

HOPE CREEK GENERATING STATION

HC.OP-AR.ZZ-0014(Q) - Rev. 29

OVERHEAD ANNUNCIATOR WINDOW BOX D3

USE CATEGORY: II

-
- Packages and Affected Document Numbers incorporated into this revision:
 CP No. _____ CP Rev. _____ AD No. _____ Rev No. _____ None ✓
 - The following OPEX were incorporated into this revision: None
 - The following OTSCs were incorporated into this revision: None
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REVISION SUMMARY

70109589-0050

- Adds list of Regulator/Static switch and Rectifier fuses and associated impact on inverter operability to Attachment E3.
- Adds PE154Q-0016, 0017 and 0019 to Attachment E3 References.

IMPLEMENTATION REQUIREMENTS

Effective Date 8/24/10

None

OVERHEAD ANNUNCIATOR WINDOW BOX D3

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ATTACHMENT A1

HPCI/RHR A
 AREA LEAK
 TEMP HI

Window Location D3-A1

OPERATOR ACTION:

1. IF HPCI Turbine has tripped,
RESPOND in accordance with HC.OP-AR.ZZ-0006(Q), Attachment A4.

2. IF HPCI Turbine has not tripped,
PERFORM the following in quick succession:
 - 2.1 **DETERMINE** the Channel that initiated this alarm from the digital points
OR NUMAC Monitor 10C620-Z6 (1SKXR-11501)
OR 10C641-Z8 (1SKXR-11504).
 - 2.1.1. **CHECK** the NUMAC page of this attachment for Channel(s) in respective monitor, which initiated alarm.

NOTE
 Channel A Monitor is in Panel 10C620, Channel C Monitor is in Panel 10C641.

- 2.2 **CHECK** area cooling
 - 2.3 **MAXIMIZE** area cooling
 - 2.4 IF continued operation is not required,
SHUT DOWN HPCI.
 - 2.5 IF the Turbine is injecting water into Reactor Vessel AND
IF it is desirable to continue the operation,
PLACE CHANNEL A(C) ISOLATION BYPASS SWITCH in BYPASS
 (Local Panel P620 (P641)).
3. **REFER** to HC.OP-EO.ZZ-0103(Q) Reactor Building Control.

(continued on next page)

ATTACHMENT A1

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D5862	HPCI STM LEAK DETECT TEMP CH C NUMAC MONITOR 10C641-Z8(1SKXR-11504)	ALARM HI Possible HPCI Isolation <u>AND</u> Turbine trip
D5864 NUMAC	HPCI/RHR STM LEAK DET TEMP CH A MONITOR 10C620-Z6(1SKXR-11501)	ALARM HI Possible HPCI Isolation <u>AND</u> Turbine trip

REFERENCES: J-25-0, Sht. 8
M-25-1, Sht. 2
N1-E41-1050-64(6)3
N1-B21-1050-64(6)11
N1-E41-1040-62(5)20
N1-E41-1050-64(2)4
N1-B21-1050-64(2)12

ATTACHMENT A1

NUMAC CHANNEL	Nomenclature/Condition Automatic	Action
10C641-Z8 (1SKXR-11504) MONITOR		
A1-1	HPCI RM 4111 AMB T N030C-2	Alarm Hi ISOLATION
A1-2	HPCI RM 4327 AMB T N025C-2	Alarm Hi 15 min. time delay ISOL
A1-3	HPCI RM 4102 AMB T N025G-2	Alarm Hi 15 min. time delay ISOL
A1-4	HPCI RM 4102 AMB T N025L-2	Alarm Hi 15 min. time delay ISOL
A1-5	HPCI RM 4102 AMB T N025R-2	Alarm Hi 15 min. time delay ISOL
A2-1	HPCI RM 4111 AMB T N028C/29C-2	Alarm Hi ISOLATION
10C620-Z6 (1SKXR-11501) MONITOR		
A1-1	HPCI RM 4111 AMB T N024-2	Alarm Hi
A1-2	HPCI RM 4111 AMB T N030A-2	Alarm Hi ISOLATION
A1-3	HPCI RM 4327 AMB T N025A-2	Alarm Hi 15 min. time delay ISOL
A1-4	HPCI RM 4102 AMB T N025E-2	Alarm Hi 15 min. time delay ISOL
A1-5	HPCI RM 4102 AMB T N025J-2	Alarm Hi 15 min. time delay ISOL
A1-6	HPCI RM 4102 AMB T N025N-2	Alarm Hi 15 min. time delay ISOL
A2-1	HPCI RM 4111 delta T N028A/29A-2	Alarm Hi ISOLATION
A3-1	RHR RM 4214 AMB T N009A-2	Alarm Hi
A3-2	RHR RM 4214 delta T N029A/30A-2	Alarm Hi

REFERENCES: J-25-0, Sht. 8
 N1-E41-1040-62(5)20
 N1-E41-1050-64(6)3

M-25-1, Sht. 2
 N1-E41-1050-64(2)4

ATTACHMENT A2

RCIC/RHR B
AREA LEAK
TEMP HI

Window Location D3-A2

OPERATOR ACTION:

1. IF RCIC Turbine has tripped
RESPOND in accordance with HC.OP-AR.ZZ-0006(Q), Attachment A1.

2. IF RCIC Turbine has not tripped
PERFORM the following in quick succession:
 - 2.1 **DETERMINE** the Channel that initiated this alarm from the Digital Points
OR NUMAC Monitor 10C621-Z5 (1SKXR-11502)
OR 10C640-Z7 (1SKXR-11503).
 - 2.1.1. **CHECK** the NUMAC page of this attachment for Channel(s) in respective monitor which initiated alarm.

NOTE

Channel B Trip Units are in 10C621, Channel D are in 10C640.

- 2.2 **CHECK** area cooling
 - 2.3 **MAXIMIZE** area cooling
 - 2.4 IF continued operation is not required,
SHUT DOWN RCIC.
 - 2.5 IF the turbine is injecting water into Reactor Vessel AND
IF it is desirable to continue the operation,
PLACE CHANNEL B(D) ISOLATION BYPASS SWITCH in BYPASS
 (Local Panel P621 (P640)).
3. **REFER** to HC.OP-EO.ZZ-0103(Q) Reactor Building Control
- (continued on next page)

ATTACHMENT A2

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D5858 TEMP NUMAC	RCIC STM LEAK DETECT CH D MONITOR 10C640-Z7(1SKXR-11503)	ALARM HI Possible RCIC Isolation <u>AND</u> turbine trip
D5860 TEMP NUMAC 10C62	RCIC/RHR STM LEAK DET CH B MONITOR 1-Z5(1SKXR-11502)	ALARM HI Possible RCIC Isolation <u>AND</u> turbine trip

REFERENCES: J-25-0, Sht. 8
 N1-E41-1040-62(5)20
 N1-E41-1050-64(6)3
 N1-B21-1050-64(6)11

M-25-1, Sht. 2
 N1-B21-1050-64(2)12
 N1-E41-1050-64(2)4

ATTACHMENT A2

NUMAC CHANNEL	Nomenclature/Condition Automatic	Action
10C640-Z7 (1SKXR-11503) MONITOR		
AI-1	RCIC RM 4110 AMB T N023D-2	ALARM HI ISOLATION
A1-2	RCIC RM 4319 AMB T N025D-2	ALARM HI 30 min. time delay ISOL
A1-3	RCIC RM 4102 AMB T N025H-2	ALARM HI 30 min. time delay ISOL
A1-4	RCIC RM 4102 AMB T N025M-2	ALARM HI 30 min. time delay ISOL
A1-5	RCIC RM 4102 AMB T N025S-2	ALARM HI 30 min. time delay ISOL
A2-1	RCIC RM 4110 delta T N021D/22D-2	ALARM HI ISOLATION
10C621-Z5 (1SKXR-11502) MONITOR		
AI-1	RCIC RM 4110 AMB T N011-2	ALARM HI
A1-2	RCIC RM 4110 AMB T N023B-2	ALARM HI ISOLATION
A1-3	RCIC RM 4319 AMB T N025B-2	ALARM HI 30 min. time delay ISOL
A1-4	RCIC RM 4102 AMB T N025F-2	ALARM HI 30 min time delay ISOL
AI-5	RCIC RM 4102 AMB T N025R-2	ALARM HI 30 min. time delay ISOL
A1-6	RCIC RM 4102 AMB T N025P-2	ALARM HI 30 min. time delay ISOL
A2-1	RCIC RM 4110 delta T N021B/22B-2	ALARM HI ISOLATION
A3-1	RHR RM 4208 AMB T N009B-2	ALARM HI
A3-2	RHR RM 4208 delta T N029B/30B-2	ALARM HI

REFERENCES: J-25-0, Sht. 8
 N1-E51-1040-59(6)18
 N1-E41-1050-64(6)3
 N1-E51-1040-59(16)15

M-25-1, Sht. 2
 N1-E51-1040-59(15)18
 N1-E41-1050-64(2)4

ATTACHMENT A3

NUMAC CHANNEL	Nomenclature/Condition Automatic	Action
10C609-Z1 (1SKXR-11497) MONITOR		
AI-1	MSLA AMB T N014-2	ALARM HI
A1-4	MSLA AMB T N012A-2	ALARM HI ISOLATE
A1-5	MSLA AMB T N013A-2	ALARM HI ISOLATE
A1-6	MSLA delta T N016/17-2	ALARM HI
A2-1	RWCU RM 4403 delta T N022A/23A-2	ALARM HI ISOLATE
A2-2	RWCU RM 4506 delta T N022AA/23AA-2	ALARM HI ISOLATE
A2-3	RWCU RM 4405 delta T N022E/23E-2	ALARM HI ISOLATE
A2-4	RWCU RM 4506 delta T N022J/23J-2	ALARM HI ISOLATE
A2-5	RWCU RM 4505 delta T N022N/23N-2	ALARM HI ISOLATE
A2-6	RWCU RM 4402 delta T N022T/23T-2	ALARM HI ISOLATE
A3-1	RWCU RM 4403 AMB T N016A-2	ALARM HI ISOLATE
A3-2	RWCU RM 4506 AMB T N016AA-2	ALARM HI ISOLATE
A3-3	RWCU RM 4405 AMB T N016E-2	ALARM HI ISOLATE
A3-4	RWCU RM 4506 AMB T N016J-2	ALARM HI ISOLATE
A3-5	RWCU RM 4505 AMB T N016N-2	ALARM HI ISOLATE
A3-6	RWCU RM 4402 AMB T N016T-2	ALARM HI ISOLATE
A4-2	MSLA AMB T N010A-1	ALARM HI ISOLATE
A4-3	MSLA AMB T N011A-1	ALARM HI ISOLATE
10C609-Z2 (1SKXR-11498) MONITOR		
A1-3	MLSC AMB T N012C-2	ALARM HI ISOLATE
A1-4	MLSC AMB T N013C-2	ALARM HI ISOLATE
A4-1	MLSC AMB T N010C-1	ALARM HI ISOLATE
A4-2	MLSC AMB T N011C-1	ALARM HI ISOLATE

REFERENCES: M-25-1, Sht. 2, Sht. 3
 N1-B21-1090-62(15)13
 N1-B21-1050-64(6)-11

N1-B21-1050-64(6)-11
 N1-B21-1090-62(11)16

ATTACHMENT A3

NUMAC CHANNEL	Nomenclature/Condition Automatic	Action
10C611-Z4 (1SKXR-11499) MONITOR		
A1-3	MLSD AMB T N012D-2	ALARM HI ISOLATE
A1-4	MLSD AMB T N013D-2	ALARM HI ISOLATE
A2-1	RWCU RM 4403 delta T N022D-2	ALARM HI ISOLATE
A2-2	RWCU RM 4506 delta T N022DD/23DD-2	ALARM HI ISOLATE
A2-3	RWCU RM 4405 delta T N022H/23H-2	ALARM HI ISOLATE
A2-4	RWCU RM 4406 delta T N022M/23M-2	ALARM HI ISOLATE
A2-5	RWCU RM 4505 delta T N022S/23S-2	ALARM HI ISOLATE
A2-6	RWCU RM 4402 delta T N022W/23W-2	ALARM HI ISOLATE
A3-1	RWCU RM 4403 AMB T N016D-2	ALARM HI ISOLATE
A3-2	RWCU RM 4506 AMB T N016DD-2	ALARM HI ISOLATE
A3-3	RWCU RM 4405 AMB T N016H-2	ALARM HI ISOLATE
A3-4	RWCU RM 4506 AMB T N016M-2	ALARM HI ISOLATE
A3-5	RWCU RM 4505 AMB T N016S-2	ALARM HI ISOLATE
A3-6	RWCU RM 4402 AMB T N016W-2	ALARM HI ISOLATE
A4-1	MSLD AMB T N010D-1	ALARM HI ISOLATE
A4-2	MSLD AMB T N011D-1	ALARM HI ISOLATE
10C611-Z3 (1SKXR-11500) MONITOR		
A1-3	MSLB AMB T N012B-2	ALARM HI ISOLATE
A1-4	MSLB AMB T N013B-2	ALARM HI ISOLATE
A4-1	MSLB AMB T N010B-1	ALARM HI ISOLATE
A4-2	MSLB AMB T N011B-1	ALARM HI ISOLATE

REFERENCES: M-25-1, Sht. 2, Sht. 3
 N1-B21-1090-62(13)16
 N1-B21-1050-64(6)-11

N1-B21-1050-64(6)-11
 N1-B21-1090-62(16)16

ATTACHMENT A4

<p>RPV</p> <p>FLANGE</p> <p>LEAK</p>

Window Location D3-A4

CAUTION

Draining the instr. Line to clear the alarm should be limited to one operation, otherwise steam cutting of the flange may occur.

OPERATOR ACTION:

1. IF RPV FLANGE LEAK alarm received during initial RPV heatup following a Refueling Outage,
AND the Drywell is still accessible,
THEN DRAIN B21-PSH-N002 instrument line as follows:

OPEN 1-BB-V206
AND 1-BB-V207 to relieve pressure while monitoring for flow noise.
IF continuous flow noise detected,
IMMEDIATELY CLOSE valves to prevent wire-draw damage to RPV Flange.
 Otherwise **CLOSE** valves after sensing line depressurized and alarm clears.
2. IF RPV FLANGE LEAK alarm received after RPV heatup following a refueling outage,
 DO NOT drain the sensing line.
3. **GENERATE** a NOTF to inspect seal/flange at next refuel.
4. **NOTIFY** responsible System Engineer.
5. **ASSESS** the severity of the situation by checking TR-4967B2 DRYWELL ATMOSPHERE TEMPERATURE.
6. **REQUEST** SM/CRS to get Drywell atmosphere sample analyzed for abnormal radiation.
7. **ENSURE** compliance with the no PRESSURE BOUNDARY LEAKAGE requirement of Technical Specification 3/4.4.3.2.

(continued on next page)

ATTACHMENT A4

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
Overhead annunciator only	Hi press between RPV head flange O-rings due to failure of inner O-ring. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;"><u>NOTE</u></p> <p>PSH N002 – setpoint 500 psig, is the origin of alarm.</p> </div>	Alarm only <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;"><u>NOTE</u></p> <p>This is an expected condition/ alarm during the initial RPV heatup following a refueling outage.</p> </div>

REFERENCES: N1-B21-65(4)-10; M-41-1
E-6765-0 Sht 3

ATTACHMENT A5

<p>TURBINE</p> <p>GENERATOR</p> <p>TRIP</p>
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Window Location D3-A5

OPERATOR ACTION

RESPOND in accordance with HC.OP-AB.BOP-0002(Q); Main Turbine.

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action	
D2015	TURB MASTER TRIP	Turbine Generator trip	
<table border="1" style="margin: auto; padding: 10px;"> <tr> <td style="text-align: center;"> <p><u>NOTE</u></p> <p>The following digital points will alarm D2015 as well as this overhead.</p> </td> </tr> </table>			<p><u>NOTE</u></p> <p>The following digital points will alarm D2015 as well as this overhead.</p>
<p><u>NOTE</u></p> <p>The following digital points will alarm D2015 as well as this overhead.</p>			
D2016	TURB SHAFT PMP LO PRESS TRIP	Turbine Generator trip	
D2017	TURB EXH HOOD HI TEMP TRIP	Turbine Generator trip	
D2018	MSTRE SEPR A HI LVL TRIP	Turbine Generator trip	
D2019	LOSS OF STATOR COOLANT TRIP	Turbine Generator trip	
D2020	AXIAL POSITION TRIP	Turbine Generator trip	
D2021	EHC LOW PRESS TRIP	Turbine Generator trip	
D2022	MASTER PUSHBUTTON TRIP	Turbine Generator trip	
D2024 MN	TURB EMERG OVERSPEED TRIP	Turbine Generator trip	
D2025	MN TURB SPEED SIG LOST TRIP	Turbine Generator trip	

REFERENCES: J-0100-0, Sht. 8, Sht. 9, Sht. 10, Sht. 18,

DCP 80048294

ATTACHMENT A5

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D2026	MAIN TURBINE LOW VACUUM TRIP	Turbine Generator trip
D2028	MSTRE SEPR B HI LVL TRIP	Turbine Generator trip
D2029	LUBE OIL LOW PRESSURE TRIP	Turbine Generator trip
D2030	POWER LOAD UNBALANCE TRIP	Turbine Generator trip
S1_P5 (DEHC HMI)	MN TURB PRIMARY OVERSPEED TRIP	Turbine Generator trip
D5555	TURB PRIMARY SPEED SIGNAL LOST	Turbine Generator trip
D5556	TURB EMERG SPEED SIGNAL LOST	Turbine Generator trip
D5558	EHC PANEL POWER LOST	Turbine Generator trip

REFERENCES: J-0100-0, Sht. 8, Sht. 9, Sht. 10, Sht. 18,

DCP 80048294

ATTACHMENT A5

DIGITAL ALARM POINT S1_P5 (DEHC HMI)

NOMENCLATURE SETPOINT TURB PRIMARY OVERSPEED TRIP 1944 rpm (108 %)

DESCRIPTION ORIGIN Main Turbine trip due to primary overspeed device S1L12HA

AUTOMATIC ACTION:

Turbine Generator trips

OPERATOR ACTION:

RESPOND in accordance with HC.OP-AB.BOP-0002(Q); Main Turbine.

CAUSE CORRECTIVE ACTION	CTIVE ACTION
1. Turbine Overspeed 2/3 sensors	1A. REQUEST SM/CRS to initiate a NOTF.

REFERENCES: J-0100-0, Sht. 8, Sht. 9, Sht. 10, Sht. 18 DCP 80048294

ATTACHMENT B1

NUMAC CHANNEL	Nomenclature/Condition Automatic	Action
10C641-Z8 (1SKXR-11504) MONITOR		
A1-2	HPCI RM 4327 AMB T N025C-2	Timer Initiated
A1-3	HPCI RM 4102 AMB T N025G-2	Timer Initiated
AI-4	HPCI RM 4102 AMB T N025L-2	Timer Initiated
A1-5	HPCI RM 4102 AMB T N025R-2	Timer Initiated
10C620-Z6 (1SKXR-11501) MONITOR		
A1-3	HPCI RM 4327 AMB T N025A-2	Timer Initiated
A1-4	HPCI RM 4102 AMB T N025E-2	Timer Initiated
AI-5	HPCI RM 4102 AMB T N025J-2	Timer Initiated
A1-6	HPCI RM 4102 AMB T N025N-2	Timer Initiated

REFERENCES: J-25-0, Sht. 8
 N1-B21-1050-64(6)11

M-25-1, Sht. 2
 N1-B21-1050-64(2)12

ATTACHMENT B2

RCIC STM LK
ISLN TIMER
INITIATED

Window Location D3-B2

OPERATOR ACTION:

1. IF RCIC not needed to maintain Rx vessel level,
PRESS REACTOR CORE ISLN COOLING ISLN LOGIC B TRIP PB.

2. **ENSURE** compliance with operability requirements of Technical Specification 3/4.7.4.
REACTOR CORE ISOLATION COOLING SYSTEM.

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D5859 NUMAC 10C64	RCIC LEAK DET TIMER DELAY CH D MONITOR 0-Z7(1SKXR-11503)	RCIC isolation <u>AND</u> turbine trip after a 30 minute time delay.
D5861 NUMAC 10C62	RCIC LEAK DET TIMER DELAY CH B MONITOR 1-Z5(1SKXR-11502)	RCIC isolation <u>AND</u> turbine trip after a 30 minute time delay.

REFERENCES: J-25-0, Sht. 8
N1-B21-1050-64(6)11

M-25-1, Sht. 2
N1-B21-1050-64(2)12

ATTACHMENT B2

NUMAC CHANNEL	Nomenclature/Condition Automatic	Action
10C640-Z7 (1SKXR-11503) MONITOR		
A1-2	RCIC RM 4319 AMB T N025D-2	TIMER INITIATED
A1-3	RCIC RM 4102 AMB T N025H-2	TIMER INITIATED
A1-4	RCIC RM 4102 AMB T N025M-2	TIMER INITIATED
A1-5	RCIC RM 4102 AMB T N025S-2	TIMER INITIATED
10C621-Z5 (1SKXR-11502) MONITOR		
A1-3	RCIC RM 4319 AMB T N025B-2	TIMER INITIATED
A1-4	RCIC RM 4102 AMB T N025F-2	TIMER INITIATED
A1-5	RCIC RM 4102 AMB T N025R-2	TIMER INITIATED
A1-6	RCIC RM 4102 AMB T N025P-2	TIMER INITIATED

REFERENCES: J-25-0, Sht. 8

M-25-1, Sht. 2

ATTACHMENT B3

RWCU STM LK
ISLN TIMER
INITIATED

Window Location D3-B3

OPERATOR ACTION:

1. **ENSURE** RWCU System isolates IE conditions still exist for isolation after 45 sec. Time delay.
2. **MINIMIZE** system transients which may cause high differential flow.

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D5871 NUMAC 10C61	RWCU ISLN TIMER INITIATED CH D MONITOR 1-Z4(1SKXR-11499)	RWCU isolation after a 45 sec time delay.
D5873 NUMAC 10C60	RWCU ISLN TIMER INITIATED CH A MONITOR 9-Z1(1SKXR-11497)	RWCU isolation after a 45 sec time delay.

REFERENCES: N1-B21-64-1 J-25-0,
N1-B21-1050-64(6)11

Sht. 9

M-44-1

ATTACHMENT B3

NUMAC CHANNEL	Nomenclature/Condition Automatic	Action
10C611-Z4 (1SKXR-11499) MONITOR		
RWCU #1	RWCU INLET – N035	TIMER INITIATED
RWCU #2	CAVS FLOW – 11479	TIMER INITIATED
RWCU #3	RWCU DISCHARGE – N040	TIMER INITIATED
RWCU #4	RWCU BLOW DOWN – N011	TIMER INITIATED
10C609-Z1 (1SKXR-11497) MONITOR		
RWCU #1	RWCU INLET – N035	TIMER INITIATED
RWCU #2	CAVS FLOW – 11479	TIMER INITIATED
RWCU #3	RWCU DISCHARGE – N040 TIMER	INITIATED
RWCU #4	RWCU BLOW DOWN – N011	TIMER INITIATED

REFERENCES: N1-B21-64-1
M-44-1

J-25-0, Sht. 9

ATTACHMENT B5

**TURBINE
GENERATOR
TROUBLE**

Window Location D3-B5

OPERATOR ACTION:

1. **ENSURE** lube oil is being supplied to Main Turbine bearings at the proper pressure AND temperature.
2. **ENSURE** proper turning gear operation.

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D3624	MN TURB QUILL SHAFT FAILURE	Alarm only
D3625	MN TURB TURNING GEAR MALF/INOP	Alarm only
D5589 MACHINE	BEARING TEMP	Alarm only

REFERENCES: J-0100-0, Sht. 2, Sht. 12, Sht. 13, Sht. 18

ATTACHMENT C1

REACTOR
BLDG SUMP
LEAK HI

Window Location D3-C1

OPERATOR ACTION:

1. **CONFIRM** proper sump pump operation.
2. IF__ sump run is excessive,
CONTACT Radwaste to determine
IF run times have increased.
3. **INVESTIGATE** possible excess input to sumps.

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D5874	REAC BLDG EQUIP DRN SUMP A LVL	Alarm only
D5875	REAC BLDG EQUIP DRN SUMP B LVL	Alarm only
D5876 AT265	REAC BLDG FLOOR DRN SUMP A LVL	Alarm only
D5877 BT265	REAC BLDG FLOOR DRN SUMP B LVL	Alarm only

NOTE

Alarm occurs when:

1. Sump pump is unable to reduce level to pump shutoff point before a timer times out, OR
2. Sump refills AND restarts pump before a second timer times out.

REFERENCES: J-25-0, Sht. 10 M-61-1, Sht 2 GEK 90300, VOL 6, Part II
CD-040X FSAR 5.2.5.2.2
CD-028A NRC 1E B 80-24

ATTACHMENT C2

REACTOR
BLDG SUMP
LVL HI/LO

Window Location D3-C2

OPERATOR ACTION:

1. **CONTACT** Radwaste Control Room to verify alarm.
2. **ENSURE** both sump pumps in affected sump are running
IF level is hi hi.
3. IF level is lo lo,
AND pump is running,
STOP associated sump pump.

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D2265	RB EQUIP DRAIN SUMP LEVEL A	1. Standby pump starts <u>IF</u> level is hi hi. 2. Alarm only <u>IF</u> level is lo lo.
D2266	RB EQUIP DRAIN SUMP LEVEL B	1. Standby pump starts <u>IF</u> level is hi hi. 2. Alarm only <u>IF</u> level is lo lo.
D2267 LEVEL AT265	RB FLOOR DRAIN SUMP N005 North Floor Drain Sump	1. Standby pump starts <u>IF</u> level is hi hi. 2. Alarm only <u>IF</u> level is lo lo.
D2268 LEVEL BT265	RB FLOOR DRAIN SUMP N006 South Floor Drain Sump	1. Standby pump starts <u>IF</u> level is hi hi. 2. Alarm only <u>IF</u> level is lo lo.

REFERENCES: E-6795, Sht. 2
GEK 90300, Vol 6, Part II
J-25-0, Sht. 10

M-61-1, Sht. 2
CD-040X FSAR 5.2.5.2.2

ATTACHMENT C3

Window Location

D3-C3

NOTE

The RM-23A displays the output of the Rosemount Level Transmitters for each sump (1SKLT-4930/4931), in Bits (1 Bit 0.1647”), under Monitor items 107 and 108 for the Drywell Equipment and Floor Drain sumps respectively. The sumps are not controlled by the Rosemount Level Transmitters, but are controlled by a Ball Float with level indicating Reed Switches (1HBLISHL-N001/N010). Since the Reed Switches/Ball Float assemblies and Rosemount Transmitters are calibrated separately, RM-23A level indicators may not correspond to exact pump start/stop levels and should only be used to obtain an approximate level indication.

DRYWELL FLOOR DRAIN SUMP LVLS	RM-23 LVL INDICATION EQUIV BITS – 1 BIT = 0.1647” RM-23 MONITOR ITEM 108
HI-HI level is 29” above sump bottom	176
HI level is 28” above sump bottom (Lead pump start)	170
LOW level is 18” above sump bottom (Pump stops)	109
LO-LO level is 16” above sump bottom (Brings in alarm D3-C3)	97
Bottom of sump pump suction is 6” above sump bottom	36

DRYWELL EQUIPMENT DRAIN SUMP LVLS	RM-23 LVL INDICATION EQUIV BITS – 1 BIT = 0.1647” RM-23 MONITOR ITEM 107
HI-HI level is 26” above sump bottom	158
HI level is 24” above sump bottom (Lead pump start)	146
LOW level is 18” above sump bottom (Pump stops)	109
LO-LO level is 17” above sump bottom (Brings in alarm D3-C3)	103
Bottom of sump pump suction is 6” above sump bottom	36

ATTACHMENT C4

**Moisture Separator/
Moisture Separator Drain Tank (1AT104 & 1BT104)
Level/Elevation/Function Tabulation**

<u>Percent of Normal Level</u>	<u>Water Level (Note 1)</u>	<u>Level/Elevation (Note 2)</u>	<u>Function of Level/Elevation (Instrument - CRIDS)</u>
373.7*	80-13/16"	138' 6-15/16" —————	Turbine Trip (1AC-LSHH-1027A,B&C)
232.1*	61"	136' 11-1/8" —————	High Alarm (1AC-LSH-1036A & B)
203.6	(57")	(136' 7-1/8") ————	High Level Control (1AC-LT-1039A & B) (A2622 & A2623)
153.6	50"	136' 0-1/8" ————	
103.6	(43")	(135' 5-1/8") ————	
100.0 (42-1/2")		(135' 4-5/8") ————	<u>Indication Range</u> Normal Level Control (1AC-LT-1040A & B) (A2624 & A2625)
50.0	35-1/2"	134' 9-5/8" ————	
0.0 (28-1/2")		(134' 2-5/8") ————	
-30.0*	24-5/16"	133' 10-7/16" —————	Low Alarm (1AC-LSH-1037A & B)
—	0"	131' 10-1/8" —————	Bottom of Moisture Separator Drain Tank (1AT104 & 1BT104)

* - Setpoints can not be confirmed by observing any installed instrument or CRIDS analog point.

NOTE 1 - Water level in inches above the bottom of the Moisture Separator Drain Tank.
At 71-1/2" level, water has filled Drain Tank
AND will start to flood Moisture Separator.

NOTE 2 - Elevations not in parentheses for a) Level Switches are setpoints for their function and b) Level Transmitters are the center of their 14" range. Elevations in parentheses are the Level Transmitter high and low range limits (and taps).

REFERENCES: J-L-5000, Sht. 371, Sht. 373 M3-TPZKZ-85-10

ATTACHMENT C5

**TURBINE
GENERATOR
VIB HI**

Window Location D3-C5

OPERATOR ACTION:

1. **DETERMINE** bearing(s) in alarm CRIDS points A2519 - A2530.
IF unable to determine on CRIDS OR Main Control Room System 1 computer,
THEN **DISPATCH** an operator to Panel 10C366.
2. **ENTER** HC.OP-AB.BOP-0002(Q), Main Turbine.
3. IF_ Journal Vibration exceeds the following,
 immediately **PRESS** Main Turbine TRIP PBs.

<u>Turbine Speed</u> <u>Journal</u>	<u>Vibration</u> <u>Bearings 1 - 10</u>	<u>Journal Vibration</u> <u>Bearings 11 - 12</u>
< 800 rpm	8 mils	8 mils
800 - 1400 rpm	14 mils	8 mils
1800 rpm	12 mils	8 mils

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
A2519	Main Turbine Bearing 1 Vib	Alarm only
A2520	Main Turbine Bearing 2 Vib	
A2521	Main Turbine Bearing 3 Vib	
A2522	Main Turbine Bearing 4 Vib	
A2523	Main Turbine Bearing 5 Vib	
A2524	Main Turbine Bearing 6 Vib	
A2525	Main Turbine Bearing 7 Vib	
A2526	Main Turbine Bearing 8 Vib	
A2527	Main Turbine Bearing 9 Vib	
A2528	Main Turbine Bearing 10 Vib	
A2529	Main Turbine Bearing 11 Vib	
A2530	Main Turbine Bearing 12 Vib	

REFERENCES: E-6762-0, Sht. 2, PSBP-326157, Sht. 17

ATTACHMENT D1

**LIQUID RADW
COLLECTION
TROUBLE**

Window Location D3-D1

OPERATOR ACTION:

ENSURE compliance with operability requirements of Technical Specification 3.6.1.1 PRIMARY CONTAINMENT INTEGRITY, IF applicable.

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D3231	CTMT OUTBD ISLN HV-F004 OPF	Valve fails in present position.
D3232	CTMT OUTBD ISLN HV-F020 OPF	Valve fails in present position.
D3233	CTMT INBD ISLN HV-F019 OPF	Valve fails in present position.
D3234	CTMT INBD ISLN HV-F003 OPF	Valve fails in present position.
D3235	LIQ RW RB ISLN HV-5262 OPF	Valve fails in present position.
D3236	LIQ RW RB ISLN HV-5275 OPF	Valve fails in present position.
D3237	SOLID RW RB ISOL HV-5551 OPF	Valve fails in present position.
D5313	SOLID RW RB ISLN HV-5543 OPF	Valve fails in present position.
D4457	RHR DISCH TO RADWST HV-4439 OPF	Valve fails in present position.

REFERENCES: M-51-0, Sht. 1 M-61-1, Sht. 1
 J-51-0, Sht. 24 J-61-0, Sht. 4
 J-66-0, Sht. 1

ATTACHMENT D2

LEAK DET
SYSTEM ISLN
VALVE O/PF

Window Location D3-D2

OPERATOR ACTION:

ENSURE compliance with operability requirements of Technical Specifications 3.6.6.1 PRIMARY CONTAINMENT INTEGRITY and 3.6.3 PRIMARY CONTAINMENT ISOLATION VALVES.

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D2571	RA GAS SAMPLE ISLN HV-5018 OPF	Valve fails in present position.
D2618	RA GAS SAMPLE ISLN HV-4953 OPF	
D2644	RA GAS SAMPLE ISLN HV-4957 OPF	
D2667	RA GAS SAMPLE ISLN HV-4981 OPF	

REFERENCES: E-0297-0

J-25-0, Sht. 7

ATTACHMENT D3

LEAK DET
SYSTEM
TROUBLE

Window Location D3-D3

AUTOMATIC ACTION:

NUMAC **MONITOR** indicates an INOP condition.

OPERATOR ACTION:

1. **MONITOR** Main Steam, RWCU, HPCI, RCIC area temperatures AND differential flows.
2. **DETERMINE** the specific isolator card in alarm (by checking digital alarms)
OR DETERMINE which NUMAC maybe INOP by checking the alarm points.
3. **CHECK** applicable NUMAC Monitor Main Display for cause of alarm condition.
4. **MONITOR** system inputs into the affected isolator card for alarm conditions.
5. **TAKE** appropriate action IAW Technical Specification 3.3.2
IF NUMAC Monitor is INOP.

CAUTION

**A gross failure of a differential pressure transmitter 1SKXR-11497
OR 1SKXR-11499 (10C609, 10C611), does not cause an automatic RWCU isolation (transmitter input > 21 ma or < 1 ma as sensed by the monitor). In this condition, a RWCU System differential flow between influent and effluent outside Containment * 56 gpm for 45 seconds (time delay) isolation function will not occur IF a high flow condition exists. TS Action Statement 3.3.2 - Isolation Actuation Instrumentation shall be entered. (The same logic is programmed into the monitors for the case of a failed thermocouple unit, i.e., no isolation occurs, and is intended to minimize isolations due to sensor failures).**

CAUSE CORRE	CTIVE ACTION
1. Keylock Sw. in INOP-CAL or INOP-SET position Drawer or sensor problem	1A. PLACE in OPERATE position. 1B. REQUEST SM/CRS initiate a NOTF.

ATTACHMENT D3

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D2386	MS/RWCU A Isolator Card Out of File	Lose overhead alarms Steam <u>AND</u> RWCU leak detection Channel A1 <u>OR</u> NUMAC Leak Detection System Monitor INOP.
D2387	MS/RWCU A ISOLATOR CARD PWR LOSS STEAM LEAK DET CH A CARD/PWR LOSS	Lose overhead alarms and digital alarms for Main Steam <u>AND</u> RWCU leak detection Channel A1.
D2388	STEAM LEAK DET CH A CARD AT5 HPCI A CARD OUT/PWR LOSS/INOP	Lose overhead alarms and Digital alarms for HPCI and RHR leak detection Division 1 <u>OR</u> NUMAC Leak Detection System Monitor INOP.
D2389	STEAM LEAK DET CH B CARD AT3 MS B CARD OUT/PWR LOSS/INOP	Lose overhead alarms and digital alarms for Main Steam leak detection Channel B1 <u>OR</u> NUMAC Leak Detection System Monitor INOP.
D2390	STEAM LEAK DET CH B CARD AT6 RCIC B CARD OUT/PWR LOSS/INOP	Lose overhead alarms and digital alarms for RCIC and RHR B leak detection Division 2 <u>OR</u> NUMAC Leak Detection System Monitor INOP.
D2391	STEAM LEAK DET CH C CARD AT2 MS C CARD OUT/PWR LOSS/INOP	Lose overhead alarms and digital alarms for Main Steam leak detection Channel A2 <u>OR</u> NUMAC Leak Detection System Monitor INOP
D2392	STEAM LEAK DET CH C CARD AT7 HPCI C CARD OUT/PWR LOSS/INOP	Lose overhead alarms and digital alarms for HPCI leak detection Division 3 <u>OR</u> NUMAC Leak Detection System Monitor INOP.

REFERENCES: N1-B21-1050-64, Sht. 1 J-25-0, Sht. 11

ATTACHMENT D3

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D2393	STEAM LEAK DET CH D CARD AT4 MS/RWCU D CARD OUT/PWR LOSS/INOP	Lose overhead alarms and digital alarms for RWCU leak detection Division D <u>OR</u> NUMAC Leak Detection System Monitor INOP.
D2394	STEAM LEAK DET CH D CARD AT8 RCIC D CARD OUT/PWR LOSS/INOP	Lose overhead alarms and digital alarms for RCIC leak detection Division 4 <u>OR</u> NUMAC Leak Detection System Monitor INOP.

REFERENCES: N1-B21-1050-64, Sht. 1 J-25-0, Sht. 11

ATTACHMENT D3

NUMAC CHANNEL Indication	Nomenclature/Condition	Automatic Action
10C609-Z1 (1SKXR-11497)	MS/RWCU A CARD OUT/INOP	INOP (D2386)
10C609-Z2 (1SKXR-11498)	MS C CARD OUT/PWR LOSS/INOP	INOP (D2391)
10C611-Z3 (1SKXR-11500)	MS B CARD OUT/PWR LOSS/INOP	INOP (D2389)
10C611-Z4 (1SKXR-11499)	MS/RWCU D CARD OUT/PWR LOSS/INOP	INOP (D2393)
10C621-Z5 (1SKXR-11502)	RCIC B CARD OUT/PWR LOSS/INOP	INOP (D2390)
10C620-Z6 (1SKXR-11501)	1HPCI A CARD OUT/PWR LOSS/INOP)	INOP (D2388)
10C640-Z7 (1SKXR-11503)	RCIC D CARD OUT/PWR LOSS/INOP	INOP (D2394)
10C641-Z8 (1SKXR-11504)	HPCI C CARD OUT/PWR LOSS/INOP	INOP (D2392)

REFERENCES: N1-B21-1050-64, Sht. 1

J-25-0, Sht. 11

ATTACHMENT D3

NUMAC MONITOR	NOMENCLATURE	DESCRIPTION
10C609-Z1 (1SKXR-11497)	MS/RWCU A CARD OUT/INOP	NUMAC Monitor 10C609-Z1 INOP
10C611-Z4 (1SKXR-11499)	MS RWCU D CARD OUT/PWR LOSS/INOP	NUMAC Monitor 10C611-Z4 INOP

NUMAC MONITOR	NOMENCLATURE	DESCRIPTION
10C609-Z2 (1SKXR-11498)	MS C CARD OUT/PWR LOSS/INOP	NUMAC Monitor 10C609-Z2 INOP
10C611-Z3 (1SKXR-11500)	MS B CARD OUT/PWR LOSS/INOP	NUMAC Monitor 10C611-Z3 INOP
10C621-Z5 (1SKXR-11502)	RCIC B CARD OUT/PWR LOSS/INOP	NUMAC Monitor 10C621-Z5 INOP
10C620-Z6 (1SKXR-11501)	HPCI A CARD OUT/PWR LOSS/INOP	NUMAC Monitor 10C620-Z6 INOP
10C640-Z7 (1SKXR-11503)	RCIC D CARD OUT/PWR LOSS/INOP	NUMAC Monitor 10C640-Z7 INOP
10C641-Z8 (1SKXR-11504)	HPCI C CARD OUT/PWR LOSS/INOP	NUMAC Monitor 10C641-Z8 INOP

REFERENCES: N1-B21-1050-64, Sht. 1

J-25-0, Sht. 11

ATTACHMENT D5

<p>EHC UNIT</p> <p>PANEL</p> <p>10C363</p>

Window Location D3-D5

OPERATOR ACTION:

1. IF_ the Main Turbine has tripped,
RESPOND in accordance with HC.OP-AB.BOP-0002(Q), Main Turbine.
2. **REVIEW** alarms screen (10C650E or 10C651D) to determine cause of alarm.

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D2031	MN TRB FAST CLOSE INTRCPT VLVS	Main Turb Intercept Vlv Fast Closure.
D3357	TURB EHC CABINET TEMP	Alarm only.
D3367	EHC IO COMMUNICATION TROUBLE	Alarm only.
D3368	EHC PROCESSOR OFFLINE	Alarm only.
D5557	EHC TROUBLE	Possible Main Turbine trip.
D5559 EHC	ABNORMAL CONFIGURATION	Alarm only.
D5571	MN TURB EXHAUST HOOD HI TEMP	Alarm only.

REFERENCES: J-0100, Sht. 17, Sht. 18
 DCP 80048294
 Vendor Doc PM003-TK-0411

ATTACHMENT D5

1. DEHC OVERVIEW

The Hope Creek Digital Electro-Hydraulic (DEHC) system consists of three triple-modular redundant (TMR) controllers. Turbine Control is provided by the “S” Controller. The “S” controller includes the triple-modular redundant (TMR) turbine controller <R, S, T> and the TMR overspeed protection controller <X, Y, Z>. Reactor Pressure control is provided by the TMR “P” controller <R, S, T>. All controllers are on the 124’ elevation of the Center Radwaste building (Rm 3449) in the Vibration Monitoring Room.

Most alarms are cleared from DEHC when the state has returned to the normal condition and the operator acknowledges and resets the alarm. Diagnostic alarms originating in card firmware are locked in and must be reset using the appropriate Diagnostic Reset button.

Additional information on card-related Diagnostic alarms is stored in the system and should be investigated prior to resetting them. Resetting Diagnostic Alarms will erase stored information if the cause of the alarm has cleared.

Additional information may be available from the Engineering Work Station regarding any DEHC alarm. Alarm Logs display alarms and related events with precise times. Trip Log Live data shows selected analog and digital point data in graphical form. This data is overwritten about every 48 hours. Request I&C or Engineering to review and store this data if required using procedure HC.IC-TI.CH-0001.

All DEHC alarms will be displayed on the Operators HMI (Human Machine Interface) terminals in the control room. Most graphic displays contain a small alarm display area in the lower left portion of the display. (See figure 1)

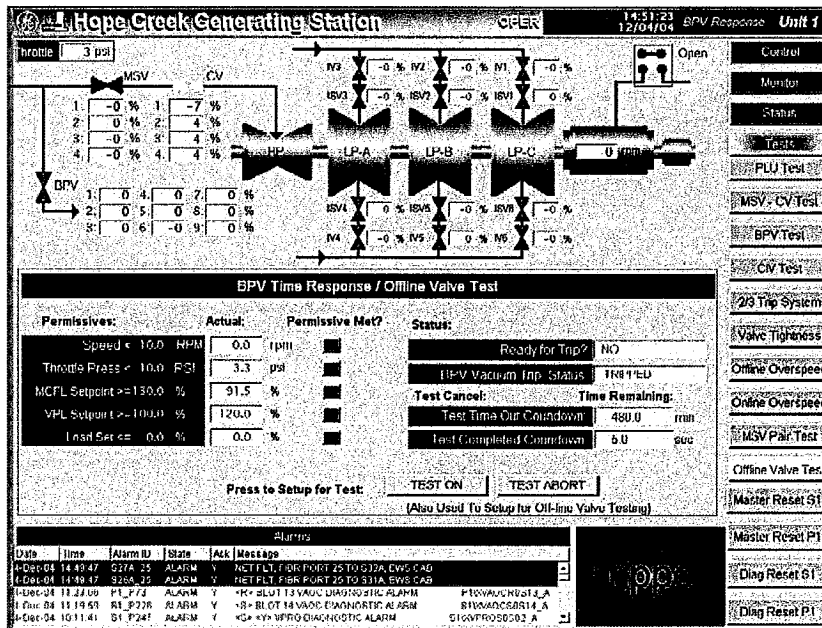


FIGURE 1 – SAMPLE HMI SCREEN WITH ALARM AREA

The operator should review the alarms and acknowledge the individual alarms from the alarm screen. The alarm screen is displayed by touching the title bar for the alarm area. If the operator has any questions about system or other alarms then the operator should contact the DEHC System Engineer.

ATTACHMENT D5

When the Alarm Screen is displayed the control display is disabled. The operator must press the “Exit Screen” target to return to the control display.

Once in the Alarm Screen the operator can filter alarms by the controller (Turbine or Pressure) and by the alarm class:

ALARM TYPE	ALARM NOT ACKNOWLEDGED	ALARM ACKNOWLEDGED	ALARM CLEAR NOT ACKNOWLEDGED
MAJOR	White on Red	Red on White	Black on White
MINOR	White on Blue	Blue on White	Black on White
DIAGNOSTIC	White on Teal	Teal on White	Black on White
HMI	White on Black	White on Black	Not displayed

Major Alarms:

Alarms associated with trips or process (turbine/generator) problems, which may lead to a trip. These alarms generally require Operator action for trip recovery or trip avoidance.

Minor Alarms:

Alarms associated with logic or cabinet problems. Examples include voting mismatches, TMR signal failures, and positioning errors. These alarms generally require a Technician or System Engineer to access the Engineering Work Station for details of the alarm and its resolution.

Diagnostic Alarms:

Alarms associated with individual card issues or TMR signal failures. Examples include TMR signal mismatches and power failures. Request I&C Engineering to access the Engineering Work Station to obtain details of the alarm and its resolution prior to performing a Diagnostic Reset.

HMI alarms:

These are normally related to network communications and are not listed in the attachment. These alarms do not change background and clear automatically when the condition clears. One example is “NET FLT – FIBR PORT 25 TO S32A, EWS CAB indicates that a fiber port to the Engineering Work Station failed. These alarms normally require access to the Engineering Work Station for details of the alarm and its resolution.

ATTACHMENT D5

Alarms are displayed in Chronological order with the most recent displayed on top. Major, Minor, and Diagnostic alarms are displayed in Reverse Video until acknowledged.

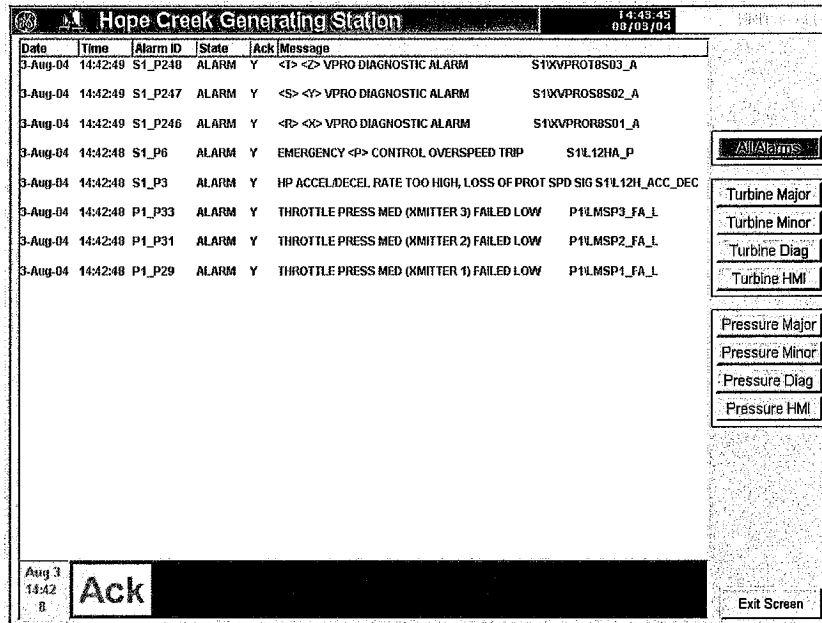


FIGURE 1 – SAMPLE ALARM SCREEN

2. ACKNOWLEDGING ALARMS

- 2.1 Select the alarm(s) to be acknowledged. Touching one at a time or pressing the screen and wiping to select a group.
- 2.2 Touch the ACK touch area on the bottom of the screen.
- 2.3 The Acknowledged alarms will change from reverse video (e.g., White on Red) to normal video (e.g. Red lettering on White). Also the ACK column will show a Y for all acknowledged alarms.

ATTACHMENT D5

3. RESETTING ALARMS

Alarms are reset from the main screens using the reset pushbuttons adjacent to the alarm area of the screen. The operator should review the alarm list and correct any diagnostic or trip conditions before “resetting” alarms. IF alarms are reset and the condition is not cleared the parameter will re-alarm or trip as appropriate.

- 3.1 MASTER RESET S1: Resets all TRIPS for S1 (Turbine Control).
This Master Reset S1 is used to reset the main turbine (after trip inputs have been cleared) and resets “Servo Loop Suicided” conditions (alarms S1_193 thru S1_216).
- 3.2 MASTER RESET P1: Resets all TRIPS for P1 (Pressure Control)
This Master Reset P1 is used to reset “Servo Loop Suicided” conditions (alarms P1_37 thru P1_63).

NOTE

Resetting card-related Diagnostic Alarms will erase information relating to the cause of the condition. If applicable, verify that I&C or Engineering has obtained data necessary to evaluate the alarm prior to resetting the alarms. These alarms are identified in the attached table.

Pressure Setpoint and Reference Pressure may instantaneously change upon isolation and/or reset depending on the 'Voting medium'.

- 3.3 DIAG RESET S1: Resets all Diagnostic Alarms (Turbine Control) originating in card firmware. This Diagnostic Reset is used to reset all diagnostic alarms (Teal colored font) for the Turbine Control Controller <S>.
- 3.4 DIAG RESET P1: Resets all Diagnostic Alarms (Pressure Control) originating in card firmware. This Diagnostic Reset is used to reset all diagnostic alarms (Teal colored font) for the Turbine Pressure Controller <P>.
- 3.5 Throttle Pressure Transmitter Failed alarms (P1_28 thru P1_33)
The transmitter must be returned to service using the Control>Pressure Transmitter Screen and the appropriate touch area “Reset Xmitter #1, #2, or #3”.
- 3.6 All other alarms, once acknowledged, are self-clearing when the condition indicated has been corrected.

ATTACHMENT D5

4. ALARM SCREEN HEADINGS

4.1 Date: Date the alarm event occurred.

4.2 Time: Time of the alarm event.

4.3 Alarm ID: Identifier for each alarm. The Alarm ID is formatted as follows:
DD_Pnnn

Where:

DD = P1: Pressure Controller

S1: Turbine Controller

Pnnn = Unique identifier for the alarm (e.g. P247). The number may change if the Mark VI is compiled. The Signal Name (listed at the end of the Message field) does not change.

See P1 or S1 alarm list attached for details

4.4 State: State of the alarm.

4.4.1. ALARM

4.4.2. NORMAL

4.5 ACK: Status of alarm Acknowledgement (Y/N)

4.6 Message: This field includes the Alarm Description and the Signal Name. Note the signal name may be clipped off on the Control Display alarm area if the alarm description is long.

ATTACHMENT D5

Alarm ID	Description	Signal Name	Alarm Class	NOTE
P1_P2	BPV1 POSITIONING ERROR	P1\L30BV1_DEV	MINOR	
P1_P3	BPV2 POSITIONING ERROR	P1\L30BV2_DEV	MINOR	
P1_P4	BPV3 POSITIONING ERROR	P1\L30BV3_DEV	MINOR	
P1_P5	BPV4 POSITIONING ERROR	P1\L30BV4_DEV	MINOR	
P1_P6	BPV5 POSITIONING ERROR	P1\L30BV5_DEV	MINOR	
P1_P7	BPV6 POSITIONING ERROR	P1\L30BV6_DEV	MINOR	
P1_P8	BPV7 POSITIONING ERROR	P1\L30BV7_DEV	MINOR	
P1_P9	BPV8 POSITIONING ERROR	P1\L30BV8_DEV	MINOR	
P1_P10	BPV9 POSITIONING ERROR	P1\L30BV9_DEV	MINOR	
P1_P11	COND-A-INTRLK SWITCH INPUTS DISAGREE	P1\L30BVA_DIF	DIAG	8
P1_P12	COND-B-INTRLK SWITCH INPUTS DISAGREE	P1\L30BVB_DIF	DIAG	8
P1_P13	COND-C-INTRLK SWITCH INPUTS DISAGREE P1\L30BVC_DIF	P1\L30BVC_DIF	DIAG	8
P1_P14	AT LEAST ONE BYPASS VALVE IN CAL MODE	P1\L30CAL_ENBL	MINOR	
P1_P15	<R> VCMIO STATE EXCHANGE FAILED	P1\L30COMM_IO_R	MINOR	
P1_P16	<S> VCMIO STATE EXCHANGE FAILED	P1\L30COMM_IO_S	MINOR	
P1_P17	<T> VCMIO STATE EXCHANGE FAILED	P1\L30COMM_IO_T	MINOR	
P1_P18	FORCED LOGIC SIGNAL DETECTED	P1\L30FORCED	MINOR	
P1_P19	THROTTLE PRESS XMITTER SPREAD EXCEEDED P1\L30MSP_SPD	P1\L30MSP_SPD	MINOR	2
P1_P20	CV FLOW REF SIGNAL FEEDBACK DIFF ERROR	P1\L30VLV_DIF	MINOR	
P1_P21	UCVF AIR FLOW OR OVERTEMP TROUBLE	P1\L3D_UCVF_AF	MINOR	
P1_P22	UCVF OVERTEMPERATURE	P1\L3D_UCVF_OT	MINOR	
P1_P23	MAX COMBINED FLOW LIMITING	P1\L3MCFLL	MINOR	
P1_P24	CONDENSER A LOW VACUUM BPV INTERLOCK	P1\L63BVA	MINOR	
P1_P25	CONDENSER B LOW VACUUM BPV INTERLOCK	P1\L63BVB	MINOR	
P1_P26	CONDENSER C LOW VACUUM BPV INTERLOCK P1\L63BVC	P1\L63BVC	MINOR	
P1_P28	THROTTLE PRESS MED (XMITTER 1) FAILED HIGH	P1\L3MSP1_FA_H	MINOR	1
P1_P29	THROTTLE PRESS MED (XMITTER 1) FAILED LOW	P1\L3MSP1_FA_L	MINOR	1
P1_P30	THROTTLE PRESS MED (XMITTER 2) FAILED HIGH	P1\L3MSP2_FA_H	MINOR	1
P1_P31	THROTTLE PRESS MED (XMITTER 2) FAILED LOW	P1\L3MSP2_FA_L	MINOR	1
P1_P32	THROTTLE PRESS MED (XMITTER 3) FAILED HIGH	P1\L3MSP3_FA_H	MINOR	1

NOTE 1 The transmitter must be returned to service using the Control>Pressure Transmitter Screen and the appropriate touch area "Reset Xmitter #1, #2, or #3".

NOTE 2 Refer to HC.OP-AB.RPV-0005(Q), REACTOR PRESSURE (Condition B or C) if this alarm occurs.

NOTE 8 This alarm is NOT card related and may be reset as soon as the alarm condition clears.

ATTACHMENT D5

Alarm ID	Description	Signal Name	Alarm Class	NOTE
P1_P33	THROTTLE PRESS MED (XMITTER 3) FAILED LOW	P1\LMSP3_FA_L	MINOR	1
P1_P34	<R> PROCESSOR OFFLINE	P1\STATE_R_A	MINOR	2
P1_P35	<S> PROCESSOR OFFLINE	P1\STATE_S_A	MINOR	2
P1_P36	<T> PROCESSOR OFFLINE	P1\STATE_T_A	MINOR	2
P1_P37	<R> SLOT 11 - BPV7 SERVO LOOP SUICIDED P1\VSVAR11	REG1S	MAJOR	3
P1_P38	<R> SLOT 11 - BPV8 SERVO LOOP SUICIDED P1\VSVAR11	REG3S	MAJOR	3
P1_P39	<R> SLOT 12 - BPV9 SERVO LOOP SUICIDED P1\VSVAR12	REG1S	MAJOR	3
P1_P40	<R> SLOT 7 - BPV1 SERVO LOOP SUICIDED P1\VSVAR7	REG1S	MAJOR	3
P1_P41	<R> SLOT 7 - BPV2 SERVO LOOP SUICIDED P1\VSVAR7	REG3S	MAJOR	3
P1_P42	<R> SLOT 8 - BPV3 SERVO LOOP SUICIDED P1\VSVAR8	REG1S	MAJOR	3
P1_P43	<R> SLOT 8 - BPV4 SERVO LOOP SUICIDED P1\VSVAR8	REG3S	MAJOR	3
P1_P44	<R> SLOT 9 - BPV5 SERVO LOOP SUICIDED P1\VSVAR9	REG1S	MAJOR	3
P1_P45	<R> SLOT 9 - BPV6 SERVO LOOP SUICIDED P1\VSVAR9	REG3S	MAJOR	3
P1_P46	<S> SLOT 11 - BPV7 SERVO LOOP SUICIDED P1\SVAS11	REG1S	MAJOR	3
P1_P47	<S> SLOT 11 - BPV8 SERVO LOOP SUICIDED P1\SVAS11	REG3S	MAJOR	3
P1_P48	<S> SLOT 12 - BPV9 SERVO LOOP SUICIDED P1\SVAS12	REG1S	MAJOR	3
P1_P49	<S> SLOT 7 - BPV1 SERVO LOOP SUICIDED P1\SVAS7	REG1S	MAJOR	3
P1_P50	<S> SLOT 7 - BPV2 SERVO LOOP SUICIDED P1\SVAS7	REG3S	MAJOR	3
P1_P51	<S> SLOT 8 - BPV3 SERVO LOOP SUICIDED P1\SVAS8	REG1S	MAJOR	3
P1_P52	<S> SLOT 8 - BPV4 SERVO LOOP SUICIDED P1\SVAS8	REG3S	MAJOR	3
P1_P53	<S> SLOT 9 - BPV5 SERVO LOOP SUICIDED P1\SVAS9	REG1S	MAJOR	3
P1_P54	<S> SLOT 9 - BPV6 SERVO LOOP SUICIDED P1\SVAS9	REG3S	MAJOR	3
P1_P55	<T> SLOT 11 - BPV7 SERVO LOOP SUICIDED P1\SVAT11	REG1S	MAJOR	3
P1_P56	<T> SLOT 11 - BPV8 SERVO LOOP SUICIDED P1\SVAT11	REG3S	MAJOR	3
P1_P57	<T> SLOT 12 - BPV9 SERVO LOOP SUICIDED P1\SVAT12	REG1S	MAJOR	3
P1_P58	<T> SLOT 7 - BPV1 SERVO LOOP SUICIDED P1\SVAT7	REG1S	MAJOR	3
P1_P59	<T> SLOT 7 - BPV2 SERVO LOOP SUICIDED P1\SVAT7	REG3S	MAJOR	3
P1_P60	<T> SLOT 8 - BPV3 SERVO LOOP SUICIDED P1\SVAT8	REG1S	MAJOR	3
P1_P61	<T> SLOT 8 - BPV4 SERVO LOOP SUICIDED P1\SVAT8	REG3S	MAJOR	3
P1_P62	<T> SLOT 9 - BPV5 SERVO LOOP SUICIDED P1\SVAT9	REG1S	MAJOR	3
P1_P63	<T> SLOT 9 - BPV6 SERVO LOOP SUICIDED P1\SVAT9	REG3S	MAJOR	3
P1_P64	<R> SLOT 2 UCVF DIAGNOSTIC ALARM	P1\XUCVFR0S02_A	DIAG	6
P1_P65	<S> SLOT 2 UCVF DIAGNOSTIC ALARM	P1\XUCVFS0S02_A	DIAG	6

NOTE 1 The transmitter must be returned to service using the Control>Pressure Transmitter Screen and the appropriate touch area "Reset Xmitter #1, #2, or #3".

NOTE 2 Refer to HC.OP-AB.RPV-0005(Q), REACTOR PRESSURE (Condition B or C) if this alarm occurs.

NOTE 3 P1 MASTER RESET must be pressed to restore logic after this alarm occurs even if the alarm has been acknowledged.

NOTE 6 P1 Diagnostic Reset must be pressed to clear alarm even if alarm has been acknowledged.

ATTACHMENT D5

Alarm ID	Description	Signal Name	Alarm Class	NOTE
P1_P66	<T> SLOT 2 UCVF DIAGNOSTIC ALARM	P1\XUCVFT0S02_A	DIAG	6
P1_P67	<R> SLOT 5 VAIC DIAGNOSTIC ALARM P1\XVAICR0S05	A	DIAG	2, 3
P1_P68	<R> SLOT 6 VAIC DIAGNOSTIC ALARM P1\XVAICR0S06	A	DIAG	2, 3
P1_P69	<S> SLOT 5 VAIC DIAGNOSTIC ALARM	P1\XVAICS0S05_A	DIAG	2, 3
P1_P70	<S> SLOT 6 VAIC DIAGNOSTIC ALARM	P1\XVAICS0S06_A	DIAG	2, 3
P1_P71	<T> SLOT 5 VAIC DIAGNOSTIC ALARM	P1\XVAICT0S05_A	DIAG	2, 3
P1_P72	<T> SLOT 6 VAIC DIAGNOSTIC ALARM	P1\XVAICT0S06_A	DIAG	2, 3
P1_P73	<R> SLOT 13 VAOC DIAGNOSTIC ALARM	P1\XVAOCR0S13_A	DIAG	6
P1_P74	<S> SLOT 13 VAOC DIAGNOSTIC ALARM	P1\XVAOCS0S13_A	DIAG	6
P1_P75	<R> SLOT 1 VCMIR DIAGNOSTIC ALARM	P1\XVCMIR0S01_A	DIAG	6
P1_P76	<S> SLOT 1 VCMIR DIAGNOSTIC ALARM	P1\XVCMIS0S01_A	DIAG	6
P1_P77	<T> SLOT 1 VCMIR DIAGNOSTIC ALARM	P1\XVCMIT0S01_A	DIAG	6
P1_P78	<R> SLOT 4 VCRC DIAGNOSTIC ALARM	P1\XVCRCR0S04_A	DIAG	6
P1_P79	<R> SLOT 10 VCRC DIAGNOSTIC ALARM	P1\XVCRCR0S10_A	DIAG	6
P1_P80	<S> SLOT 4 VCRC DIAGNOSTIC ALARM	P1\XVCRCS0S04_A	DIAG	6
P1_P81	<S> SLOT 10 VCRC DIAGNOSTIC ALARM	P1\XVCRCS0S10_A	DIAG	6
P1_P82	<T> SLOT 4 VCRC DIAGNOSTIC ALARM	P1\XVCRCT0S04_A	DIAG	6
P1_P83	<T> SLOT 10 VCRC DIAGNOSTIC ALARM	P1\XVCRCT0S10_A	DIAG	6
P1_P84	<R> SLOT 7 VSVA DIAGNOSTIC ALARM	P1\XVSVAR0S07_A	DIAG	6
P1_P85	<R> SLOT 8 VSVA DIAGNOSTIC ALARM	P1\XVSVAR0S08_A	DIAG	6
P1_P86	<R> SLOT 9 VSVA DIAGNOSTIC ALARM	P1\XVSVAR0S09_A	DIAG	6
P1_P87	<R> SLOT 11 VSVA DIAGNOSTIC ALARM	P1\XVSVAR0S11_A	DIAG	6
P1_P88	<R> SLOT 12 VSVA DIAGNOSTIC ALARM	P1\XVSVAR0S12_A	DIAG	6
P1_P89	<S> SLOT 7 VSVA DIAGNOSTIC ALARM	P1\XVSVAS0S07_A	DIAG	6
P1_P90	<S> SLOT 8 VSVA DIAGNOSTIC ALARM	P1\XVSVAS0S08_A	DIAG	6
P1_P91	<S> SLOT 9 VSVA DIAGNOSTIC ALARM	P1\XVSVAS0S09_A	DIAG	6
P1_P92	<S> SLOT 11 VSVA DIAGNOSTIC ALARM	P1\XVSVAS0S11_A	DIAG	6
P1_P93	<S> SLOT 12 VSVA DIAGNOSTIC ALARM	P1\XVSVAS0S12_A	DIAG	6
P1_P94	<T> SLOT 7 VSVA DIAGNOSTIC ALARM	P1\XVSVAT0S07_A	DIAG	6
P1_P95	<T> SLOT 8 VSVA DIAGNOSTIC ALARM	P1\XVSVAT0S08_A	DIAG	6
P1_P96	<T> SLOT 9 VSVA DIAGNOSTIC ALARM	P1\XVSVAT0S09_A	DIAG	6
P1_P97	<T> SLOT 11 VSVA DIAGNOSTIC ALARM	P1\XVSVAT0S11_A	DIAG	6
P1_P98	<T> SLOT 12 VSVA DIAGNOSTIC ALARM	P1\XVSVAT0S12_A	DIAG	6
P1_P99	BYPASS VALVE RESPONSE TEST ON P1\L83BPVRT_ON		MINOR	
P1_P100	BYPASS VLV RESPONSE TEST---15 MIN REMAIN	P1\L33RT_TO1ALM	MINOR	
P1_P101	BYPASS VLV RESPONSE TEST---5 MIN REMAIN	P1\L33RT_TO2ALM	MINOR	
P1_P102	BYPASS VALVE RESPONSE TEST TIMED OUT	P1\L33BPVRT_TTO	MINOR	
P1_P104	VCMIR IO STATE EXCHANGE FAILED	P1\L30COMM_IO_R	MINOR	
P1_P115	PROCESSOR OFFLINE	P1\STATE_R_A	MINOR	

NOTE 2 Refer to HC.OP-AB.RPV-0005(Q), REACTOR PRESSURE (Condition B or C) if this alarm occurs.
 NOTE 3 P1 MASTER RESET must be pressed to restore logic after this alarm occurs even if the alarm has been acknowledged.
 NOTE 6 P1 Diagnostic Reset must be pressed to clear alarm even if alarm has been acknowledged.

ATTACHMENT D5

Alarm ID	Description	Signal Name	Alarm Class	NOTE
S1_P1	IV TRIGGER EVENT OCCURED	S1\10IVT_EVT_A	MINOR	
S1_P2	POWER LOAD UNBALANCE OCCURED S1\10PL	U_EVT_A	MAJOR	
S1_P3	HP ACCEL/DECEL RATE TOO HIGH, LOSS OF PROT SPD SIG	S1\12H_ACC_DEC	MAJOR	
S1_P4	<Q> HIGH ACCEL/DECEL RATE TRIP S1\12H_ACC_Q		MAJOR	
S1_P5	PRIMARY <Q> CONTROL OVERSPEED TRIP	S1\12HA	MAJOR	
S1_P6	EMERGENCY <P> CONTROL OVERSPEED TRIP	S1\12HA_P	MAJOR	
S1_P7	EHC CONTROL PANEL TEMPERATURE HIGH	S1\26CTH_ALM	MINOR	
S1_P8	LPA EXHAUST HOOD HIGH TEMP	S1\26LPAEXHA	MINOR	
S1_P9	LPA EXHAUST HOOD HIGH TEMPERATURE TRIP	S1\26LPAEXHT	MAJOR	
S1_P10	LPB EXHAUST HOOD HIGH TEMP	S1\26LPBEXHA	MINOR	
S1_P11	LPB EXHAUST HOOD HIGH TEMPERATURE TRIP	S1\26LPBEXHT	MAJOR	
S1_P12	LPC EXHAUST HOOD HIGH TEMP	S1\26LPCEXHA	MINOR	
S1_P13	LPC EXHAUST HOOD HIGH TEMPERATURE TRIP	S1\26LPCEXHT	MAJOR	
S1_P14	SWC HIGH TEMPERATURE RUNBACK ENABLED	S1\26TT_SWC_T	MAJOR	
S1_P15	AC LINE 1 FAIL - PANEL 1AJ483	S1\27AC1_ALM	MINOR	
S1_P16	AC LINE 2 FAIL - PANEL 10S301	S1\27AC2_ALM	MINOR	
S1_P17	EHC AC SOURCE SELECTOR AUTO TRANSFER	S1\27AC_A	MINOR	
S1_P18	INCOMING DACA1-1 POWER LOST S1\27AC_DC1A_A		MINOR	
S1_P19	INCOMING DACA1-2 POWER LOST S1\27AC_DC1B_A		MINOR	
S1_P20	INCOMING DACA 2-1 POWER LOST S1\27AC_DC2A_A		MINOR	
S1_P21	INCOMING DACA 2-2 POWER LOST S1\27AC_DC2B_A		MINOR	
S1_P22	EHC 125VDC CTRL PWR UNDERVOLTAGE S1\27DZA		MINOR	
S1_P23	<PDM> 1 AND/OR 2 TROUBLE	S1\30125_FLT	MINOR	
S1_P24	<PDM> 1/2 POS-NEG 125 VDC HI/LO FAULT	S1\30125_HL	MINOR	
S1_P25	<PDM> 1/2 POS-NEG 125 VDC SPREAD HIGH	S1\30125_SPRD	MINOR	
S1_P26	86G VOTER MISMATCH	S1\3086G_DIF	DIAG	8
S1_P27	125VDC BUS LEVEL PDM1 <R> MONITORING TROUBLE	S1\30_R_MNFLT	MINOR	
S1_P28	125VDC BUS LEVEL PDM2 <S> MONITORING TROUBLE	S1\30_S_MNFLT	MINOR	
S1_P30	AXIAL THRUST POSITION HIGH - ACTIVE FACE	S1\30AXA	MAJOR	

NOTE 8 This alarm is NOT card related and may be reset as soon as the alarm condition clears.

ATTACHMENT D5

Alarm ID	Description	Signal Name	Alarm Class	NOTE
S1_P31	AXIAL THRUST POSITION TRIP - ACTIVE FACE	S1L30AXAT	MAJOR	
S1_P32	AXIAL THRUST POSITION HI - INACTIVE FACE	S1L30AXI	MAJOR	
S1_P33	AXIAL POSITION SPREAD HIGH - CHECK SENSORS	S1L30AXIAL_SPD	DIAG	8
S1_P34	AXIAL THRUST POSN TRIP - INACTIVE FACE	S1L30AXIT	MAJOR	
S1_P35	AT LEAST ONE SERVO REG IN CAL MODE	S1L30CAL_ENBL	MINOR	
S1_P36	<R> VCM I/O STATE EXCHANGE FAILED	S1L30COMM_IO_R	MINOR	
S1_P37	<S> VCM I/O STATE EXCHANGE FAILED	S1L30COMM_IO_S	MINOR	
S1_P38	<T> VCM I/O STATE EXCHANGE FAILED	S1L30COMM_IO_T	MINOR	
S1_P39	CV1 FAST ACTING SOLN RELAY(S) FAULT	S1L30CV1_FA	DIAG	8
S1_P40	CV1 CLOSED POSITION OR FA SOLENOID FLT	S1L30CV1FA_F	MINOR	
S1_P41	CV1 CLOSING TIME SLOW	S1L30CV1TF	MINOR	
S1_P42	CV2 FAST ACTING SOLN RELAY(S) FAULT	S1L30CV2_FA	DIAG	8
S1_P43	CV2 CLOSED POSITION OR FA SOLENOID FLT	S1L30CV2FA_F	MINOR	
S1_P44	CV2 CLOSING TIME SLOW	S1L30CV2TF	MINOR	
S1_P45	CV3 FAST ACTING SOLN RELAY(S) FAULT	S1L30CV3_FA	DIAG	8
S1_P46	CV3 CLOSED POSITION OR FA SOLENOID FLT	S1L30CV3FA_F	MINOR	
S1_P47	CV3 CLOSING TIME SLOW	S1L30CV3TF	MINOR	
S1_P48	CV4 FAST ACTING SOLN RELAY(S) FAULT	S1L30CV4_FA	DIAG	8
S1_P49	CV4 CLOSED POSITION OR FA SOLENOID FLT	S1L30CV4FA_F	MINOR	
S1_P50	CV4 CLOSING TIME SLOW	S1L30CV4TF	MINOR	
S1_P51	GEN STATOR CURRENT SIGNAL SPREAD HIGH	S1L30DCUR_DIF	MINOR	
S1_P52	GEN STATOR CURRENT SIGNAL(S) FAULT	S1L30DCUR_FLT	MINOR	
S1_P53	GEN STATOR CURRENT SIGNAL OUT OF RANGE	S1L30DCUR_HL	MINOR	
S1_P54	Gen Phase Current Spread VGEN2	S1L30DCUR_SPD	DIAG	8
S1_P55	PSI CTRL CV FLOW DEMAND VOTER MISMATCH	S1L30DMD_DIF	MINOR	
S1_P56	VPRO <P> EMERG OVERSPEED CONFIG ERROR	S1L30EOS_CFG	MAJOR	
S1_P57	OFF-LINE EMERGENCY OVERSPEED TEST FAULT	S1L30EOST_OF_F	MAJOR	
S1_P58	ETD-1A TRIP TIME IS EXCESSIVE S1L30ETD1A_DO		MINOR	
S1_P59	ETD-1A POSITION MONITOR FAULT S1L30ETD1	A_POS	MINOR	
S1_P60	ETD-1A RESET TIME IS EXCESSIVE S1L30ETD1A_PU		MINOR	

NOTE 8 This alarm is NOT card related and may be reset as soon as the alarm condition clears.

ATTACHMENT D5

Alarm ID	Description	Signal Name	Alarm Class	NOTE
S1_P61	ETD-1B TRIP TIME IS EXCESSIVE S1\L30ETD1B_DO		MINOR	
S1_P62	ETD-1B POSITION MONITOR FAULT S1\L30ETD1	B_POS	MINOR	
S1_P63	ETD-1B RESET TIME IS EXCESSIVE S1\L30ETD1B_PU		MINOR	
S1_P64	ETD-2A TRIP TIME IS EXCESSIVE S1\L30ETD2A_DO		MINOR	
S1_P65	ETD-2A POSITION MONITOR FAULT S1\L30ETD2	A_POS	MINOR	
S1_P66	ETD-2A RESET TIME IS EXCESSIVE S1\L30ETD2A_PU		MINOR	
S1_P67	ETD-2B TRIP TIME IS EXCESSIVE S1\L30ETD2B_DO		MINOR	
S1_P68	ETD-2B POSITION MONITOR FAULT S1\L30ETD2	B_POS	MINOR	
S1_P69	ETD-2B RESET TIME IS EXCESSIVE S1\L30ETD2B_PU		MINOR	
S1_P70	ETD-3A TRIP TIME IS EXCESSIVE S1\L30ETD3A_DO		MINOR	
S1_P71	ETD-3A POSITION MONITOR FAULT S1\L30ETD3	A_POS	MINOR	
S1_P72	ETD-3A RESET TIME IS EXCESSIVE S1\L30ETD3A_PU		MINOR	
S1_P73	ETD-3B TRIP TIME IS EXCESSIVE S1\L30ETD3B_DO		MINOR	
S1_P74	ETD-3B POSITION MONITOR FAULT S1\L30ETD3	B_POS	MINOR	
S1_P75	ETD-3B RESET TIME IS EXCESSIVE S1\L30ETD3B_PU		MINOR	
S1_P76	HYD TRIP SYSTEM A TRIP TIME EXCESSIVE	S1\L30ETDA12_F	MINOR	
S1_P77	UNEXPECTED TRIP - ETD-1A OR ETD-2A FAULT	S1\L30ETDA12_FA	MINOR	
S1_P78	HYD TRIP SYSTEM A TRIP TIME EXCESSIVE	S1\L30ETDA23_F	MINOR	
S1_P79	UNEXPECTED TRIP - ETD-2A OR ETD-3A FAULT	S1\L30ETDA23_FA	MINOR	
S1_P80	HYD TRIP SYSTEM A TRIP TIME EXCESSIVE	S1\L30ETDA31_F	MINOR	
S1_P81	UNEXPECTED TRIP - ETD-1A OR ETD-3A FAULT	S1\L30ETDA31_FA	MINOR	
S1_P82	HYD TRIP SYSTEM B TRIP TIME EXCESSIVE	S1\L30ETDB12_F	MINOR	
S1_P83	UNEXPECTED TRIP - ETD-1B OR ETD-2B FAULT	S1\L30ETDB12_FA	MINOR	
S1_P84	HYD TRIP SYSTEM B TRIP TIME EXCESSIVE	S1\L30ETDB23_F	MINOR	
S1_P85	UNEXPECTED TRIP - ETD-2B OR ETD-3B FAULT	S1\L30ETDB23_FA	MINOR	
S1_P86	HYD TRIP SYSTEM B TRIP TIME EXCESSIVE	S1\L30ETDB31_F	MINOR	
S1_P87	UNEXPECTED TRIP - ETD-1B OR ETD-3B FAULT	S1\L30ETDB31_FA	MINOR	
S1_P88	ETD MANIFOLD ISOLATION VALVE POSN FAULT	S1\L30ETDSYS_VF	MAJOR	
S1_P89	FORCED LOGIC SIGNAL DETECTED	S1\L30FORCED	MINOR	
S1_P90	INTERMEDIATE PRESSURE SIGNAL LOST	S1\L30FP_HRSP	MINOR	
S1_P92	<PLU>1/2 MECH POWER SIGNAL SPREAD HIGH	S1\L30HRHP_DIF	MINOR	
S1_P93	<PLU>1/2 MECH POWER SIGNAL(S) FAULT	S1\L30HRHP_FLT	MINOR	
S1_P94	<PLU>1/2 MECH POWER SIGNAL OUT OF RANGE	S1\L30HRHP_HL	MINOR	

ATTACHMENT D5

Alarm ID	Description	Signal Name	Alarm Class	NOTE
S1_P95	INTERMEDIATE STEAM PRESSURE #1 SIGNAL SPREAD HIGH	S1\L30ISPA_DIF	MINOR	
S1_P96	INTERMEDIATE STEAM PRESSURE #1 SIGNAL(S) FAULT	S1\L30ISPA_FLT	MINOR	
S1_P97	INTERMEDIATE STEAM PRESSURE #1 SIGNALS FAILED	S1\L30ISPA_HL	MINOR	
S1_P98	INTERMEDIATE STEAM PRESSURE #2 SIGNAL SPREAD HIGH	S1\L30ISPB_DIF	MINOR	
S1_P99	INTERMEDIATE STEAM PRESSURE #2 SIGNAL(S) FAULT	S1\L30ISPB_FLT	MINOR	
S1_P100	INTERMEDIATE STEAM PRESSURE #2 SIGNALS FAILED	S1\L30ISPB_HL	MINOR	
S1_P101	ISV1 CLOSED POSITION OR FA SOLENOID FLT	S1\L30ISV1FA_F	MINOR	
S1_P102	ISV1 CLOSING TIME SLOW	S1\L30ISV1TF	MINOR	
S1_P103	ISV2 CLOSED POSITION OR FA SOLENOID FLT	S1\L30ISV2FA_F	MINOR	
S1_P104	ISV2 CLOSING TIME SLOW	S1\L30ISV2TF	MINOR	
S1_P105	ISV3 CLOSED POSITION OR FA SOLENOID FLT	S1\L30ISV3FA_F	MINOR	
S1_P106	ISV3 CLOSING TIME SLOW	S1\L30ISV3TF	MINOR	
S1_P107	ISV4 CLOSED POSITION OR FA SOLENOID FLT	S1\L30ISV4FA_F	MINOR	
S1_P108	ISV4 CLOSING TIME SLOW	S1\L30ISV4TF	MINOR	
S1_P109	ISV5 CLOSED POSITION OR FA SOLENOID FLT	S1\L30ISV5FA_F	MINOR	
S1_P110	ISV5 CLOSING TIME SLOW	S1\L30ISV5TF	MINOR	
S1_P111	ISV6 CLOSED POSITION OR FA SOLENOID FLT	S1\L30ISV6FA_F	MINOR	
S1_P112	ISV6 CLOSING TIME SLOW	S1\L30ISV6TF	MINOR	
S1_P113	IV1 FAST ACTING SOLN RELAY FAULT	S1\L30IV1_FA	DIAG	8
S1_P114	IV1 CLOSED POSITION OR FA SOLENOID FLT	S1\L30IV1FA_F	MINOR	
S1_P115	IV1 CLOSING TIME SLOW	S1\L30IV1TF	MINOR	
S1_P116	IV2 FAST ACTING SOLN RELAY FAULT	S1\L30IV2_FA	DIAG	8
S1_P117	IV2 CLOSED POSITION OR FA SOLENOID FLT	S1\L30IV2FA_F	MINOR	
S1_P118	IV2 CLOSING TIME SLOW	S1\L30IV2TF	MINOR	
S1_P119	IV3 FAST ACTING SOLN RELAY FAULT	S1\L30IV3_FA	DIAG	8
S1_P120	IV3 CLOSED POSITION OR FA SOLENOID FLT	S1\L30IV3FA_F	MINOR	
S1_P121	IV3 CLOSING TIME SLOW	S1\L30IV3TF	MINOR	
S1_P122	IV4 FAST ACTING SOLN RELAY FAULT	S1\L30IV4_FA	DIAG	8

NOTE 8 This alarm is NOT card related and may be reset as soon as the alarm condition clears.

ATTACHMENT D5

Alarm ID	Description	Signal Name	Alarm Class	NOTE
S1_P123	IV4 CLOSED POSITION OR FA SOLENOID FLT	S1L30IV4FA_F	MINOR	
S1_P124	IV4 CLOSING TIME SLOW	S1L30IV4TF	MINOR	
S1_P125	IV5 FAST ACTING SOLN RELAY FAULT	S1L30IV5_FA	DIAG	8
S1_P126	IV5 CLOSED POSITION OR FA SOLENOID FLT	S1L30IV5FA_F	MINOR	
S1_P127	IV5 CLOSING TIME SLOW	S1L30IV5TF	MINOR	
S1_P128	IV6 FAST ACTING SOLN RELAY FAULT	S1L30IV6_FA	DIAG	8
S1_P129	IV6 CLOSED POSITION OR FA SOLENOID FLT	S1L30IV6FA_F	MINOR	
S1_P130	IV6 CLOSING TIME SLOW	S1L30IV6TF	MINOR	
S1_P131	CTRL ROOM TRIP PB1/TRIP RELAY 1-1 FAULT	S1L30MCR1TRX11	MINOR	
S1_P132	CTRL ROOM TRIP PB2/TRIP RELAY 1-2 FAULT	S1L30MCR2TRX12	MINOR	
S1_P133	MOISTURE SEPARATOR A INPUTS DISAGREE S1L30MS	A DIF	MINOR	
S1_P134	MOISTURE SEPARATOR B INPUTS DISAGREE S1L30MS	B DIF	MINOR	
S1_P135	OFF-LINE PRIMARY OVERSPEED TEST FAULT	S1L30POST_OF_F	MAJOR	
S1_P136	SV1 CLOSED POSITION OR FA SOLENOID FLT	S1L30SV1FA_F	MINOR	
S1_P137	SV1 CLOSING TIME SLOW	S1L30SV1TS	MINOR	
S1_P138	SV2 CLOSED POSITION OR FA SOLENOID FLT	S1L30SV2FA_F	MINOR	
S1_P139	SV2 CLOSING TIME SLOW	S1L30SV2TS	MINOR	
S1_P140	SV3 CLOSED POSITION OR FA SOLENOID FLT	S1L30SV3FA_F	MINOR	
S1_P141	SV3 CLOSING TIME SLOW	S1L30SV3TS	MINOR	
S1_P142	SV4 CLOSED POSITION OR FA SOLENOID FLT	S1L30SV4FA_F	MINOR	
S1_P143	SV4 CLOSING TIME SLOW	S1L30SV4TS	MINOR	
S1_P144	SWC FLOW SWITCH INPUTS DISAGREE S1L30SWCDP	DIF	DIAG	8
S1_P145	SWC PRESSURE SWITCH INPUTS DISAGREE S1L30SWC	HP_DIF	DIAG	8
S1_P146	SWC TEMPERATURE SWITCH INPUTS DISAGREE S1L30SWCT	_ADIF	DIAG	8
S1_P147	EXCESSIVE SPEED ERROR	S1L30TN_ERR	MINOR	
S1_P148	TURBINE SPEED PICKUP FAULT OR FAILURE	S1L30TNF	MAJOR	
S1_P149	<Q> AND <P> SPEED DIFFERENCE FAULT S1L30T	NH_DIFF	MAJOR	
S1_P150	VIBRATION INPUT 1 INPUTS DISAGREE S1L30VIBT1	_DIF	DIAG	4, 8

NOTE 4 TSI High Vibration Trip is disabled.

NOTE 8 This alarm is NOT card related and may be reset as soon as the alarm condition clears.

ATTACHMENT D5

Alarm ID	Description	Signal Name	Alarm Class	NOTE
S1_P151	HYDRAULIC PRESSURE TRIP SWITCH DISAGREEMENT	S1L33HYD_ALM DIAG		8
S1_P152	SHAFT PUMP PRESSURE TRIP SWITCH DISAGREEMENT	S1L33MQT_ALM DIAG		8
S1_P153	AXIAL THRUST PROBES FAILED - TRIP	S1L39AXFT	MAJOR	
S1_P154	AXIAL THRUST POSITION PROBE 1 FAILURE	S1L39VF1	MINOR	
S1_P155	AXIALTHRUST POSITION PROBE 2 FAILURE	S1L39VF2	MINOR	
S1_P156	AXIAL THRUST POSITION PROBE 3 FAILURE	S1L39VF3	MINOR	
S1_P157	TSI HIGH VIBRATION TRIP	S1L39VIBT	MAJOR	4
S1_P158	VIBRATION TRIP INPUT FAULT	S1L39VIBT_ALM	MINOR	
S1_P159	UCVF AIR FLOW OR OVERTEMP TROUBLE	S1L3D_UCVF_AF	MINOR	
S1_P160	UCVF OVERTEMPERATURE	S1L3D_UCVF_OT	MINOR	
S1_P161	SWC RUNBACK FAILED - TRIP	S1L3SWCRB_TP	MAJOR	
S1_P162	CONTROL ROOM MANUAL TRIP PB	S1L5E_MCR	MAJOR	
S1_P163	TURB BEARING HEADER PRESS LOW TRIP	S1L63BHDR_T	MAJOR	
S1_P164	CONDENSER A VACUUM TRIP INPUTS DISAGREE	S1L63CVA_A	DIAG	8
S1_P165	CONDENSER B VACUUM TRIP INPUTS DISAGREE	S1L63CVB_A	DIAG	8
S1_P166	CONDENSER C VACUUM TRIP INPUTS DISAGREE	S1L63CVC_A	DIAG	8
S1_P167	CONDENSER VACUUM LOW TRIP	S1L63EVT	MAJOR	
S1_P168	EMERGENCY TRIP HEADER PRESS LOW	S1L63HQET	MAJOR	
S1_P169	HYDRAULIC FLUID PRESSURE LOW TRIP	S1L63HYD_T	MAJOR	
S1_P170	MSOP DISCHARGE PRESSURE LOW TRIP	S1L63MQLT	MAJOR	
S1_P171	LOW LUBE OIL PRESSURE SWITCH INPUTS DISAGREE	S1L63QT_DIF	DIAG	8
S1_P172	SWC LOW FLOW RUNBACK ENABLED	S1L63SWC_GPM_T	MAJOR	
S1_P173	SWC LOW PRESSURE RUNBACK ENABLED	S1L63SWC_HP_T	MAJOR	
S1_P174	EHC 125VDC CTRL PWR GROUND DETECTED S1L64D_PNA		MINOR	
S1_P175	VOTED MOISTURE SEPARATOR A LEVEL HIGH	S1L71MS_AA	MAJOR	
S1_P176	MOISTURE SEPARATOR A LEVEL HIGH TRIP	S1L71MS_AT	MAJOR	
S1_P177	VOTED MOISTURE SEPARATOR B LEVEL HIGH	S1L71MS_BA	MAJOR	
S1_P178	MOISTURE SEPARATOR B LEVEL HIGH TRIP	S1L71MS_BT	MAJOR	
S1_P179	REACTOR HIGH LEVEL INPUTS DISAGREE S1L71RL_A	LM	MINOR	
S1_P180	REACTOR HIGH LEVEL TRIP	S1L71RL_TRIP	MAJOR	

NOTE 4 TSI High Vibration Trip is disabled.

NOTE 8 This alarm is NOT card related and may be reset as soon as the alarm condition clears.

ATTACHMENT D5

Alarm ID	Description	Signal Name	Alarm Class	NOTE
S1_P181	GENERATOR LOCKOUT RELAY	S1L86G_T	MAJOR	
S1_P182	ON-LINE EMERGENCY OS TEST FAULT	S1L97EOS_FAL	MAJOR	
S1_P183	ON-LINE PRIMARY OS TEST FAULT	S1L97POS_FAL	MAJOR	
S1_P184	EXHAUST HOOD A THERMOSTAT ALARM INPUTS DISAGREE	S1LPAEXHA_ALM	DIAG	8
S1_P185	EXHAUST HOOD A THERMOSTAT TRIP INPUTS DISAGREE	S1LPAEXHT_ALM	DIAG	8
S1_P186	EXHAUST HOOD B THERMOSTAT ALARM INPUTS DISAGREE	S1LPBEXHA_ALM	DIAG	8
S1_P187	EXHAUST HOOD B THERMOSTAT TRIP INPUTS DISAGREE	S1LPBEXHT_ALM	DIAG	8
S1_P188	EXHAUST HOOD C THERMOSTAT ALARM INPUTS DISAGREE	S1LPCEXHA_ALM	DIAG	8
S1_P189	EXHAUST HOOD C THERMOSTAT TRIP INPUTS DISAGREE	S1LPCEXHT_ALM	DIAG	8
S1_P190	<R> PROCESSOR OFFLINE	S1\STATE_R_A	MINOR	
S1_P191	<S> PROCESSOR OFFLINE	S1\STATE_S_A	MINOR	
S1_P192	<T> PROCESSOR OFFLINE	S1\STATE_T_A	MINOR	
S1_P193	<R> SLOT 8 - MSV2 SERVO LOOP SUICIDED S1\SVAR8REG1S	S1\SVAR8REG1S	MAJOR	5
S1_P194	<R> SLOT 8 - IV1 SERVO LOOP SUICIDED S1\SVAR8REG3S	S1\SVAR8REG3S	MAJOR	5
S1_P195	<R> SLOT 9 - IV3 SERVO LOOP SUICIDED S1\SVAR9REG1S	S1\SVAR9REG1S	MAJOR	5
S1_P196	<R> SLOT 9 - IV5 SERVO LOOP SUICIDED S1\SVAR9REG3S	S1\SVAR9REG3S	MAJOR	5
S1_P197	<S> SLOT 8 - MSV2 SERVO LOOP SUICIDED S1\SVAS8REG1S	S1\SVAS8REG1S	MAJOR	5
S1_P198	<S> SLOT 8 - IV1 SERVO LOOP SUICIDED S1\SVAS8REG3S	S1\SVAS8REG3S	MAJOR	5
S1_P199	<S> SLOT 9 - IV3 SERVO LOOP SUICIDED S1\SVAS9REG1S	S1\SVAS9REG1S	MAJOR	5
S1_P200	<S> SLOT 9 - IV5 SERVO LOOP SUICIDED S1\SVAS9REG3S	S1\SVAS9REG3S	MAJOR	5
S1_P201	<T> SLOT 8 - MSV2 SERVO LOOP SUICIDED S1\SVAT8REG1S	S1\SVAT8REG1S	MAJOR	5
S1_P202	<T> SLOT 8 - IV1 SERVO LOOP SUICIDED S1\SVAT8REG3S	S1\SVAT8REG3S	MAJOR	5
S1_P203	<T> SLOT 9 - IV3 SERVO LOOP SUICIDED S1\SVAT9REG1S	S1\SVAT9REG1S	MAJOR	5
S1_P204	<T> SLOT 9 - IV5 SERVO LOOP SUICIDED S1\SVAT9REG3S	S1\SVAT9REG3S	MAJOR	5
S1_P205	<R> SLOT 7 - CV1 SERVO LOOP SUICIDED S1\SVOR7REG1S	S1\SVOR7REG1S	MAJOR	5
S1_P206	<R> SLOT 7 - CV3 SERVO LOOP SUICIDED S1\SVOR7REG2S	S1\SVOR7REG2S	MAJOR	5
S1_P207	<R> SLOT 7 - CV2 SERVO LOOP SUICIDED S1\SVOR7REG3S	S1\SVOR7REG3S	MAJOR	5
S1_P208	<R> SLOT 7 - CV4 SERVO LOOP SUICIDED S1\SVOR7REG4S	S1\SVOR7REG4S	MAJOR	5
S1_P209	<S> SLOT 7 - CV1 SERVO LOOP SUICIDED S1\SVOS7REG1S	S1\SVOS7REG1S	MAJOR	5
S1_P210	<S> SLOT 7 - CV3 SERVO LOOP SUICIDED S1\SVOS7REG2S	S1\SVOS7REG2S	MAJOR	5
S1_P211	<S> SLOT 7 - CV2 SERVO LOOP SUICIDED S1\SVOS7REG3S	S1\SVOS7REG3S	MAJOR	5
S1_P212	<S> SLOT 7 - CV4 SERVO LOOP SUICIDED S1\SVOS7REG4S	S1\SVOS7REG4S	MAJOR	5
S1_P213	<T> SLOT 7 - CV1 SERVO LOOP SUICIDED S1\SVOT7REG1S	S1\SVOT7REG1S	MAJOR	5
S1_P214	<T> SLOT 7 - CV3 SERVO LOOP SUICIDED S1\SVOT7REG2S	S1\SVOT7REG2S	MAJOR	5
S1_P215	<T> SLOT 7 - CV2 SERVO LOOP SUICIDED S1\SVOT7REG3S	S1\SVOT7REG3S	MAJOR	5

NOTE 5 S1 MASTER RESET must be pressed to restore logic after this alarm occurs even if the alarm has been acknowledged.

NOTE 8 This alarm is NOT card related and may be reset as soon as the alarm condition clears.

ATTACHMENT D5

Alarm ID	Description	Signal Name	Alarm Class	NOTE
S1_P216	<T> SLOT 7 - CV4 SERVO LOOP SUICIDED S1\SVOT7RE	G4S	MAJOR	5
S1_P217	<R> SLOT 2 UCVF DIAGNOSTIC ALARM	S1\XUCVFR0S02_A	DIAG	7
S1_P218	<S> SLOT 2 UCVF DIAGNOSTIC ALARM	S1\XUCVFS0S02_A	DIAG	7
S1_P219	<T> SLOT 2 UCVF DIAGNOSTIC ALARM	S1\XUCVFT0S02_A	DIAG	7
S1_P220	<R> SLOT 6 VAIC DIAGNOSTIC ALARM S1\XVAICR0S06_A		DIAG	7
S1_P221	<R> SLOT 12 VAIC DIAGNOSTIC ALARM	S1\XVAICR0S12_A	DIAG	7
S1_P222	<S> SLOT 6 VAIC DIAGNOSTIC ALARM	S1\XVAICS0S06_A	DIAG	7
S1_P223	<S> SLOT 12 VAIC DIAGNOSTIC ALARM	S1\XVAICS0S12_A	DIAG	7
S1_P224	<T> SLOT 6 VAIC DIAGNOSTIC ALARM	S1\XVAICT0S06_A	DIAG	7
S1_P225	<T> SLOT 12 VAIC DIAGNOSTIC ALARM	S1\XVAICT0S12_A	DIAG	7
S1_P226	<S> SLOT 14 VAOC DIAGNOSTIC ALARM	S1\XVAOCS0S14_A	DIAG	7
S1_P227	<R> SLOT 1 VCM I DIAGNOSTIC ALARM	S1\XVCMIR0S01_A	DIAG	7
S1_P228	<S> SLOT 1 VCM I DIAGNOSTIC ALARM	S1\XVCMIS0S01_A	DIAG	7
S1_P229	<T> SLOT 1 VCM I DIAGNOSTIC ALARM	S1\XVCMIT0S01_A	DIAG	7
S1_P230	<R> SLOT 4 VCRC DIAGNOSTIC ALARM	S1\XVCRCR0S04_A	DIAG	7
S1_P231	<R> SLOT 11 VCRC DIAGNOSTIC ALARM	S1\XVCRCR0S11_A	DIAG	7
S1_P232	<R> SLOT 13 VCRC DIAGNOSTIC ALARM	S1\XVCRCR0S13_A	DIAG	7
S1_P233	<R> SLOT 14 VCRC DIAGNOSTIC ALARM	S1\XVCRCR0S14_A	DIAG	7
S1_P234	<S> SLOT 4 VCRC DIAGNOSTIC ALARM	S1\XVCRCR0S04_A	DIAG	7
S1_P235	<S> SLOT 11 VCRC DIAGNOSTIC ALARM	S1\XVCRCR0S11_A	DIAG	7
S1_P236	<S> SLOT 13 VCRC DIAGNOSTIC ALARM	S1\XVCRCR0S13_A	DIAG	7
S1_P237	<T> SLOT 4 VCRC DIAGNOSTIC ALARM	S1\XVCRCR0S04_A	DIAG	7
S1_P238	<T> SLOT 11 VCRC DIAGNOSTIC ALARM	S1\XVCRCR0S11_A	DIAG	7
S1_P239	<T> SLOT 13 VCRC DIAGNOSTIC ALARM	S1\XVCRCR0S13_A	DIAG	7
S1_P240	<R> SLOT 17 VGEN DIAGNOSTIC ALARM	S1\XVGENR0S17_A	DIAG	7
S1_P241	<R> SLOT 18 VGEN DIAGNOSTIC ALARM	S1\XVGENR0S18_A	DIAG	7
S1_P242	<S> SLOT 17 VGEN DIAGNOSTIC ALARM	S1\XVGENS0S17_A	DIAG	7
S1_P243	<S> SLOT 18 VGEN DIAGNOSTIC ALARM	S1\XVGENS0S18_A	DIAG	7
S1_P244	<T> SLOT 17 VGEN DIAGNOSTIC ALARM	S1\XVGENT0S17_A	DIAG	7
S1_P245	<T> SLOT 18 VGEN DIAGNOSTIC ALARM	S1\XVGENT0S18_A	DIAG	7
S1_P246	<R> <X> VPRO DIAGNOSTIC ALARM S1\XVPROR8S01_A		DIAG	7
S1_P247	<S> <Y> VPRO DIAGNOSTIC ALARM S1\XVPROS8S02_A		DIAG	7
S1_P248	<T> <Z> VPRO DIAGNOSTIC ALARM S1\XVPROT	8S03_A	DIAG	7
S1_P249	<R> SLOT 8 VSVA DIAGNOSTIC ALARM	S1\XVSVAR0S08_A	DIAG	7
S1_P250	<R> SLOT 9 VSVA DIAGNOSTIC ALARM	S1\XVSVAR0S09_A	DIAG	7
S1_P251	<R> SLOT 10 VSVA DIAGNOSTIC ALARM	S1\XVSVAR0S10_A	DIAG	7
S1_P252	<R> SLOT 15 VSVA DIAGNOSTIC ALARM	S1\XVSVAR0S15_A	DIAG	7
S1_P253	<R> SLOT 16 VSVA DIAGNOSTIC ALARM	S1\XVSVAR0S16_A	DIAG	7
S1_P254	<S> SLOT 8 VSVA DIAGNOSTIC ALARM	S1\XVSVAS0S08_A	DIAG	7

NOTE 5 S1 MASTER RESET must be pressed to restore logic after this alarm occurs even if the alarm has been acknowledged.

NOTE 7 S1 Diagnostic Reset must be pressed to clear alarm even if alarm has been acknowledged.

ATTACHMENT D5

Alarm ID	Description	Signal Name	Alarm Class	NOTE
S1_P255	<S> SLOT 9 VSVA DIAGNOSTIC ALARM	S1\XVSVAS0S09_A	DIAG	7
S1_P256	<S> SLOT 10 VSVA DIAGNOSTIC ALARM	S1\XVSVAS0S10_A	DIAG	7
S1_P257	<S> SLOT 15 VSVA DIAGNOSTIC ALARM	S1\XVSVAS0S15_A	DIAG	7
S1_P258	<S> SLOT 16 VSVA DIAGNOSTIC ALARM	S1\XVSVAS0S16_A	DIAG	7
S1_P259	<T> SLOT 8 VSVA DIAGNOSTIC ALARM	S1\XVSVAT0S08_A	DIAG	7
S1_P260	<T> SLOT 9 VSVA DIAGNOSTIC ALARM	S1\XVSVAT0S09_A	DIAG	7
S1_P261	<T> SLOT 10 VSVA DIAGNOSTIC ALARM	S1\XVSVAT0S10_A	DIAG	7
S1_P262	<T> SLOT 15 VSVA DIAGNOSTIC ALARM	S1\XVSVAT0S15_A	DIAG	7
S1_P263	<T> SLOT 16 VSVA DIAGNOSTIC ALARM	S1\XVSVAT0S16_A	DIAG	7
S1_P264	<R> SLOT 7 VSVO DIAGNOSTIC ALARM	S1\XVSVOR0S07_A	DIAG	7
S1_P265	<S> SLOT 7 VSVO DIAGNOSTIC ALARM	S1\XVSVOS0S07_A	DIAG	7
S1_P266	<T> SLOT 7 VSVO DIAGNOSTIC ALARM	S1\XVSVOT0S07_A	DIAG	7
S1_P267	<R> SLOT 19 VTUR DIAGNOSTIC ALARM	S1\XVTURR0S19_A	DIAG	7
S1_P268	<R> SLOT 20 VTUR DIAGNOSTIC ALARM	S1\XVTURR0S20_A	DIAG	7
S1_P269	<S> SLOT 19 VTUR DIAGNOSTIC ALARM	S1\XVTURS0S19_A	DIAG	7
S1_P270	<S> SLOT 20 VTUR DIAGNOSTIC ALARM	S1\XVTURS0S20_A	DIAG	7
S1_P271	<T> SLOT 19 VTUR DIAGNOSTIC ALARM	S1\XVTURT0S19_A	DIAG	7
S1_P272	<T> SLOT 20 VTUR DIAGNOSTIC ALARM	S1\XVTURT0S20_A	DIAG	7
S1_P273	<R> SLOT 5 VVIB DIAGNOSTIC ALARM	S1\XVVIBR0S05_A	DIAG	7
S1_P274	<S> SLOT 5 VVIB DIAGNOSTIC ALARM	S1\XVVIBS0S05_A	DIAG	7
S1_P275	<T> SLOT 5 VVIB DIAGNOSTIC ALARM	S1\XVVIBT0S05_A	DIAG	7
S1_P276	ETD ISOLATION VALVE STATUS UNKNOWN	S1\L33ETDSYS_VF	MAJOR	

NOTE 7 S1 Diagnostic Reset must be pressed to clear alarm even if alarm has been acknowledged.

ATTACHMENT E2

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D4672	250VDC SWGR 10D170	Battery chargers 10D423, 10D433 and will trip on CHARGER HIGH DC VOLTAGE
D4673	250VDC BATTERY CHARGER 10D143	
D4674	250VDC BATTERY 10D141 POWER AVAILABLE	

REFERENCES: E-3110-0 E-0067-0
 CD-185B INPO SOER 83-05R08

ATTACHMENT E3

120 VAC

UPS

TROUBLE

Window Location D3-E3

OPERATOR ACTION:

1. **CHECK** all 1E loads have power supplied to them.

NOTE

Loss of Synch alarms may be initiated during periods when an UPS is fed from an EDG. This is due to slight fluctuations in EDG output frequency.

2. **REFER** to front panel of inverter, rectifier or line voltage regulator for specific problem information.
3. **ENSURE** compliance with the operability requirements of Tech Spec 3/4.8.

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D4970	120VAC UPS 1AD481/1CD481	Possible auto transfer to either alternate power (DC) or backup power
D4971	120VAC UPS 1BD481/1DD481	
D4972	120VAC UPS 1AD482/1CD482	
D4973	120VAC UPS 1BD482/1DD482	
D4974	120VAC UPS 1AD/1BD492	
D4975	120VAC UPS 10D496	
D4976	120VAC UPS 0BD595	
D4977	120VAC UPS 0AD495	
D4978	120VAC UPS 10D485	

(continued on next page)

REFERENCES: E154(Q)-5, Sht. 1, E154(Q)-33, Sht. 1 E-3120-0
 E-0012-1, Sht. 1, Sht. 2, Sht. 3, Sht. 4, Sht. 5 E-6745-0
 PE154Q-0016, 0017, 0019

ATTACHMENT E3

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D4979	120VAC UPS 1AD483/1CD483	Possible auto transfer to either alternate power (DC) or backup
D4980	120VAC UPS 1BD483/1DD483	
D4981	120VAC UPS 1AD484/1CD484	
D4982	120VAC UPS 1BD484/1DD484	
D4983	120VAC UPS 1AD491	
D4984	120VAC UPS 1BD491	
D4985	120VAC UPS 1CD491	
D4986	120VAC UPS 00D491	
D5148 COMMON	UPS TRANSFER SWITCH	

REFERENCES: E154(Q)-5, Sht. 1, E154(Q)-33, Sht. 1 E-3120-0
 E-0012-1, Sht. 1, Sht. 2, Sht. 3, Sht. 4, Sht. 5
 E-6745-0

**ATTACHMENT E3
Inverter Fuses**

The inverter fuse and alarm assembly (Cyberex part number 41-05-250871) monitors 18 fuses. When any one of 17 fuses open (clear) a front panel mounted alarm light will indicate Blown Control Fuse. If the main power fuse, F101 opens (clear), a front panel mounted alarm light will indicate Blown Main Fuse. Some of the 17 control fuses, if open, will render the inverter inoperable. The following list describes the purpose of the fuse and also describes the consequences of the blown fuse.

Blown Fuse	Description	Inverter Status
F10 F11	DC filter charge light, front door mounted DC voltmeter, DC voltage transducer (in 1E inverters only)	Operable
F115 F116	Fans Operable	
F12	Loss of inverter output alarm relay	Operable
F13	Inverter output filter, trap assembly	INOPERABLE
F112	DC power supply feed	INOPERABLE
F113A thru F113G	DC filter bank	INOPERABLE
F109 F110 F111	DC filter bank charge, power supply feed, inverter operable with blown fuses as long as CB101 is closed and F101 is not open. (Inverter will sound normal and rectifier or battery section will be providing power. Inverter cannot be started (if off) with blown fuses.	Operable
F101 Inverter	main power fuse	INOPERABLE

**ATTACHMENT E3
Regulator/Static Exciter Fuses**

The Regulator/Static Exciter fuse and alarm assembly (Cyberex part number 41-05-251421) monitors 14 fuses. When any one of 14 fuses open (clear) a front panel mounted alarm light will indicate Blown Control Fuse. If the main power fuse, F301 opens (clear), a front panel mounted alarm light will indicate Blown Main Fuse. Some of the 14 control fuses, if open, will render the inverter inoperable. The following list describes the purpose of the fuse and also describes the consequences of the blown fuse.

Blown Fuse	Description	Inverter Status
F30	Loss of backup alarm	Operable
F31	Line regulator and static switch synch circuit and alarm	Operable
F41 F42	Static switch fan	Operable
F43	AC Power to voltage and current transducer for indication only	Operable
F44	Door mounted voltmeter	Operable
F151	Power fuse into static switch from inverter	INOPERABLE
F152	Power fuse into static switch from AC line regulator	Operable
F155	AC-DC converter for static switch from preferred AC	INOPERABLE
F156	AC-DC converter for static switch from alternate AC	INOPERABLE
F157	Static switch snubber board	INOPERABLE
F301 Regulator/Static	exciter main fuse	INOPERABLE
F302	Line regulator control power	INOPERABLE
F303	Line regulator control sensing voltage	Operable

**ATTACHMENT E3
Rectifier Fuses**

The rectifier fuse and alarm assembly (Cyberex part number 41-05-251431) monitors 14 fuses. When any one of 14 fuses open (clear) a front panel mounted alarm light will indicate Blown Control Fuse. If the main power fuse, F201 opens (clear), a front panel mounted alarm light will indicate Blown Main Fuse. Some of the 14 control fuses, if open, will render the inverter inoperable. The following list describes the purpose of the fuse and also describes the consequences of the blown fuse.

Blown Fuse	Description	Inverter Status
F20	Blown main indicating fuse, alarm only	Operable
F21	AC power rectifier section to fans	Operable
F22	Loss of rectifier normal power alarm relay	Operable
F24	Loss of alternate power alarm; tracking voltage input to control logic; lockout solenoid for DC bypass switch	INOPERABLE
F25 F27	Alarm for blown main fuse rectifier section	Operable
F26 F28	DC-DC converter for static switch	INOPERABLE
F207	Right rectifier fan	Operable
F208	Left rectifier fan	Operable
F204 F205 F206	Three phase power to rectifier control logic	Operable

**ATTACHMENT E3
UPS Alarms**

UPS Location		Description	Note
1A-D-483	Control 54', 5102	Miscellaneous Instrumentation	
1B-D-483	Control 54', 5102		
1C-D-483	Control 54', 5102		
1D-D-483	Control 54', 5102		
1B-D-481	Control 124', 5448	1E Instrumentation	1E
1D-D-481	Control 124', 5448		1E
0A-D-495	Control 137', 5501	Plant Security System	1E
0B-D-495	Guardhouse 80'	Plant Security System	
1A-D-481	Control 137', 5501	1E Instrumentation	1E
1C-D-481	Control 137', 5501		1E
10-D-496	Control 137', 5501	Public Address System	1E
1A-D-491	Diesel 146', 5544	Standby Lighting Control Area	
1B-D-491	Diesel 146', 5540	Standby Lighting Rx Bldg	
1C-D-491	Diesel 146', 5542	Standby Lighting Turb Bldg	
00-D-491	Diesel 146', 5538	Standby Lighting Radwaste Area	
1A-D-482	Diesel 163', 5616	1E Instrumentation	1E
1B-D-482	Diesel 163', 5615		1E
1C-D-482	Diesel 163', 5613		1E
1D-D-482	Diesel 163', 5607		1E
1A-D-484	Diesel 163', 5628	Miscellaneous Instrumentation	
1B-D-484	Diesel 163', 5624		
1C-D-484	Diesel 163', 5628		
1D-D-484	Diesel 163', 5624		
1A-D-492	Diesel 163', 5623	BOP Computer	Both feed the BOP computer through a common transfer switch 10N401
1B-D-492	Diesel 163', 5622		
10-D-485	Diesel 163', 5622	NSSS Computer	1E
	Switchyard 102'	Relay Racks & S.O. Computer	

ATTACHMENT E5

**TURB HYD
RESERVOIR
TROUBLE**

Window Location D3-E5

OPERATOR ACTION:

IE Main Turbine has tripped,
RESPOND in accordance with HC.OP-AB.BOP-0002(Q), Main Turbine.

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D3354 NOTE 1	TURBINE EHC RESERVOIR LEVEL	Alarm only
D3355 NOTE 1	TURBINE EHC RESERVOIR LEVEL	Alarm only
D4608	HYDR FLUID RSVR LOW TEMP	Heater-Fan unit starts
D5575 NOTE 1	TURBINE HYDRAULIC FLUID PRESS	Standby Hydraulic Fluid Pump starts
D5578	TURB EHC RESERVOIR LEVEL	Alarm only
D5579	HYDRAULIC FLUID RESERVOIR TEMP	Heater-Fan unit stops
<div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: 80%;"> <p><u>NOTE 1</u></p> <p>Digital Points D3354, D3355 and D5575 - there can be a physical delay between the activation of the overhead and the computer point coming into alarm. Ref. J-0100, Sht 17. [80071435]</p> </div>		

REFERENCES: J-0100, Sht. 17, Sht. 18

ATTACHMENT F2

**125 VDC
SYSTEM
TROUBLE**

Window Location D3-F2

OPERATOR ACTION:

ENSURE compliance operability requirements of Technical Specifications 3.8.2.1 or 3.8.2.2.

NOTE
This annunciator will alarm when an EDG starts. The alarm is momentary and will clear when acknowledged. No operator action is required.

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D4630	125VDC SWGR 10D410	Alarm only
D4631	125VDC BATTERY CHARGER 1AD413	Alarm <u>OR</u> Trip
D4632	125VDC BATTERY CHARGER 1AD414	
D4633	125VDC BATT 1AD411 PWR AVAIL	Alarm only
D4634	125VDC SWGR 10D420	
D4635	125VDC BATTERY CHARGER 1BD413	Alarm <u>OR</u> Trip
D4636	125VDC BATTERY CHARGER 1BD414	
D4637	125VDC BATT 1BD411 PWR AVAIL	Alarm only
D4638	125VDC SWGR 10D430	
Continued next page		

REFERENCES: E-0009-1, Sht. 1, Sht. 4 E-3090-0, Sht. 1, Sht. 2
 E-6744-0, Sht. 1, Sht. 2
 CD-185B INPO SOER 83-05R08

ATTACHMENT F2

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D4639	125VDC BATTERY CHARGER 1CD413	Alarm <u>OR</u> Trip
D4640	125VDC BATTERY MONITOR 1CD414	
D4642	125VDC SWGR 10D440	Alarm only
D4643	125VDC BATTERY CHARGER 1DD413	Alarm <u>OR</u> Trip
D4644	125VDC BATTERY CHARGER 1DD414	
D4645	125VDC BATT 1DD411 PWR AVAIL	Alarm only
D4646	125VDC SWGR 10D470	
D4647	125VDC BATTERY CHARGER 1A1D473	Alarm <u>OR</u> Trip
D4648	125VDC BATTERY CHARGER 1A2D473	
D4649	125VDC BATT 1A1D471 PWR AVAIL	Alarm only
D4650	125VDC BATT 1A2D471 PWR AVAIL	
D4651	125VDC SWGR 10D480	
D4652	125VDC BATTERY CHARGER 1B1D473	Alarm <u>OR</u> Trip
D4653	125VDC BATTERY CHARGER 1B2D473	
D4654	125VDC BATT 1B1D471 PWR AVAIL	Alarm only
D4655	125VDC BATT 1B2D471 PWR AVAIL	
D5386	125VDC SWGR 10D510	
D5387	125VDC BATTERY CHARGER 10D514	Alarm <u>OR</u> Trip
Continued next page		

REFERENCES: E-0009-1, Sht. 1, Sht. 4 E-3090-0, Sht. 1, Sht. 2
 E-6744-0, Sht. 1, Sht. 2
CD-185B INPO SOER 83-05R08

ATTACHMENT F2

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D5388	125VDC BATT 10D511 PWR AVAIL	Alarm only
D5389	125VDC SWGR 10D436	
D5390	125VDC BATTERY CHARGER 1CD444	Alarm or Trip
D5391	125VDC BATT 1CD447 PWR AVAIL	Alarm only
D5392	125VDC SWGR 10D446	
D5393	125VDC BATTERY CHARGER 1DD444	Alarm <u>OR</u> Trip
D5394	125VDC BATT 1DD447 PWR AVAIL	Alarm only
D5395	125VDC SWGR 10D476	
D5396	125VDC BATTERY CHARGER 1A1D474	Alarm <u>OR</u> Trip
D5397	125VDC BATTERY CHARGER 1A2D474	
D5398	125VDC BAT 1A1D477 PWR AVAIL	Alarm only
D5399	125VDC BAT 1A2D477 PWR AVAIL	
D5400	125VDC SWGR 10D486	
D5401	125VDC BATTERY CHARGER 1B1D474	Alarm <u>OR</u> Trip
D5402	125VDC BATTERY CHARGER 1B2D474	
D5403	125VDC BAT 1B1D477 PWR AVAIL	Alarm only
D5404	125VDC BATT 1B2D477 PWR AVAIL	

REFERENCES: E-0009-1, Sht. 1, Sht. 4 E-3090-0, Sht. 1, Sht. 2
 E-6744-0, Sht. 1, Sht. 2
CD-185B INPO SOER 83-05R08

ATTACHMENT F3

**± 24VDC
SYSTEM
TROUBLE**

Window Location D3-F3

OPERATOR ACTION:

IE Reactor Mode Switch is not in RUN,
ENSURE compliance with operability requirements of Technical Specifications 3.3.1,3.3.6 and 3.3.7.6 (SRM'S, IRM'S and Trip Aux Units).

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D4656	24VDC PNL AD307 LESS THAN 24V	None
D4657	24VDC BATTERY CHARGER 1AD303	
D4658	24VDC BATTERY CHARGER 1AD304	
D4659	24VDC BATT 1AD301 PWR AVAIL	
D4660	24VDC PNL 1BD307 LESS THAN 24V	
D4661	24VDC BATTERY CHARGER 1BD303	
D4662	24VDC BATTERY CHARGER 1BD304	
D4663	24VDC BATT 1BD301 PWR AVAIL	

REFERENCES: J-0625-0, page 266 12/06/83
 E-3100-0
 E-0120-0
 CD-185B SOER 83-05R03

ATTACHMENT F5

**TURB HYDR
PUMP
TROUBLE**

Window Location D3-F5

OPERATOR ACTION:

1. **MAINTAIN** EHC oil header at proper pressure.
2. **REFER** to HC.OP-AB.BOP-0003(Q), Turbine Hydraulic Pressure.

INPUTS

Digital Point/ Indication	Nomenclature/Condition Automatic	Action
D3626	MN TURB EHC PMP A IN AUTO	Alarm only
D3627	MAIN TURB EHC PUMP A FILTER DP	Alarm only
D3628	MAIN TURB EHC PUMP B IN AUTO	Alarm only
D3629	MAIN TURB EHC PUMP B FILTER DP	Alarm only
D5540	EHC LOW PRESS AP116 AUTO START	EHC Pump AP116 starts
D5541	EHC LOW PRESS BP116 AUTO START	EHC Pump BP116 starts
D5542	HYDRAULIC FLUID PUMP A	<u>I</u> F low EHC fluid pressure is the cause of the alarm, B Pump will start.
D5543	HYDRAULIC FLUID PUMP B	<u>I</u> F low EHC fluid pressure is the cause of the alarm, A Pump will auto start.
D5544	HYDRAULIC FLUID TRANSFER PUMP	Pump (10P121) stops

REFERENCES: J-0100-0, Sht. 4, Sht. 5, Sht. 6, Sht. 17
 GEK-46497
 M3TK1-1