed

Reflash: No




601337

34.1

Computer Point	Computer Printout	Source
a. ICSBC03	RCIC MAN INIT SW ARMED	RCIC Manual Initiation pushbutton collar rotated to the "ARMED" position, at P601.

34.2 Automatic Response

NONE

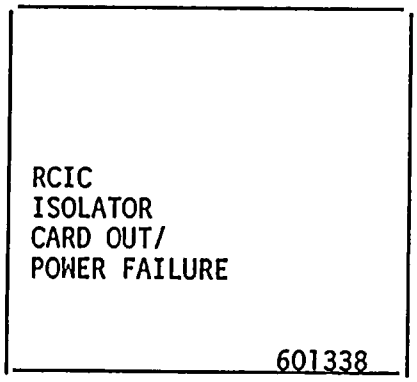
34.3 Corrective Action

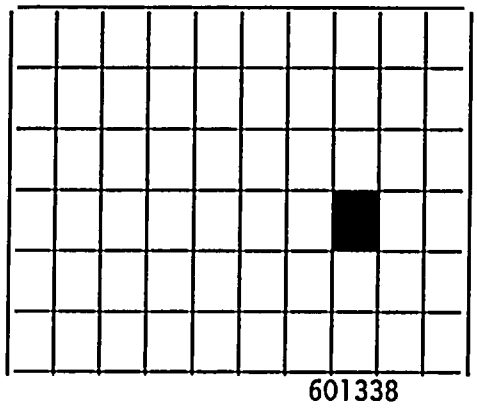
a. Rotate RCIC Manual Initiation pushbutton collar to "NORMAL", as required, at P601.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

35.0 601338 Reactor Core Isolation Cooling Card Out/Power Failure

Reflash: No





35.1

Computer Point	Computer Printout	Source
a. ICSBC05	RCIC ISO CD OUT/ PWR FAIL	RCIC isolator card out of file or loss of power, at P629.

35.2 Automatic Response

NONE

35.3 Corrective Action

a. Replace isolator card to file at P629.

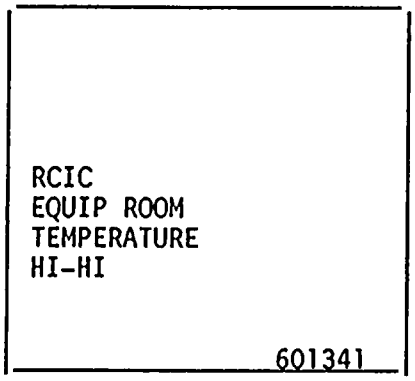
b. Refer to Technical Specifications.

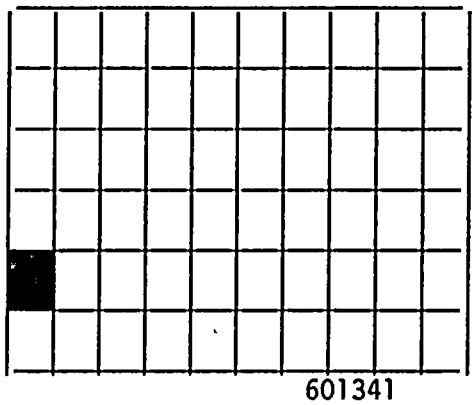
c. Notify I&C.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

36.0 601341 Reactor Core Isolation Cooling Equipment Room Temperature HI-HI

Reflash: No





36.1

Computer Point	Computer Printout	Source	
a. LDSTC41	RCIC EQPT ROOM TEMP RPS D1	RCIC equipment room temperature greater than 135°F (2ICS*TS1602A)	*
b. LDSTC42	RCIC EQPT ROOM TEMP RPS D2	RCIC equipment room temperature greater than 135°F (2ICS*TS1602B)	*

36.2 Automatic Response

a. RCIC trips and isolates, per the following:

1. Turbine Trip Throttle Valve ICS*MOV150 shuts.
2. Turbine Steam Supply Outboard Isol Vlv ICS*MOV121 shuts.
3. Turbine Steam Supply Inboard Isol Vlv ICS*MOV128 shuts.
4. Pump 1 Disch To Reactor ICS*MOV126 shuts.
5. Pump Minimum Flow To Suppression Pool ICS*MOV143 shuts.
6. Turbine Stm Supply Inside Warm Up Vlv ICS*MOV170 shuts.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

36.3 Corrective Action

* *

CAUTION

High RCIC area temperatures are an indication of a possible RCIC steam leak. Exercise extreme caution when entering and/or working in these areas. Notify Radiation Protection prior to entering these areas.

* *

a. Verify automatic response, at P601.

b. Verify RCIC unit cooler operating, per N2-OP-52.

c. Monitor RPV Level and Pressure.

d. Refer to Technical Specifications.

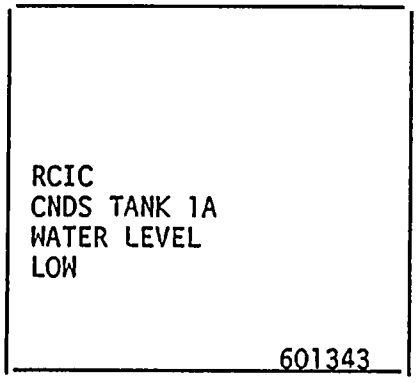
e. Verify RCIC equipment area temperatures at P632 and P613.

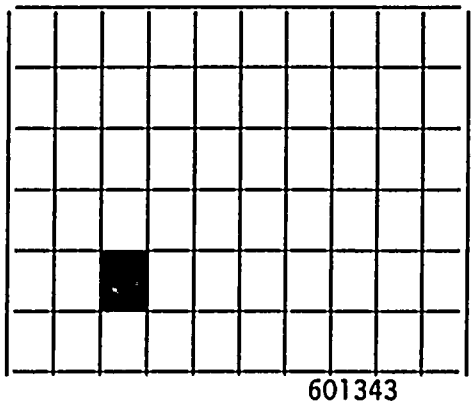
f. Refer to N2-EOP-SC.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

37.0 601343 Reactor Core Isolation Cooling Condensate Tank 1A Water Level Low

Reflash: No





37.1

Computer Point	Computer Printout	Source
a. ICSLC03	RCIC CNST TK1A WTR LVL	Condensate Storage Tank 1A level less than 102.1". (2ICS*LT3A or 3B)

37.2 Automatic Response

a. RCIC Pump suction shifts from the CST to the Suppression Pool, per the following:

1. Pump Suct From Suppression Pool ICS*MOV136 opens.

2. Pump 1 Suct From Condensate Stor Tk ICS*MOV129 shuts.

37.3 Corrective Action

a. Verify automatic response, at P601.

b. Verify Condensate Storage Tk 1A and 1B Levels, at P851.

c. Refill Condensate Storage Tanks, per N2-OP-4.

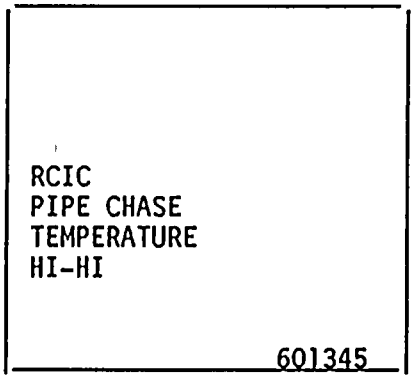
NOTE: Minimize the amount of time RCIC injects into the RPV with suction from the Suppression Pool.

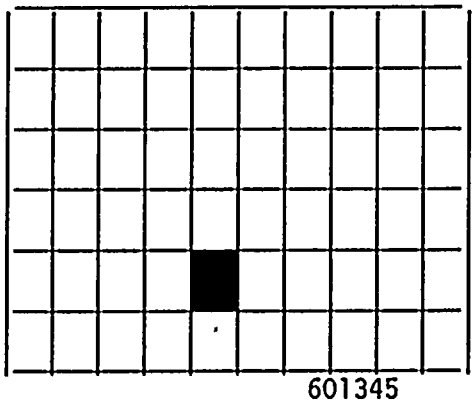
d. Shift RCIC pump suction, as required.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

38.0 601345 Reactor Core Isolation Cooling Pipe Chase Temperature Hi-Hi

Reflash: Yes





38.1

Computer Point	Computer Printout	Source	
a. LDSTC37	RCIC PIPE CHASE TEMP A	RCIC pipe chase area temperature greater than 135°F (2ICS*TS1612A).	*
b. LDSTC38	RCIC PIPE CHASE TEMP B	RCIC pipe chase area temperature greater than 135°F (2ICS*TS1612B).	*

38.2 Automatic Response

a. RCIC trips and isolates per the following:

1. Turbine Trip Throttle Valve ICS*MOV150 shuts.
2. Turbine Steam Supply Outboard Isol Vlv ICS*MOV121 shuts.
3. Turbine Steam Supply Inboard Isol Vlv ICS*MOV128 shuts.
4. Pump 1 Disch To Reactor ICS*MOV126 shuts.
5. Pump Minimum Flow To Suppression Pool ICS*MOV143 shuts.
6. Turbine Stm Supply Inside Warm Up Vlv ICS*MOV170 shuts.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

38.3 Corrective Action

* *

CAUTION

High pipe chase temperature is an indication of a RCIC steam leak. Exercise extreme caution when entering and working in these areas. Notify Radiation Protection prior to entering the area.

* *

a. Verify automatic response, at P601.

b. Verify RCIC unit cooler running, per N2-OP-52.

c. Monitor RPV Level and Pressure.

d. Refer to Technical Specifications.

e. Verify RCIC equipment area temperatures at P632 and P613.

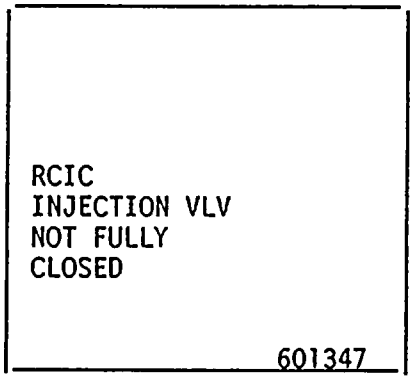
f. Refer to N2-EOP-SC.

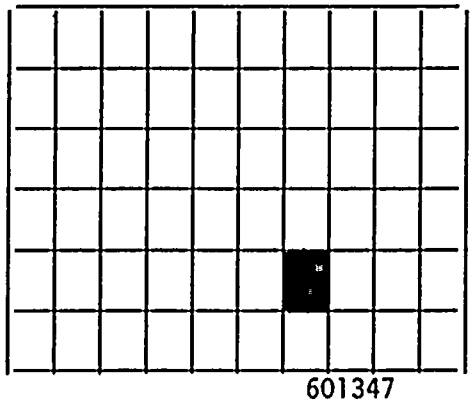
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

39.0 601347 Reactor Core Isolation Cooling Injection Valve Not Fully Closed

Reflash: No

TCN-40





39.1	Computer Point	Computer Printout	Source
	a. ICSZC04	RCIC INJECTION VLV POSN	RCIC Pump 1 Injection Valve, 2ICS*MOV126, not full shut.

39.2 Automatic Response

a. Main turbine trips if a RCIC initiation signal is present.

39.3 Corrective Action

NOTE: This annunciator will be received whenever RCIC is injecting to the vessel.

a. Verify automatic response, at P601, if applicable.

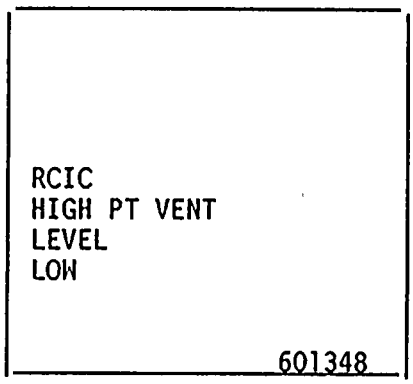
b. Shut Pump 1 Injection Valve ICS*MOV126, as required, at P601.

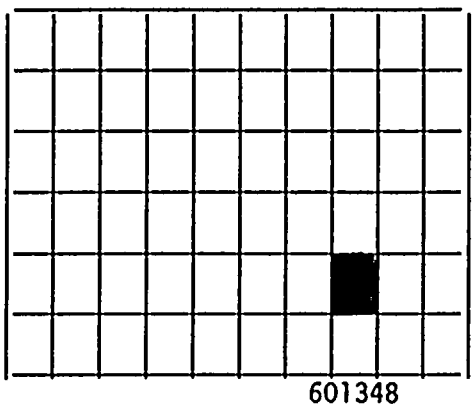
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

40.0 601348 Reactor Core Isolation Cooling High Point Vent Level Low

Reflash: No

TCN-40





40.1	Computer Point	Computer Printout	Source
	a. ICSLC05	RCIC HIGH POINT VENT LVL	RCIC injection header high point vent level low (2ICS*LS221)

40.2 Automatic Response

NONE

40.3 Corrective Action

a. Verify RCIC Water Leg Pump ICS*P2 running, at P601.

b. Perform RCIC Fill and Vent, per Section E.

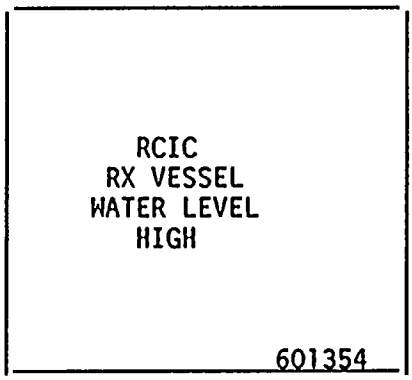
c. Refer to Technical Specifications.

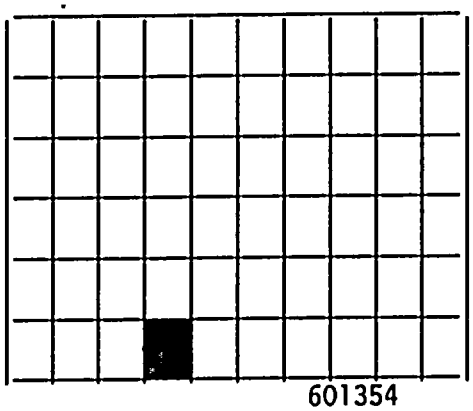
d. Visually inspect RCIC piping and equipment for leaks.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

41.0 601354 RCIC Rx Vessel Water Level High *

Reflash: No





41.1

Computer Point	Computer Printout	Source
a. ICSLC04	RCIC RX WTR LVL	RPV Level 8 (202.3 inches) (2ISC*LT1693A,B,C or D)

41.2 Automatic Response

a. RCIC stops injecting into the RPV per the following:

1. Turbine Steam Supply Vlv ICS*MOV120 shuts.

2. Pump 1 Disch To Reactor ICS*MOV126 shuts.

NOTE: RCIC does not trip or isolate and will restart if RPV level decreases to Level 2 (108.8 inches).

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont)

41.3 Corrective Action

a. Verify automatic response, at P601.

b. Monitor RPV Level and Pressure.

c. If RPV Level decreases to Level 2, verify RCIC restart.

d. Place RCIC in a standby condition, as required.

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*MOV124	Test Return To Condensate Stor Tk (P601)	Shut			
2ICS*FV108	Test Bypass To Condensate Stor Tk (P601)	Shut			
2ICS*MOV120	Turbine Steam Supply Vlv (P601)	Shut			
2ICS*AOV131	Turbine Steam Supply Drain Pot 1 Exh Vlv (P601)	Open Local Handwheel Fully CCW			TCN 44
2ICS*AOV130	Turbine Steam Supply Drain Pot 1 Exh Vlv (P601)	Open Local Handwheel Fully CCW			TCN 44
2ICS-LV132	Turbine Steam Supply Drain Pot 1 Byp Vlv (P601)	Shut			
2ICS*MOV150	Turbine Trip Throttle Valve (P601)	Open			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*HYV151	Turbine Governor Valve (P601)	Open			
2ICS*AOV109	Turbine Exhaust Drain Pot 2 Exh Vlv (P601)	Open Local Handwheel Fully CCW			TCN-44
2ICS*AOV110	Turbine Exhaust Drain Pot 2 Exh Vlv (P601)	Shut Local Handwheel Fully CCW			TCN-44
2ICS*MOV116	Lube Oil Cooling Wtr Supply (P601)	Shut			
2ICS*MOV122	Turbine Exhaust To Suppression Pool (P601)	Open			
2ICS*MOV164	Turbine Exhaust Supp Pool Vacuum Brkr (P601)	Open			
2ICS*MOV136	Pump Suct From Suppression Pool (P601)	Shut			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*MOV143	Pump Minimum Flow To Suppression Pool (P601)	Shut			
2ICS*MOV148	Turbine Exhaust Suppr Pool Vacuum Brkr (P601)	Open			
2ICS*MOV129	Pump 1 Suct From Condensate Stor Tk (P601)	Open			
2ICS*MOV121	Turbine Steam Supply Outboard Isol Vlv (P601)	Open			
2ICS*MOV128	Turbine Steam Supply Inboard Isol Vlv (P601)	Open			
2ICS*MOV170	Turbine Stm Supply Inside Warm Up Vlv (P601)	Shut			
2ICS*AOV156	Reactor Injection Outbd Test Check Vlv (P601)	Shut			
2ICS*MOV126	Pump 1 Disch To Reactor (P601)	Shut			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*AOV157	Reactor Injection Inbd Test Check Vlv (P601)	Shut			
2ICS*MOV159	Turbine Stm Supply Bypass Vlv (P601)	Shut			
2ICS-V187	CST Isol To ICS	Locked Open			
2ICS-V188	ICS Suction From CST Line Drain	Shut and Capped			
2ICS*V229	ICS Suction From CST Line Drain	Shut and Capped			
2ICS*V230	LT3A Instrument Root Isolation	Open			
2ICS*V231	LT3C Instrument Root Isolation	Open			
2ICS*V236	ICS Suct From CST Drain	Shut and Capped			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V140	ICS Full Flow Test Line Test Connection	Shut and Capped			
2ICS*V141	ICS Full Flow Test Line Test Connection	Shut and Capped			
2ICS*V83	ICS Pump Suct Isol	Locked Open			
2ICS*RV114	ICS Pump Suction Relief	Not Gagged			
2ICS*V177	ICS Pump Suction Test Connection	Shut and Capped			
2ICS*V9	RCIC Pump Discharge Isolation	Locked Open			
2ICS*V120	ICS Turbine Lube Oil Cooler Inlet Cooling Water Drain	Shut			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V147	ICS Turbine Lube Oil Cooler Inlet Cooling Water Drain	Shut and Capped			
2ICS*V71	PT104, PT138, Inst Root Isolation	Open			
2ICS*V73	FT102, FT101, RSS*FT106 Inst Root Isolation	Open			
2ICS*V74	FT102, FT101, RSS*FT106 Inst Root Isolation	Open			
2ICS*V143	ICS Pump Discharge Drain	Shut			
2ICS*V112	ICS Pump Discharge Drain	Shut and Capped			
2ICS*V75	LS221 Inst Vent	Shut			
2ICS*V76	LS221 Inst Vent	Shut and Capped			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V174	LS221 Inst Drain	Shut and Capped			
2ICS*V175	LS221 Inst Drain	Shut			
2ICS*V173	LS221 Inst Root Isolation	Open			
2ICS*V78	PT103, PI139 Inst Root Isolation	Open			
2ICS*V132	LS132 Inst Root Isol	Open			
2ICS*V133	LS132 Inst Root Isol	Open			
2ICS*V134	LS132 Inst Root Isol	Open			
2ICS*V135	LS132 Inst Root Isol	Open			
2ICS*V136	LS132 Inst Vent	Shut and Capped			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V137	LS132 Inst Drain	Shut and Capped			
2ICS*V203	MOV120 Byp Line Isol	Locked Open			
2ICS*V204	MOV120 Byp Line Isol	Locked Open			
2ICS*V88	PT1A Inst Root Isol	Open			
2ICS*PSE117	ICS Turbine Exhaust Rupture Disc	Installed			
2ICS*PSE118	ICS Turbine Exhaust Rupture Disc	Installed			
2ICS*V89	PT1B Inst Root Isol	Open			
2ICS*V90	PT2A, 2C Inst Root Isolation	Open			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V91	PT2B, 2D Inst Root Isolation	Open			
2ICS*V27	ICS Pump Suction Check From CST	Installed			
2ICS*V34	Wtr Leg Pump Suct Isol From CST	Locked Open			
2ICS*V228	Wtr Leg Pump Str 1 Test Connection	Shut and Capped			
2ICS*V111	Wtr Leg Pump Suct Str 1 Blowdown	Shut and Capped			
2ICS*V1	Wtr Leg Pump Suct Str 1 Test Conn	Shut and Capped			
2ICS*V97	Wtr Leg Pump Recirc Line Isol	Locked Open			
2ICS*V184	Wtr Leg Pump Recirc Line Isol	Locked Open			
2ICS*V234	Wtr Leg Pump Discharge Root Isol	Shut			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V37	Wtr Leg Pump Discharge Check	Installed			
2ICS*V35	Wtr Leg Pump Discharge Isolation	Locked Open			
2ICS*V15	Drain Pot (ED1) Drain Line Test Connection	Shut			
2ICS*V16	Drain Pot (ED1) Drain Line Test Connection	Shut and Capped			
2ICS-V13	Drain Pot (ED1) Drain Line Trap Isolation	Locked Open			
2ICS-V139	Drain Pot (ED1) Drain Line Trap Drain	Shut			
2ICS-V14	Drain Pot (ED1) Drain Line Trap Isolation	Locked Open			
2ICS*V94	PI140 Inst Root Isolation	Open			
2ICS*V126	LS206 Inst Root Isol	Open			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V127	LS206 Inst Root Isol	Open			
2ICS*V128	LS206 Inst Vent	Shut and Capped			
2ICS*V227	LS206 Inst Drain	Shut and Capped			
2ICS*V36	Drain Pot (ED2) Drain Line Check	Installed			
2ICS*V55	Drain Pot (ED2) Drain Line Drain	Shut and Capped			
2ICS*V22	ICS Pump Drain	Shut			
2ICS*V23	ICS Pump Drain	Shut			
2ICS*V24	ICS Pump Vent	Shut			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V25	ICS Pump Vent	Shut			
2ICS*PCV115	ICS Turbine L.O. Clr Cooling Water PCV	Open			
2ICS*V101	PT115 Inst Root Isol	Open			
2ICS*V252	PT115 Inst Root Isol	Open			
2ICS*RV112	ICS Turbine L.O. Clr Cooling Water Relief	Not Gagged			
2ICS*V117	ICS Turbine L.O. Clr Drain	Shut and Capped			
2ICS*V56	ICS Turbine L.O. Clr Outlet Test Connection	Shut and Capped			
2ICS*V85	PT141, PT105, PT106 Inst Root Isol	Open			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V2	ICS Pump Suction Str 3 Drain	Shut and Capped			
2ICS*V138	ICS Pump Suction Drain	Shut and Capped			
2ICS*RV115	RCIC Turbine L.O. Filter Relief Valve, Hi D/P Filter Bypass	Not Gagged			
2ICS*RV116	RCIC Turbine L.O. System Relief Valve	Not Gagged			
2ICS*STR Select	RCIC Turbine L.O. Stnr Select Valve	STR 1 or STR 2			*2
2ICS*V2000	ICS Turbine G.S. Free End Isolation	Open			
2ICS*V2002	ICS Turbine G.S. Free End Gage Isolation	Open			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V2001	ICS Turbine G.S. Pump End Isolation	Open			
2ICS*V2003	ICS Turbine G.S. Pump End Gage Isolation	Open			
2ICS*V2006	ICS Turbine Governor Valve G.S. Isolation	Open			
2ICS*V2007	ICS Turbine Governor Valve G.S. Gage Isolation	Open			
2ICS*V2004	ICS Turbine Trip Throttle Valve G.S. Isolation	Open			
2ICS*V2005	ICS Turbine Trip Throttle Valve G.S. Gage Isolation	Open			
2ICS*PCV205	ICS Turbine G.S. Compressor Pressure Control Valve	Installed			
2ICS*V2009	ICS Turbine G.S. Compressor Discharge Check	Installed			

TCN-44

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V108	ICS Turbine Exhaust Line Vent	Shut and Capped			
2ICS*V29	ICS Turbine Exhaust Check	Installed			
2ICS*V225	ICS Turbine Exhaust Line Test Connection	Shut and Capped			
2ICS*V248	2ICS*MOV122 Test Connection	Shut			
2ICS*V251	2ICS*MOV122 Test Connection	Shut and Capped			
2ICS*V211	ICS Turbine Exhaust Line Vac Bkr Isolation	Locked Open			
2ICS*V212	ICS Turbine Exhaust Line Vac Bkr Vent	Shut			
2ICS*V241	ICS Turbine Exhaust Line Vac Bkr Vent	Shut and Plugged			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V17	ICS Turbine Exhaust Vacuum Bkr Line Test Conn	Shut and Plugged			
2ICS*V39	ICS Turbine Exhaust Vacuum Bkr Line Check	Installed			
2ICS*V18	ICS Turbine Exhaust Vacuum Bkr Line Test Conn	Shut and Capped			
2ICS*V40	ICS Turbine Exhaust Vacuum Bkr Line Check	Installed			
2ICS*V19	ICS Turbine Exhaust Vacuum Bkr Line Test Conn	Shut and Plugged			
2ICS*V247	MOV136 Test Conn	Shut			
2ICS*V250	MOV136 Test Conn	Shut and Capped			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V28	ICS Pump Suction Check From Suppression Pool	Installed			
2ICS*V113	ICS Pump Suction Vent	Shut and Capped			
2ICS*V200	ICS Pump Recirc Line Drain	Shut and Capped			
2ICS*V201	ICS Pump Recirc Line Drain	Shut			
2ICS*V38	ICS Pump Recirc Line Check	Installed			
2ICS*V220	Wtr Leg Pump Suction Chk From Supp Pool	Installed			
2ICS*V45	ICS Pump Recirc Line Test Conn	Shut			
2ICS*V46	ICS Pump Recirc Line Test Conn	Shut and Capped			
2ICS*V232	ICS Pump Suction Line Drain	Shut and Capped			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V238	ICS Turbine Exhaust Vacuum Bkr Line Isol	Locked Open			
2ICS*V210	ICS Turbine Exhaust Vacuum Bkr Line Test Conn	Shut			
2ICS*V243	ICS Turbine Exhaust Vacuum Bkr Line Test Conn	Shut and Plugged			
2ICS*V79	PDT5A Inst Root Isolation	Open			
2ICS*V80	PDT5A Inst Root Isolation	Open			
2ICS*V81	PDT5B Inst Root Isolation	Open			
2ICS*V82	PDT5B Inst Root Isolation	Open			
2ICS*V233	ICS Pump Suction Line Vent	Shut and Capped			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V249	ICS Pump Suction Check From CST	Installed			
2ICS*V52	PDT168, PT168X Inst Root Isolation	Open			
2ICS*V257	EFV3 Test Conn	Shut			
2ICS*V258	EFV3 Test Conn	Shut and Capped			
2ICS*EFV3	PDT168, PT168X Excess Flow Check	Installed			
2ICS*V53	PDT168, PT168Y Inst Root Isolation	Open			
2ICS*V259	EFV4 Test Conn	Shut			
2ICS*V260	EFV4 Test Conn	Shut and Capped			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*EFV4	PDT168, PT168Y Excess Flow Check	Installed			
2ICS*V20	MOV121 Test Connection	Shut and Capped			
2ICS*V21	MOV121 Test Connection	Shut			
2ICS*V198	ICS Steam Supply Line Drain	Shut			
2ICS*V199	ICS Steam Supply Line Drain	Shut and Capped			
2ICS*V182	MOV128 Test Connection	Shut			
2ICS*V183	MOV128 Test Connection	Shut and Capped			
2ICS*V144	MOV128 Byp Line Manual Isolation	Locked Open			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V196	2ICS*MOV170 Bypass Line Drain	Shut			
2ICS*V197	2ICS*MOV170 Bypass Line Drain	Shut and Capped			
2ICS*V105	ICS Inject Line Drain	Shut			
2ICS*V106	ICS Inject Line Drain	Shut and Capped			
2ICS*V50	PDT167, PT167X Inst Root Isolation	Open			
2ICS*V253	EFV1 Test Conn	Shut			
2ICS*V254	EFV1 Test Conn	Shut and Capped			
2ICS*EFV1	PDT167, PT167X Excess Flow Check	Installed			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V51	PDT167, PT167Y Inst Root Isol	Open			
2ICS*V255	EFV2 Test Conn	Shut			
2ICS*V256	EFV2 Test Conn	Shut and Capped			
2ICS*EFV2	PDT167, PT167Y Excess Flow Check	Installed			
2ICS*V185	ICS Inject Line Drain Inside Refuel Seal	Shut			
2ICS*V186	ICS Inject Line Drain Inside Refuel Seal	Shut and Capped			
2ICS*V206	Drain Pot (ED 1) Drain Line Drain	Shut and Capped			
2ICS*V178	ICS Inject Line Vent Inside Refuel Seal	Shut and Capped			

Remarks:

ATTACHMENT 1
VALVE LINEUP

Valve No.	Description	Normal Position	Actual Position	Initial & Date	Verified By Initial & Date
2ICS*V179	ICS Inject Line Vent Inside Refuel Seal	Shut			
2ICS*V246	PT115 Inst Drain	Shut and Capped			
2ICS-V207	Drain POT (ED 1) Drain Line Vent	Shut and Capped			
2ICS*V202	Wtr Leg Pump Suct Isol From Supp Pool	Locked Open			

Remarks:

ATTACHMENT 2: SYSTEM ELECTRICAL LINEUP SHEET

PROCEDURE NUMBER	PROCEDURE TITLE
N2-OP-35	REACTOR CORE ISOLATION COOLING

POWER SUPPLY

COMPONENT NO.	COMPONENT DESCRIPTION	Bus Number	Cubical/ Breaker	LOCATION	REQUIRED POSITION	ACTUAL POSITION	INITIALS/ AND DATE	INDEP. VERIF INIT./DATE	REMARKS
2ICS*C1	Turbine Gland Seal Compressor	2BYS-SWG001B	3C		ON				
2ICS*FV108	RCIC Test Bypass To Condensate Storage Tank	2DHS* MCCA1	5A		ON				
2ICS*MOV116	RCIC Turbine Lube Oil Cooler Water Supply	2DHS* MCCA1	5B		ON				
2ICS*MOV120	RCIC Turbine Steam Supply Valve	2DHS* MCCA1	4A		ON				
2ICS*MOV122	RCIC Turbine Exhaust To Suppression Pool	2DHS* MCCA1	2C		ON				
2ICS*MOV124	RCIC Test Return To Condensate Storage Tank	2DHS* MCCA1	2B		ON				
2ICS*MOV126	RCIC Pump Discharge To Reactor	2DHS* MCCA1	6C		ON				

ATTACHMENT 2: SYSTEM ELECTRICAL LINEUP SHEET (Cont)

PROCEDURE NUMBER: N2-OP-35
PROCEDURE TITLE: REACTOR CORE ISOLATION COOLING

POWER SUPPLY

COMPONENT NO.	COMPONENT DESCRIPTION	Bus Number	Cubical/ Breaker	LOCATION	REQUIRED POSITION	ACTUAL POSITION	INITIALS/ AND DATE	INDEP. VERIF INIT./DATE	REMARKS
2ICS*MOV129	RCIC Pump Suction From Condensate Storage Tank	2DMS* MCCA1	3A		ON				
2ICS*MOV136	RCIC Pump Suction From Suppression Pool	2DMS* MCCA1	3B		ON				
2ICS*MOV143	RCIC Pump Minimum Flow To Suppression Pool	2DMS* MCCA1	3C		ON				
2ICS*MOV150	RCIC Turbine Trip Throttle Valve	2DMS* MCCA1	3D		ON				
2ICS*MOV164	RCIC Turbine Exhaust Suppr Pool Vacuum Breaker	2DMS* MCCA1	5C		ON				
2ICS*P2	RCIC Water Leg Pump	2EHS* MCC102	16B		ON				
2ICS*MOV128	RCIC Steam Supply Inboard Isol Valve	2EHS* MCC302D	14A		ON				

ATTACHMENT 2: SYSTEM ELECTRICAL LINEUP SHEET (Cont)

PROCEDURE NUMBER	PROCEDURE TITLE
N2-OP-35	REACTOR CORE ISOLATION COOLING

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubical/ Breaker	LOCATION	REQUIRED POSITION	ACTUAL POSITION	INITIALS/ AND DATE	INDEP. VERIF INIT./DATE	REMARKS
2ICS-H1	RCIC Gland Seal Compressor Motor Heater	2SCA-PNL406	6		ON				
2ICS*MOV121	RCIC Steam Supply Outboard Isol Valve	2EHS* MCC102C	17C		ON				
2ICS*MOV148	RCIC Turbine Exhaust Suppr Pool Vacuum Breaker	2DMS* MCCB1	2B		ON				
2ICS*MOV170	RCIC Steam Supply Inside Harm Up Valve	2EHS* MCC302D	14B		ON				
2ICS*AOV131	Turbine Steam Supply Drain Pot 1 Exhaust Vlv	2BYS* PNL201B	2		ON				
2ICS*AOV130	Turbine Steam Supply Drain Pot 1 Exhaust Vlv	2BYS* PNL201A	5		ON				

ATTACHMENT 2: SYSTEM ELECTRICAL LINEUP SHEET (Cont)

PROCEDURE NUMBER	PROCEDURE TITLE
N2-OP-35	REACTOR CORE ISOLATION COOLING

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubical/ Breaker	LOCATION	REQUIRED POSITION	ACTUAL POSITION	INITIALS/ AND DATE	INDEP. VERIF INIT./DATE	REMARKS
2ICS-LV132	Turbine Steam Supply Drain Pot 1 Bypass Vlv	2BYS-PNLA102	9		ON				TCN-45
2ICS*AOV109	Turbine Exhaust Drain Pot 2 Exhaust Vlv	2BYS* PNL201B	2		ON				
2ICS*AOV110	Turbine Exhaust Drain Pot 2 Exhaust Vlv	2BYS* PNL201A	5		ON				
2ICS*AOV156	RCIC Injection Outboard Testable Check	2SCM* PNL101A	3		ON				
2ICS*AOV157	RCIC Injection Inboard Testable Check	2SCM* PNL101A	3		ON				
2ICS*MOV159	Turbine Steam Supply Bypass Valve	2DMS* MCCA1	5D		ON				

ATTACHMENT 2: SYSTEM ELECTRICAL LINEUP SHEET (Cont)

PROCEDURE NUMBER	PROCEDURE TITLE
N2-OP-35	REACTOR CORE ISOLATION COOLING

POWER SUPPLY

COMPONENT NO.	COMPONENT DESCRIPTION	Bus Number	Cubical/ Breaker	LOCATION	REQUIRED POSITION	ACTUAL POSITION	INITIALS/ AND DATE	INDEP. VERIF INIT./DATE	REMARKS
2ICSN16	RCIC Div I Relay Logic	2BYS* PNL201A	6		ON				
2ICSN19	RCIC Div II Relay Logic	2BYS* PNL201B	5		ON				
2ICSN22	RCIC Div II Status Lights	2SCM* PNL301B	2		ON				
2ICS*FC101	RCIC Flow Controller	2VBS* PNL101A	24		ON				
-----	RCIC Turbine Ramp Signal Controller	2VBS* PNL101A	17		ON				

ATTACHMENT 2: SYSTEM ELECTRICAL LINEUP SHEET (Cont)

PROCEDURE NUMBER	PROCEDURE TITLE
N2-OP-35	REACTOR CORE ISOLATION COOLING

POWER SUPPLY

COMPONENT NO.	COMPONENT DESCRIPTION	Bus Number	Cubical/ Breaker	LOCATION	REQUIRED POSITION	ACTUAL POSITION	INITIALS/ AND DATE	INDEP. VERIF INIT./DATE	REMARKS
2ICSN17	Div I Status Indication	2BYS* PNL201A	5		ON				
2ICSN20	RCIC Flow Control	2VBS* PNL101A	24		ON				
2ICSN21	Div I Status Indication	2SCM* PNL101A	3		ON				
2ICSN22	Div II Status Indication	2SCM* PNL301B	2		ON				

TCN-45

ATTACHMENT 3: CONTROLLER LINEUP

PROCEDURE NUMBER	PROCEDURE TITLE									
N2-OP-35	REACTOR CORE ISOLATION COOLING									
		POWER SUPPLY								
COMPONENT NO.	COMPONENT LOCATION	Bus Number	-	Cubical/ Breaker	LOCATION	REQUIRED POSITION	ACTUAL POSITION	INITIALS/ AND DATE	INDEP. VERIF INIT./DATE	REMARKS
2ICS*FC101	P601				AUTO 600 GPM					RCIC Flow Control