

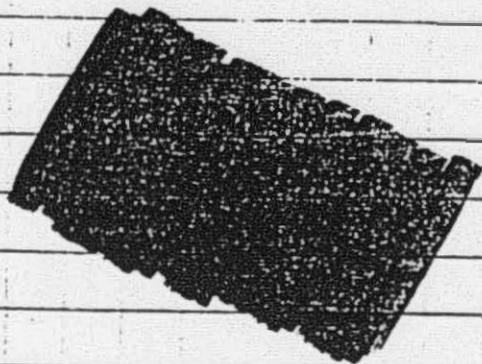
EMERGENCY Procedure # EP#24

TITLE: Responses For H₂ Recalibration Alarm Indications

Approvals:

PORC	<u>Leon Petrovic</u>	DATE	<u>4/3/79</u>
Unit Supt.	<u>J. Little</u>	DATE	<u>4/7/79</u>
BFO	<u>W. S. ...</u>	DATE	<u>4-3-79</u>
NRC	<u>W. A. Bush</u>	DATE	<u>4/3/79</u>
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NRC



ALARM:

337.A1

Heat Exchanger Off. (Heat Exchanger Fan)SET POINTS:

N/A

CAUSES:

1. Circuit breaker tripped or open, CB-1.
2. Main Control Switch in stop, HSI.
3. Fan starter in Auto, and TSH-1 (Blower outlet temperature) high.
4. Fan starter in Auto, and ^{LOW} flow measured.
5. Fan motor overload.
6. STARTER MALFUNCTION (CONTROL COIL FAILURE, OPEN CIRCUIT)

AUTOMATIC ACTION:

1. IF CONDITION IS NOT QUICKLY CORRECTED, THE GAS RETURN TEMPERATURE HIGH ALARM WILL TURN HEATERS OFF.
2. IF FAN MOTOR OVERLOAD IS TRIPPED, IT WILL AUTOMATICALLY RESET.

OBSERVATIONS (PANEL 337):

1. Circuit Breaker Tripped alarm 337.B1.
2. Control switch position.
3. Fan starter position.
4. TSH-1 setpoint.
5. Low Flow Alarm 337.B2.

MANUAL ACTION REQUIRED:

1. Verify circuit breaker not tripped. If it is tripped, attempt to reset. If it cannot be reset, shutdown the recombiner, and repair cause of trip.
2. Verify proper control switch and ^{FAN} ~~blower~~ starter positions.
3. Verify proper blower outlet temperature switch settings, and proper flow rate from indicators.
4. If the fan's circuit breaker is not tripped, the fan may be operated manually by placing its starter to MANUAL.

154 079

10/13/77

ALARM:

337.A2

Pos. Disp. Blower OffSET POINTS:

NA

CAUSES:

1. Circuit breaker tripped or open, CB-1.
2. Main control switch in stop, HS-1.
3. Blower starter in Auto, and TSH-1 (Blower outlet temperature) high.
4. Blower motor overload.
5. Blower starter in Auto, and Low ^{-Low} Flow measured.
6. STARTER MALFUNCTION

AUTOMATIC ACTION:

None.

OBSERVATIONS (PANEL 337):

1. Circuit Breaker Tripped Alarm, 337.B1.
2. Control switch position.
3. Blower starter position.
4. TSH-1 setpoint.
5. Low Flow Alarm, 337.B2.

MANUAL ACTION REQUIRED:

1. Verify circuit breaker not tripped. *If it* is tripped, attempt to reset it. If it cannot be reset, shutdown the recombiner and repair cause of trip.
2. Verify proper control switch, and blower starter position.
3. Verify proper blower outlet temperature switch setting and proper flow from indicators.
4. If the blower's circuit breaker is not tripped, the blower may be operated manually by placing its starter to MANUAL.

154 080

ALARM:

337.A4

Reaction Chamber Temperature High

SET POINTS:

1400°F (variable) (TSH-4)

CAUSES:

1. Temperature switch TSH-4 set too low.
2. Temperature indicating controller set too high, TIC-4.
3. Heater control malfunction.

AUTOMATIC ACTION:

None.

OBSERVATIONS (PANEL 337):

1. Reaction chamber temperature on TIC-4, and ~~TSH-4.~~

MANUAL ACTION REQUIRED:

1. Verify no other high temperature alarms.
2. Attempt to lower temperature by lowering setpoint of TIC-4, *IF HIGH.*
3. If unable to lower and control temperature, shutdown the recombiner and investigate problem.

ALARM:

337.A5

Gas Return Temperature High.

SET POINTS:

150°F (variable)(TISX-6)

CAUSES:

1. TISX-6 set too low.
2. Air blast heat exchanger malfunction.

AUTOMATIC ACTION:

1. Heater circuit breaker CB-3 trips.

OBSERVATIONS (PANEL 337):

1. Gas return temperature from TISX-6.
2. ~~Heat exchanger inlet temperature from TISX-5.~~

MANUAL ACTION REQUIRED:

1. Check setting of TISX-6 per 2104-6.4 or applicable surveillance procedure.
2. When alarm has reset, reclose CB-3. If the alarm annunciates again, secure the recombiner and investigate the problem.

154 082

ALARM:

337.81

Circuit Breaker Tripped

SET POINTS:

CB-1 ~ 20 amps.
CB-2 ~ 15 amps.
CB-3 ~ 50 amps or shunt trip.

CAUSES:

1. Circuit breaker CB-1, CB-2, or CB-3 tripped.

NOTE: CB-3 the Heater circuit breaker trips on high heater *WALL* temperature (TSX-2), high gas return temperature (TISX-6) or high heat exchanger inlet temperature (TISX-5).

AUTOMATIC ACTION:

None.

OBSERVATIONS (PANEL 337):

1. Other alarms.
2. Reaction chamber gas temperature indicating controller.

MANUAL ACTION REQUIRED:

1. Determine which breaker(s) has tripped. If CB-1 or CB-2 has tripped, this alarm should be accompanied by a "Slower Off" or "Heat Exchanger Off" alarm respectively. Follow up per applicable alarm response.
2. If CB-3 tripped, the heaters deenergize, and the reaction chamber gas temperature will decrease. Verify setpoints of TISX-5, TISX-6 and TSX-2 per 2104-6.4 or applicable surveillance procedure.
3. Attempt to reset breaker(s).
4. Determine cause of breaker trip, and correct.

ALARM:

337.B2

Low Flow

SET POINTS:

1. \approx 30 CFM (FT-1) LOW
2. \approx 20 CFM (FT-1) LOW-LOW

CAUSES:

1. Blower malfunction.
2. FT-1 malfunction.
3. Improper valve lineup.
4. DIFFERENTIAL PRESSURE TRANSMITTER
5. T2 TIMER INTERLOCK CONTACTS MALFUNCTION:

AUTOMATIC ACTION:

1. If flow decrease to \approx 20 CFM, the blower and the heat exchanger fan will trip.

OBSERVATIONS (PANEL 337):

1. Flowrate on FI-1.
2. T2 TIMER SETTING

MANUAL ACTION REQUIRED:

1. If low flow alarm occurs immediately after starting the blower verify proper valve lineup AND T2 SETTING.
- ~~2. The heat exchanger fan and the blower may be manually operated by placing their starters to "MANUAL."~~
3. If unable to correct cause of alarm, secure the recombiner and investigate the problem.

ALARM:

337.B4

Reaction Chamber Gas Temperature Low

SET POINTS:

~~550⁰~~ (variable) (TSL-4)
1000^F

CONTROLLED COPY
CONTROL ROOM
FILE COPY

CAUSES:

1. Heater malfunction.
2. Heater circuit breaker open.
3. Temperature controller or temperature switch malfunction.
4. Heaters not up to normal temperature on startup, and alarm cutout timer timed out.

AUTOMATIC ACTION:

None.

OBSERVATIONS (PANEL 337):

1. Reaction Chamber gas temperature from TIC-4.
- ~~2. Heater gas outlet temperature, TS3.~~
- ~~3. Setpoint of TSL-4.~~
4. Low temperature alarm cutout timer (T1).

MANUAL ACTION REQUIRED:

1. Check setpoints to TS3, TSL-4, and TIC-4 against desired setpoint in 2104-6.4 or applicable surveillance procedure.
2. Check heater circuit breaker closed, CS-3.
3. Check T1 setting. During a startup, it should be set for approximately 2 hours.
- ~~4. Attempt to increase temperature with gas temperature indicating controller TIC-4.~~
5. If temperature cannot be maintained, shutdown and correct cause of alarm.