

WP 04-ED4301

Revision 2

Diesel Generators 1 and 2 Local Alarm Response

Technical Procedure

EFFECTIVE DATE: 02/05/04

Leroy Bostick
APPROVED FOR USE

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ENGINE CRANK

ALARM	SET POINT
ENGINE CRANK	Start-up to 600 (550 to 650) revolutions per minute (rpm)

IMMEDIATE ACTIONS

- 1.0 Push EMERGENCY STOP button to stop engine.
- 2.0 Position ENGINE MODE switch to OFF/RESET.
- 3.0 **IF** start-up attempt was initiated by Central Monitoring Room Operator (CMRO),
THEN request CMRO to initiate remote shutdown signal.

POSSIBLE CAUSES

- Diesel generator (DG) engine started and starter motor remained engaged.

END

PRE-OIL PRESSURE

ALARM	SET POINT
PRE-OIL PRESSURE	30 psi [pounds per square inch]

IMMEDIATE ACTIONS

- 1.0 Observe and note lube oil pressure on mechanical oil pressure gauge.
- 2.0 Verify lube oil level.
- 3.0 **IF** not normal,
THEN secure DG as directed by Facility Shift Manager (FSM).
- 4.0 Verify lube oil temperature.
- 5.0 **IF** not normal,
THEN secure DG as directed by FSM.

POSSIBLE CAUSES

- Engine lube oil low
- Engine lube oil pump defective
- Lube oil instrumentation defective
- Lube oil temperature high

END

PRE-WATER TEMPERATURE

ALARM	SET POINT
PRE-WATER TEMPERATURE	200° Fahrenheit (F)

IMMEDIATE ACTIONS

- | 1.0 Observe and note cooling water temperature as indicated on digital water temperature read-out (Thermocouple [T/C] meter relay #1).
- | 2.0 If plant conditions allow, reduce DG load.
- | 3.0 Verify engine water level.
- 4.0 **IF** not normal,
THEN secure DG as directed by FSM.
- | 5.0 Verify jacket water heater lineup.

POSSIBLE CAUSES

- Engine water low
- Engine water pump defective
- Engine water temperature instrumentation defective
- Jacket water heater isolation valves closed

END

LOW FUEL LEVEL

ALARM	SET POINT
LOW FUEL LEVEL	100 Gallons

IMMEDIATE ACTIONS

- 1.0 Observe and note level as indicated on fuel level gauge.
- 2.0 **GO TO** WP 04-ED1301, Diesel Generator Operation, refuel DG.

POSSIBLE CAUSES

- Fuel tank level low on diesel fuel
- Fuel tank level instrumentation defective

END

START FAIL

ALARM	SET POINT
START FAIL	Four 15-second cranks and three 15-second rests

AUTOMATIC ACTIONS

- Engine will terminate automatic start.

IMMEDIATE ACTIONS

1.0 Position ENGINE MODE switch to OFF/RESET.

POSSIBLE CAUSES

- No fuel to cylinder
- Dirty fuel filter
- Fuel pressure low
- Bad quality fuel
- No air to cylinders
- Dirty air filters
- Cold engine (jacket water heater isolation valves closed)

END

LOW OIL PRESSURE

ALARM	SET POINT
LOW OIL PRESSURE	20 psi

AUTOMATIC ACTIONS

- Engine will shutdown.

IMMEDIATE ACTIONS

- 1.0 **IF** engine **DOES NOT** stop,
THEN immediately push EMERGENCY STOP button to stop engine.
- 2.0 Position ENGINE MODE switch to OFF/RESET.

POSSIBLE CAUSES

- Lube oil low
- Lube oil instrumentation defective
- Dirty oil filter
- Oil pump defective

END

HIGH WATER TEMPERATURE

ALARM	SET POINT
HIGH WATER TEMPERATURE	210°F

AUTOMATIC ACTIONS

- Engine will shutdown.

IMMEDIATE ACTIONS

- 1.0 **IF** engine **DOES NOT** stop,
THEN immediately push EMERGENCY STOP button to stop engine.
- 2.0 Position ENGINE MODE switch to OFF/RESET.

POSSIBLE CAUSES

- Water level low
- Jacket water heater hose leaking
- Jacket water heater isolation valves closed
- Thermostat defective
- Water temperature instrumentation defective

END

ENGINE OVERSPEED

ALARM	SET POINT
ENGINE OVERSPEED	1,980 rpm

AUTOMATIC ACTIONS

- Engine will shutdown.

IMMEDIATE ACTIONS

- 1.0 **IF** engine **DOES NOT** stop,
THEN immediately push EMERGENCY STOP button to stop engine.
- 2.0 Position ENGINE MODE switch to OFF/RESET.

POSSIBLE CAUSES

- Governor malfunction
- Auto Start Unit defective

END

OVERCURRENT

ALARM OVERCURRENT	SET POINT ≥2,000 amps
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AUTOMATIC ACTIONS

- DG output breaker will trip and diesel continues running.

IMMEDIATE ACTIONS

- 1.0 **IF** the DG output breaker does not trip,
THEN trip the breaker.
- 2.0 Secure diesel engine as directed by the FSM.

POSSIBLE CAUSES

- Overload condition has occurred
- Short-circuit fault condition has occurred
- Ground fault condition has occurred

END

REVERSE POWER

ALARM	SET POINT
REVERSE POWER	10% of input current /5 amps Delay: 2.5 seconds

AUTOMATIC ACTIONS

- DG output breaker will trip and diesel will continue running.

IMMEDIATE ACTIONS

- 1.0 **IF** the DG output breaker does not trip,
THEN, trip the breaker.
- 2.0 Secure diesel engine as directed by the FSM.

POSSIBLE CAUSES

- Reverse power flow
- Directional/Reverse power relay

END