

## Procedure Review Request Form (PRRF)

VOID

(1) No. 14980-1 Current Rev. 18 New Rev. 19Title Diesel Generator Operability Test( ) New ( ☒ ) Revision ( ) Deletion ( ) Biennial Review  
No Change RequiredReason for change Add provision that pre-start cyl. moisture checks not require D/G valve  
addendum 4 hrs. to incorp. TCP 14980-1-18-10-1, change provision 3.4 that state "start combine this"  
per Res. Supp. 70-0076, shift caution in compressor test for clarity, shuttle USS & Shift Clock  
signature on completion, sign to ensure copy to Sys. Engr., correct governor settings per TCPOriginator [Signature]  
(Signature)4/4/90  
(Date)14980-1-18-90(2) All Identified Commitments included or resolved: ( ☒ ) Y ( ) N  
Quality Review performed by: [Signature] 4-5-90  
(Signature) (Date)(3) PRB review required (Table 2 or Safety Evaluation) ( ) Y ( ☒ ) N  
Safety Evaluation attached: ( ☒ ) Y ( ) N  
Environmental Evaluation Determination Performed: ( ☒ ) Y ( ) N  
Environmental Evaluation Determination Attached: ( ☒ ) Y ( ) N(4) Responsible Dept. Manager Approval [Signature] 4-5-90  
(Signature) (Date)(5) PRB Meeting No. \_\_\_\_\_ Date \_\_\_\_\_  
Recommend: ( ) Approval ( ) Approval w/comment ( ) Rejection  
This procedure does/does not contain an Unreviewed Safety  
Question.  
PRB Chairman NA \_\_\_\_\_  
(Signature) (Date)(6) PRB comments resolved and procedure changes do not impact  
Commitment Tracking or Safety Evaluation reviews:  
Responsible Dept. Manager Approval NA \_\_\_\_\_  
(Signature) (Date)(7) Disposition: ( ☒ ) Approved ( ) Rejected

Reason for Rejection: \_\_\_\_\_

Approving Authority [Signature] 4-5-90  
(Signature) (Date)

FIGURE 1

Approval

*G. Lush*

Date

4-5-90

Vogtle Electric Generating Plant  
NUCLEAR OPERATIONSUnit 1

Georgia Power

Procedure No.

14980-1

Revision No.

19

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**VOID**DIESEL GENERATOR OPERABILITY TEST1.0 PURPOSE

1.1 This surveillance procedure is used to demonstrate the operability of the Emergency Diesel Generators. This procedure should not be used for maintenance troubleshooting or testing.

1.2 This surveillance satisfies these Technical Specification Requirements:

4.8.1.1.2.a  
4.8.1.1.2.b  
4.8.1.1.2.g

1.3 The frequency of this test is given by Technical Specification Table 4.8-1.

2.0 APPLICABILITY

2.1 This surveillance is applicable in Modes 1, 2, 3 and 4.

2.2 Portions of this surveillance are applicable in Modes 5 and 6.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 The Unit Shift Supervisor (USS) shall be notified immediately if a subsystem or component malfunctions or test data indicate a potential problem during a surveillance test.

3.2 The rated capacity of a Diesel Generator is 7000 kW. Load should not be permitted to exceed this limit during testing. The Diesel Generator should not be operated at less than 30% load (2100 kW) for prolonged periods of time.

3.3 During Diesel Generator load testing, loads in excess of 7000 kW or momentary variations due to changing bus loads shall not invalidate the test.

- 3.4 If during a Diesel Engine start the Fail To Start alarm comes in but the engine keeps running, the support systems will operate as if the engine was shut down. To reset these systems the START pushbutton must be pressed. This will stop the Keep Warm Pump, turn off the Keep Warm Heaters, start the Crankcase P. and place the alarms in service that are bypassed when shut down.
- 3.5 Once initiated, the Diesel Generator shutdown signals remain in effect for 90 seconds. During this period, the Diesel Generator will only respond to an emergency start signal. To prevent the depletion of starting air, wait until the local red stopping light is OFF (approximately 90 seconds) after a normal stop before attempting to start the diesel.
- 3.6 All start attempts, including those from bona fide start signals, shall be logged in the USS and/or the Control Room logbook. The log entry shall include the following information:
- a. Start time,
  - b. Reason for start,
  - c. Success or failure of the start attempt.
- 3.7 The Emergency Diesel Generators shall not be used for peaking service.
- 3.8 Diesel Generator surveillance tests shall be initiated only from the Control Room.
- 3.9 During surveillance testing, only one Diesel Generator shall be paralleled at a time to the off-site power source.
- 3.10 The Diesel Generator has been aligned for standby per 13145-1, "Diesel Generators" and a current copy of 11145-1, "Diesel Generator Alignment" and 11146-1, "Diesel Generator Fuel Oil Transfer System Alignment" are on file.
- 3.11 If any unusual grid disturbances occur while the Diesel Generator is operating, start the Fault Recorder in the Control Room and notify the System Engineer for an evaluation of the problem.
- 3.12 Testing of a Diesel Generator for troubleshooting (i.e., first engine run following major maintenance, etc.) should be performed using 13145-1, "Diesel Generators". If necessary, testing for operability should follow using this procedure.

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- 3.13 A cylinder moisture check shall not be performed if in an action statement of Technical Specification 3.8.1.1 or 3.8.1.2.

4.0 PREREQUISITES OR INITIAL CONDITIONS

- 4.1 The USS shall ensure this surveillance test does not affect other tests presently in progress or jeopardize plant operation prior to granting approval to perform this surveillance test.

USS APPROVAL

- 4.2 OBTAIN the following test equipment:

- a. Two stop watches. \_\_\_\_\_

No. 1 serial number \_\_\_\_\_

No. 2 serial number \_\_\_\_\_

- b. A clear container 1 liter size or larger. \_\_\_\_\_

- 4.3 NOTIFY the System Operator and the Unit 2 Control Room of the Diesel Generator Test. \_\_\_\_\_

- 4.4 The NSCW System is in service to provide cooling water to the Diesel Generator Jacket Water Heat Exchangers. \_\_\_\_\_



INITIALS

5.0

INSTRUCTIONS

TEST STARTED

\_\_\_\_\_  
DATE\_\_\_\_\_  
TIME\_\_\_\_\_  
MODE

Diesel Generator Being Tested \_\_\_\_\_

## NOTE

Once begun, the appropriate portions of this procedure should be completed if possible and the system, subsystem or component returned to service or committed to repair as required.

5.1

## DIESEL GENERATOR STARTUP

## NOTE

Prior to performing the six month surveillance, the diesel should remain in standby for several hours to allow temperatures to stabilize.

5.1.1

If this test is being performed as the six-month (184 day) surveillance per Technical Specification 4.8.1.1.2.g VERIFY the Diesel Generator has been shutdown for more than 4 hours.

## NOTE

While the Diesel Generator is in operation check for rubbing or excessive vibration of small diameter tubing supporting Diesel Generator operation, e.g., fuel lines, instrument tubing, or instrument air tubing.

5.1.2

STATION an operator in the Diesel Generator Building to monitor the Diesel Generator operation and maintain headset or radio communication with the Control Room throughout the duration of the test.

INITIALS

## CAUTION

The cylinder moisture check shall not be performed if this test is performed as an action item of Technical Specification 3.8.1.1 or 3.8.1.2.

## NOTE

Cylinder moisture checks are not required if the Diesel Generator is started within four hours of a Diesel Generator shutdown.

- 5.1.3 If it has not been performed within the preceding 4 hours, PERFORM a Cylinder Moisture Check per 13145-1, "Diesel Generators".
- 5.1.4 RECORD the Diesel Generator pre-startup readings on Section A of 11885-C, "Diesel Generator Operating Log".
- 5.1.5 RECORD the Engine Hours on Data Sheet 1.
- 5.1.6 TEST the annunciator lights at the alarm panel at PDG2 (PDG4), and VERIFY that all annunciator lights are operable.
- 5.1.7 If this test is performed as the regular monthly surveillance ALIGN the starting air system as follows:
- 5.1.7.1 If the month is January, April, July or October, UNLOCK and CLOSE the Air Start Receiver 1 Discharge Isolation 1-2403-U4-765(722).
- 5.1.7.2 If the month is February, May, August or November, UNLOCK and CLOSE the Air Start Receiver 2 Discharge Isolation 1-2403-U4-769(729).
- 5.1.7.3 RECORD the valve which was closed on Data Sheet 1. If both valves were left open, RECORD "Both Valves Open" on Data Sheet 1.

INITIALS

## CAUTION

The Turbo Lube Oil Orifice Bypass Valve should be opened (Step 5.1.8) 1-2 minutes prior to diesel start, and should be promptly closed (Step 5.1.12) after the start. Steps 5.1.8 through 5.1.12 should be performed expeditiously. Excess prelubrication may result in oil accumulation in the exhaust piping and an exhaust fire upon engine start.

- 5.1.8 OPEN the Turbo Lube Oil Orifice Bypass Valve 1-2403-U4-130(131).
- 5.1.9 PLACE the DSL GEN 1A(1B) VM SW Switch to A-B.
- 5.1.10 When starting the Diesel Generator, TIME the following:
- 5.1.10.1 The time from depressing the Diesel Generator START Pushbutton until voltage reaches 4025 to 4330 volts.
- 5.1.10.2 The time from depressing the Diesel Generator START Pushbutton until frequency reaches 58.8 to 61.2 Hz.

## NOTES

- a. While the diesel engine is starting the operator in the Diesel Room should listen for the escape of air from the Starting Air Manifold Vent to verify the manifold vent is open and unobstructed.
- b. When the Diesel Generator is started in the next step, the Generator Trouble Alarm may annunciate due to a spurious Generator Field Ground relay actuation. This is a normal startup alarm and relay.
- 5.1.11 At Panel QEAB, DEPRESS the DIESEL GENERATOR START Pushbutton.

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		<u>INITIALS</u>
5.1.12	CLOSE the Turbo Lube Oil Orifice Bypass Valve 1-2403-U4-130(131).	_____
5.1.13	RECORD the time to voltage and frequency on Data Sheet 1.	
5.1.14	RECORD the Diesel Generator voltage and frequency on Data Sheet 1.	
5.1.15	If the Generator Field Ground relay flag is visible, then PERFORM the following at Generator Control Panel PDG1 (PDG3):  a. RESET the DG1A (DG1B) Generator Field Ground relay flag by placing the Generator Field Ground Relay Test Switch to the RESET position,  b. DEPRESS the Relay Target Reset Pushbutton.	_____ _____
5.1.16	LOCK OPEN the Air Start Receiver Discharge Isolation which was closed in Step 5.1.7.	_____
5.1.17	If the Diesel Generator is to be paralleled to the 4160V AC bus, PROCEED to Section 5.2.	
5.1.18	If the Diesel Generator is to be shut down, immediately PROCEED to Section 5.3.	



INITIALS

## 5.2 DIESEL GENERATOR LOADING

## CAUTION

If the Diesel Generator is being operated in the Parallel mode never transfer the LOCAL-REMOTE Switch 1-HS-4516 (4517) on PDG1 (3) to LOCAL as this will take governor and voltage regulator out of the droop mode.

## NOTE

If this test is to perform the 6 month surveillance, then the Diesel Generator should not be allowed to idle prior to paralleling and loading.

5.2.1 If this test is not performed as the six month surveillance, then IDLE the diesel for 5-10 minutes until temperatures stabilize.

5.2.2 ENSURE the Diesel Generator 1A(1B) SYNC MODE SELECTOR Switch TS-DG1A (DG1B) is in AUTO.

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## CAUTION

Never place two sync-switches to the ON position at the same time. A blown PT fuse may result.

5.2.3 PLACE the breaker 1/A0219 (1BA0319) Synchronization Switch to ON.

5.2.4 Momentarily PLACE the DSL GEN 1A(1B) UNIT/PARALLEL Switch 1HS-4414B (HS-4452B) to PARALLEL and OBSERVE the red DSL GEN 1A(1B) DROOP MODE light is on.

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	INITIALS
<p>5.2.5 OBSERVE 4160V Bus 1AA02 (1BA03) voltage on the QEAB RUNNING Voltmeter via BUS 1AA02 NORM INCM VM SW (BUS 1BA03 NORM INCM VM SW) and Diesel Generator 1A(1B) voltage on the QEAB INCOMING Voltmeter via DSL GEN 1A VM SW (DSL GEN 1B MV SW).</p>	_____
<p>5.2.6 VERIFY that the Sync Scope Meter is rotating and that the Synchronizing Lights are bright at the 6 o'clock position and dark at the 12 o'clock position and that the SYNC PERMISSIVE red light comes on near the 12 o'clock position.</p>	_____
<p>5.2.7 ADJUST generator voltage as necessary to slightly lead the bus voltage (Generator voltage less than 50V above the lowest phase of bus voltage).</p>	_____
<p>5.2.8 While observing the Sync Scope, ADJUST the generator speed until the Sync Scope needle is rotating slowly in the clockwise (FAST) direction (8 to 10 seconds rotation).</p>	_____
<p>5.2.9 If this surveillance is being performed as the regularly monthly test, or as an action item of Technical Specification 3.8.1.1, PERFORM Step 5.2.11 and MARK Step 5.2.12 as N/A.</p>	
<p>5.2.10 If this surveillance is being performed as the six-month (184 day) test per Technical Specification 4.8.1.1.2.g, PERFORM Step 5.2.12 and MARK Step 5.2.11 as N/A.</p>	
<p>5.2.11 PARALLEL the Diesel Generator to the bus.</p>	
<p>5.2.11.1 When the Sync Scope needle reaches the 11 o'clock position, DEPRESS and HOLD the Diesel Generator 1A(1B) AUTO SYNC PERMISSIVE Pushbutton PB-DG1A (PB-DG1B).</p>	_____
<p>5.2.11.2 When the DG1A (DG1B) OUTPUT BRKR 1AA0219 (1BA0319) closes, RELEASE the Auto Sync Permissive Pushbutton.</p>	_____

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NOTE

To perform the six-month test, the Diesel Generators load must be raised to greater than 6100 kW within 60 seconds of closing the Diesel Generator Output Breaker.

- 5.2.12 Parallel the Diesel Generator to the bus.
- 5.2.12.1 When paralleling the Diesel Generator, TIME the interval from closing the Diesel Generator Output Breaker until load exceeds 6100kW.
- 5.2.12.2 When the Sync Scope needle reaches the 11 o'clock position, DEPRESS and HOLD the Diesel Generator 1A(1B) AUTO SYNC PERMISSIVE Pushbutton PB-DG1A (PB-DG1B).
- 5.2.12.3 When the DG1A (DG1B) OUTPUT BRKR 1AA0219 (1AB0319) closes, RELEASE the Auto Sync Permissive Pushbutton.
- 5.2.12.4 RAISE generator load to 6100-7000 KW.
- 5.2.12.5 RECORD the time required to raise Diesel Generator load above 6100kW on Data Sheet 1.

NOTES

- a. When not performing the six-month test, the Generator should be step loaded in increments of approximately 1000 kW and 500 kVAR with 3 - 4 minutes between load changes.
- b. As the generator voltage is adjusted, the kVAR should be maintained positive and no more than half of the kW load.

- 5.2.13 PLACE the breaker 1AA0219 (1BA0319) Synchronization Switch to OFF.

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- 5.2.14 ADJUST generator load to 6800-7000kW. \_\_\_\_\_
- 5.2.15 ADJUST generator voltage to maintain generator kVARS between 2500 and 3000 OUT. \_\_\_\_\_
- 5.2.16 RECORD the time at which Diesel Generator load exceeded 6800kW on Data Sheet 1. \_\_\_\_\_
- 5.2.17 When the Diesel Generator has been loaded for 30 minutes, INITIATE 11885-C, "Diesel Generator Operating Log." \_\_\_\_\_

## NOTE

Section 5.4, Fuel Oil Transfer Pump Testing and 5.5, Air Compressor Test, may be completed during the Diesel Generator loaded run if desired.

- 5.2.18 While the diesel is loaded EXAMINE the following and NOTE any problems:
- 5.2.18.1 Generator Sliprings and Brushes, \_\_\_\_\_
- 5.2.18.2 Generator Bearing Oil Rings, \_\_\_\_\_
- 5.2.18.3 Jacket Water System, \_\_\_\_\_
- 5.2.18.4 Lube Oil System, \_\_\_\_\_
- 5.2.18.5 Fuel Oil System, \_\_\_\_\_
- 5.2.18.6 Diesel engine intake and exhaust piping, \_\_\_\_\_
- 5.2.18.7 Combustion Air Header Drains (4). One valve at each end of both manifolds. \_\_\_\_\_



INITIALS

## NOTES

- a. As generator load is adjusted, generator voltage should be adjusted concurrently to maintain kVAR load OUT (positive) and no more than one-half of the kW load.
- b. The Generator should be unloaded in increments of approximately 1000 kW and 500 kVAR with 3 - 4 minutes between load changes.

5.2.19 When the Diesel Generator has been loaded to greater than 6800 kW for at least 1 hour:

5.2.19.1 RECORD the time load was reduced to less than 6800kW on Data Sheet 1.

5.2.19.2 REDUCE Diesel Generator load to 100-200 kW and 50-100 kVAR.

5.2.19.3 TRIP the DG1A (DG1B) OUTPUT BRKR 1AA0219 (1BA0319).

5.2.19.4 IDLE the Diesel Generator unloaded for 4-5 minutes.

5.2.20 SHUT DOWN the Diesel Generator per Section 5.3.

INITIALS

5.3

## DIESEL GENERATOR SHUTDOWN

## CAUTION

If an SI signal is received during engine coastdown, monitor lube oil pressure and trip the Diesel Generator if pressure falls below the trip setpoint of 30 psi.

5.3.1

At Panel QEAB, DEPRESS the DIESEL GENERATOR 1A(1B) STOP Pushbutton, 1-HS-4571B (4572B).

5.3.2

RECORD the time the Diesel Generator was shut down on Data Sheet 1.

5.3.3

At 480V AC MCC 1NBI (1NBO), VERIFY the Generator Space Heater is energized.

5.3.4

VERIFY the Jacket Water Keep-Warm Pump starts.

5.3.5

VERIFY the Lube Oil Keep-Warm Pump starts.

5.3.6

After approximately two minutes, VERIFY the red stopping light at Panel PDG2 (PDG4) is off.

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- 5.3.7 If after approximately 2 minutes, the red STOPPING light is NOT off, RESET as follows:

## NOTE

Handswitch is found on the front of the engine auxiliary skid.

- a. PLACE the pushbutton 1-HS-4688 (4689), DGLA (DGLB) RUN/STOP, in the PUSH-TO-STOP position for approximately 10 seconds, \_\_\_\_\_
- b. PLACE the pushbutton 1-HS-4688 (4689), DGLA (DGLB) RUN/STOP, in the PULL-TO-RUN position, \_\_\_\_\_
- c. VERIFY the red STOPPING light is off, and the "NOT AVAILABLE" light is ON. \_\_\_\_\_

- 5.3.8 RECORD the engine hours on Data Sheet 1.

- 5.3.9 ALIGN the Diesel Generator Building HVAC System for automatic operation per 13325-1, "Auxiliary Feedwater Pumphouse And Diesel Generator Building HVAC Systems". \_\_\_\_\_



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## NOTE

Accumulated water must be drained from the Fuel Oil Day Tank per Technical Specification 4.8.1.1.2.b.

- 5.3.10 If this test was performed as a regular monthly surveillance test or, if the Diesel Generator was operated for a period of one hour or greater, SAMPLE the Diesel Generator Diesel Fuel Oil (DFO) Day Tank for water:
- 5.3.10.1 OBTAIN a clear container one liter size or larger.
- 5.3.10.2 DRAIN a small amount of fuel oil into the container from the Day Tank Drain 1-2403-U4-035(036).
- 5.3.10.3 EXAMINE the sample for water on the bottom of the container.
- 5.3.10.4 If water is detected, REPEAT the sample until no water is found.
- 5.3.10.5 CLOSE, LOCK and CAP the Day Tank Drain Valve 1-2403-U4-035(036).
- 5.4 DIESEL GENERATOR FUEL OIL TRANSFER SYSTEM TEST

## NOTE

This section of the procedure will verify the operability of the Diesel Generator Fuel Oil Transfer Pumps.

- 5.4.1 START the DFO STOR TANK PUMP-1 (-3), 1-HS-9044(9045).
- 5.4.2 VERIFY the pump starts and transfers fuel oil to the DFO Day Tank.
- 5.4.3 STOP the DFO STOR TANK PUMP-1 (-3), 1-HS-9044(9045).
- 5.4.4 START the DFO STOR TANK PUMP-2 (-4), 1-HS-9046(9047).



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- 5.4.5 VERIFY the pump starts and transfers fuel oil to the DFO Day Tank.
- 5.4.6 STOP the DFO STOR TANK PUMP-2 (-4), 1-HS-9046(9047).
- 5.5 DIESEL GENERATOR AIR START COMPRESSOR TEST

## CAUTIONS

- a. Only one Air Compressor should be tested at a time.
- b. At least one air start receiver must be pressurized to greater than 210 psig at all times.

## NOTE

These instructions are written for the Train A Air Compressors. The Train B components are indicated by parentheses.

- 5.5.1 NOTIFY the Control Room that QEAB annunciator ALB35F02 DG1A LOW PRESS STARTING AIR (ALB38F02 DG1B LOW PRESS STARTING AIR) will energize in the following step.

## CAUTION

If the Air Compressor fails to start automatically do not reduce air receiver pressure below 210 psig.

- 5.5.2 CRACK-OPEN the Air Start Receiver 1 Drain, 1-2403-X4-762(723), and slowly REDUCE air receiver pressure to 145-155 psig.

- 5.5.3 VERIFY the Air Start Compressor, 1-2403-G4-001-C01 (002-C01) starts automatically when the air receiver pressure is between 215 and 235 psig.

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5.5.4 If the Air Compressor fails to start automatically by the time air receiver pressure reaches 215 psig:

- a. CLOSE the Air Receiver  
Drain 1-2403-X4-762(723),
- b. INITIATE maintenance on the  
compressor to correct the  
problem.

5.5.5 NOTIFY the Control Room that QEAB annunciator ALB35F06 DG1A SWITCH NOT IN AUTO (ALB38F06 DG1B SWITCH NOT IN AUTO) will energize in the following step.

5.5.6 PLACE the Control Switch for the Air Compressor 1,  
1-2403-C4-001-C01(002-C01) in OFF.

5.5.7 When the Air Start Receiver Pressure has been reduced to 145-155 psig, CLOSE 1-2403-X4-762(723).

5.5.8 START the Air Compressor by placing the Control Switch in AUTO.

5.5.9 RECORD the Air Compressor start time on Data Sheet 1.

5.5.10 VERIFY the Air Compressor stops automatically when air receiver pressure is between 245 and 255 psig.

5.5.11 RECORD the time the Air Compressor stops on Data Sheet 1.

5.5.12 NOTIFY the Control Room that QEAB annunciator ALB35F02 DG1A LOW PRESS STARTING AIR (ALB38F02 DG1B LOW PRESS STARTING AIR) will energize in the following step.

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## CAUTION

If the Air Compressor fails to start automatically, do not reduce air receiver pressure below 210 psig.

- 5.5.13 CRACK-OPEN the Air Start Receiver 2 Drain 1-2403-X4-772(728) and slowly REDUCE air receiver pressure to 145-155 psig.
- 5.5.14 VERIFY the Air Start Compressor 1-2403-G4-001-C02(002-C02) starts automatically when the air receiver pressure is between 215 and 235 psig.
- 5.5.15 If the Air Compressor fails to start automatically by the time air receiver pressure reaches 215 psig:
- CLOSE the Air Receiver Drain 1-2403-X4-772(728),
  - INITIATE maintenance on the compressor to correct the problem.
- 5.5.16 NOTIFY the Control Room that QEAB annunciator ALB35F06 DG1A SWITCH NOT IN AUTO (ALB38F06 DG1B SWITCH NOT IN AUTO) will energize in the following step.
- 5.5.17 PLACE the Control Switch for the Air Compressor 2, 1-2403-G4-001-C02(002-C02) in OFF.
- 5.5.18 When the Air Start Receiver Pressure has been reduced to 145-155 psig, CLOSE 1-2403-X4-772(728).
- 5.5.19 START the Air Compressor 2 by placing the Control Switch in AUTO.
- 5.5.20 RECORD the Air Compressor start time on Data Sheet 1.
- 5.5.21 VERIFY the Air Compressor stops automatically when air receiver pressure is between 245 and 255 psig.
- 5.5.22 RECORD the time the Air Compressor stops on Data Sheet 1.



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5.6

## SYSTEM RESTORATION

5.6.1

PERFORM Checklist 1, Diesel Generator Standby Mode Status Check, for the Diesel Generator which was tested.

5.6.2

RECORD DFO Storage Tank level 1-LI-9024(9025) on Data Sheet 1.

5.6.3

RECORD DFO Day Tank level 1-LI-9018(9019) on Data Sheet 1.

5.6.4

RECORD Air Start Receiver 1 pressure 1-PI-9060(9061) on Data Sheet 1.

5.6.5

RECORD Air Start Receiver 2 pressure 1-PI-9064(9065) on Data Sheet 1.

5.7

## INDEPENDENT VERIFICATION

5.7.1

Independently VERIFY LOCKED OPEN the Air Start Receiver Discharge Isolation which was opened in Step 5.1.16.

5.7.2

Independently VERIFY CLOSED 1-2403-U4-130(131) which was closed in Step 5.1.12.

5.7.3

Independently VERIFY LOCKED CLOSED the DFO Day Tank Drain Valve 1-2403-U4-035(036) which was closed in Step 5.3.10.5.

5.7.4

Independently VERIFY CLOSED the Air Start Receiver 1 Drain 1-2403-X4-762(723) which was closed in Step 5.5.7.

5.7.5

Independently VERIFY CLOSED the Air Start Receiver 2 Drain 1-2403-X4-772(728) which was closed in Step 5.5.18.

5.7.6

Independently VERIFY OPEN the L.O. Keep-Warm Pump 1-PI-19145(19152) Root 1-2403-X4-798(797) which was operated in Step 5.1.4.



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5.7.7 Independently VERIFY CLOSED the L.O. Keep-Warm Pump 1-PI-19145(19152) Root 1-2403-X4-796(795) which was operated in Step 5.1.4.

5.7.8 Independently VERIFY OPEN the J.W. Keep-Warm Pump 1-PI-19124(19134) Root 1-2403-X4-812(811) which was operated in Step 5.1.4.

5.7.9 Independently VERIFY CLOSED the J.W. Keep-Warm Pump 1-PI-19124(19134) Root 1-2403-X4-810(809) which was operated in Step 5.1.4.

6.0 ACCEPTANCE CRITERIA

6.1 The Diesel Generator starts and voltage and frequency are between 4025 to 4330 volts and 58.8 to 61.2 hertz within 11.4 seconds.

6.2 The Diesel Generator operates with a load of 6800 to 7000 kW for at least 60 minutes. Modes 1, 2, 3, or 4 only.

6.3 If this test was performed as the regularly scheduled 6 month surveillance, the Diesel Generator was loaded to greater than 6100 kW within 60 seconds.

6.4 At least one DFO Day Tank Transfer Pump started and transferred fuel to the DFO Day Tank.

6.5 The DFO Day Tank contains greater than 650 gallons of fuel, 52% on 1-LI-9018 (9019).

6.6 The DFO Storage Tank contains greater than 68,000 gallons of fuel, 76% on 1-LI-9024 (9025).

6.7 The pressure in at least one air start receiver is at least 210 psig.

6.8 If the Diesel was operated for 60 minutes or more, the DFO Day Tank was sampled for water, and all water removed.

7.0

EVALUATION AND REVIEW

7.1

TEST PROCEDURE

☐ Surveillance: ☐ Monthly ☐ Semi-annual ☐ Both  
☐ Other (explain) \_\_\_\_\_

7.2

Results obtained through performance of this procedure meet Acceptance Criteria of Section 6.0

☐ Yes ☐ No

7.2.1

NOTIFY the USS of the test results. REFER to Technical Specification 3.8.1.1 or 3.8.1.2.

7.2.2

If no was checked and the failure was due to a Diesel Generator fault, EVALUATE the reason for the failure per Table 1.

7.2.3

NOTIFY the Diesel Generator System Engineer of the Diesel Generator start. Provide the following information:

- a. A copy of Completion Sheet 1,
- b. A copy of the completed 11885-C, "Diesel Generator Operating Log".

7.3

If any parameter recorded on 11885-C was out of range, INITIATE maintenance to investigate and repair as necessary.

7.4

If either Air Compressor fails to:

- a. Start automatically at the correct pressure, or
- b. Fails to raise air receiver pressure from 150 to 250 psig in 1/2 hour or less

INITIATE maintenance to repair the Air Compressor.



7.5

Comments (include any abnormal conditions and corrective actions taken): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

USS notified of Test Completion and Results

Initials / Date / Time

Test Completed By:

Signature

Date

Time

Supervisory Review:

Signature

Date

Time

8.0

### REFERENCES

8.1

### FSAR

8.1.1

Technical Specification 3/4.8.1.1

8.1.2

Technical Specification 3/4.8.1.2

8.1.3

FSAR 8.3.1.3

8.1.4

FSAR 9.5.4.4

8.1.5

FSAR 9.5.5.3

8.1.6

FSAR 9.5.5.4

8.1.7

FSAR 9.5.6.4

8.1.8

FSAR 9.5.8.4

8.1.9

FSAR 1.9.108

Reg Guide 1.108

8.2

### PROCEDURES

8.2.1

13145-1,

"Diesel Generators"

8.2.2

00404-C,

"Surveillance Test Tracking Program"

8.2.3

11885-C,

"Diesel Generator Operating Log"

8.2.4

13325-1,

"Auxiliary Feedwater Pumphouse And Diesel Generator Building HVAC Systems"

8.2.5

54169-1,

"Diesel Generator Miscellaneous Trending And Evaluation"

## 8.3 P&amp;ID's

8.3.1 1X4DB170-1 Diesel Generator - Train A

8.3.2 1X4DB170-2 Diesel Generator - Train B

## 8.4 ELECTRICAL DIAGRAMS

8.4.1 1X3D-AA-K01A Diesel Generator Relay And Metering Diagrams

8.4.2 1X3D-AA-D02A Swgr 1AA02

8.4.3 1X3D-AA-D02B Swgr 1AA02

8.4.4 1X3D-AA-D03A Swgr 1BA03

8.4.5 1X3D-AA-D03B Swgr 1BA03

## 8.5 ELEMENTARY DIAGRAMS

8.5.1 1X3D-BA-D02G Breaker 1AA02-19

8.5.2 1X3D-BA-D03D Breaker 1BA03-19

## 8.6 LOGIC DIAGRAMS

8.6.1 1X5DN107-1 Diesel Fuel Oil System

8.6.2 1X5DN107-2 Diesel Generator Engine

8.6.3 1X5DN107-3 Diesel Generator Excitation

8.6.4 1X5DN107-4 Diesel Generator Engine Auxiliaries

8.6.5 1X5DN107-5 Diesel Generator Engine Auxiliaries

## 8.7 TECHNICAL MANUALS

8.7.1 AX4A 01-509 Diesel Engine Technical Manual

8.7.2 AX4AK01-563 Diesel Generator Associated Publications Manual Vol 1

8.7.3 AX4AK01-564 Diesel Generator Associated Publications Manual Vol 2

END OF PROCEDURE TEXT



TABLE 1

## DIESEL GENERATOR VALID TEST AND FAILURE EVALUATION CRITERIA

Valid tests and failures (per Regulatory Guide 1.108, Section C.2.e and Technical Specification 4.8.1.1.3) shall be based on the following criteria:

1. All start attempts (automatic, including those from bona fide signals, or manual) that result in a failure to start, except as noted in (2) below, should be considered valid tests and failures.
2. Unsuccessful start and load attempts that can definitely be attributed to operating error, to spurious operation of a trip that is bypassed in the emergency operating mode, to malfunction of equipment that is not operative in the emergency operating mode (e.g., synchronizing circuitry) or is not part of the defined Diesel Generator unit design should not be considered valid tests or failures.
3. Successful starts, including those initiated by bona fide signals, followed by successful loading (sequential or manual) to at least 50% of continuous rating and continued operation for at least one hour should be considered valid successful tests. (Failures occurring after one hour are not considered valid failures.)
4. Successful starts that are terminated intentionally without loading, as defined in (3) above, should not be considered valid tests or failures.
5. Successful starts followed by an unsuccessful loading attempt should be considered valid tests and failures, except as noted in (2) above.
6. Tests that are terminated intentionally before completion as defined in (3) above because of an alarmed abnormal condition that would ultimately have resulted in Diesel Generator damage or failure should be considered valid tests and failures.
7. Tests performed in the process of troubleshooting should not be considered valid tests. Tests that are performed to verify correction of the problem should be considered valid tests and successes or failures, as appropriate.
8. Cranking and venting procedures that lead to the discovery of conditions (e.g., excessive water or oil in a cylinder) that would have resulted in the failure of the Diesel Generator unit during test or during response to a bona fide signal should be considered a valid test and failure.

Sheet 1 of 2

## DATA SHEET 1

## DIESEL GENERATOR SURVEILLANCE DATA

DG under test: \_\_\_\_\_ Date: \_\_\_\_\_ Mode: \_\_\_\_\_

## 5.1 Diesel Generator Startup

5.1.5 Engine Hours at Startup: \_\_\_\_\_

5.1.7.3 Air Start Receiver Valve Closed: \_\_\_\_\_

5.1.13 Time to voltage: \_\_\_\_\_

Time to frequency: \_\_\_\_\_

5.1.14 Voltage: A-B \_\_\_\_\_ B-C \_\_\_\_\_ C-A \_\_\_\_\_

Frequency: \_\_\_\_\_ Hz

## 5.2 Diesel Generator Loading

5.2.12.5 Diesel Generator Loading Time \_\_\_\_\_ seconds  
(6 month surveillance only)

5.2.16 Time load exceeded 6800kW: \_\_\_\_\_

5.2.19.1 Time load reduced to less than 6800kW: \_\_\_\_\_

## 5.3 Diesel Generator Shutdown

5.3.2 Diesel Shutdown Time: \_\_\_\_\_

5.3.8 Diesel Engine Hours at Shutdown \_\_\_\_\_

5.5.9 Air Compressor 1 start time \_\_\_\_\_

5.5.11 Air Compressor 1 stop time \_\_\_\_\_

5.5.20 Air Compressor 2 start time \_\_\_\_\_

5.5.22 Air Compressor 2 stop time \_\_\_\_\_



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Sheet 2 of 2

## DATA SHEET 1

## DIESEL GENERATOR SURVEILLANCE DATA

5.6 System Restoration

5.6.2 DFO Storage Tank Level: \_\_\_\_\_ %  
1-LI-9024(9025)5.6.3 DFO Day Tank Level: \_\_\_\_\_ %  
1-LI-9018(9019)5.6.4 Air Start Receiver 1 Pressure: \_\_\_\_\_ psig  
1-PI-9060(9061)5.6.5 Air Start Receiver 2 Pressure: \_\_\_\_\_ psig  
1-PI-9064(9065)

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Sheet 1 of 1

## COMPLETION SHEET 1

TO: DIESEL GENERATOR SYSTEM ENGINEER

FROM: UNIT SHIFT SUPERVISOR (UNIT 1)

Diesel Generator Tested: ☐ DG1A ☐ DG1B

Start Date: / / Shutdown Date: / /

Start Time: Shutdown Time:

Start Engine Hours: Shutdown Engine Hours:

Start preceded by turbocharger prelubrication: ☐ Yes ☐ No

Reason for start:

☐ Surveillance Test☐ Other: \_\_\_\_\_

Reason for trip or failure to start:

☐ Manual ☐ Equipment failure ☐ Trip signal ☐ Alarm Response☐ Other: \_\_\_\_\_

DR# (if known) WRT # (If Known)

List any conditions that would have resulted in Diesel Generator failure to start: \_\_\_\_\_

Comments: \_\_\_\_\_

Diesel Generator Start Evaluation:

☐ Successful Start ☐ Valid Test  
☐ Valid Failure ☐ Non-Valid Test  
☐ Non-Valid Failure

Completed By: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Reviewed By: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Copy sent to Diesel Generator System Engineer \_\_\_\_\_ / \_\_\_\_\_

Shift Clerk \_\_\_\_\_ Date \_\_\_\_\_

Unit Shift Supervisor \_\_\_\_\_ Date \_\_\_\_\_



Sheet 1 of 4

## CHECKLIST 1

## DIESEL GENERATOR STANDBY MODE STATUS CHECK

## ENGINE CONTROL PANEL - PDG2(PDG4)

## STATUS

## INITIALS

- |    |  |                       |       |
|----|--|-----------------------|-------|
| 1. | All annunciator windows                    | No unexpected alarms. | _____ |
| 2. | Control Air Pressure<br>1-PI-19174 (19175) | 58-62 psig            | _____ |
| 3. | UNIT AVAILABLE Light                       | ON                    | _____ |
| 4. | Thermocouple Selector:                     |                       |       |
| a. | Lubricating Oil In                         | 142-170°F             | _____ |
| b. | Lubricating Oil Out                        | 142-170°F             | _____ |
| c. | Jacket Water In                            | 142-170°F             | _____ |
| d. | Jacket Water Out                           | 142-170°F             | _____ |
| 5. | POWER AVAILABLE Lights:                    |                       |       |
| a. | A  | ON                    | _____ |
| b. | B  | ON                    | _____ |
| c. | C  | ON                    | _____ |
| 6. | STOPPING light                             | OFF                   | _____ |

Sheet 2 of 4

# CHECKLIST 1

## GENERATOR CONTROL PANEL - PDG1(PDG3)

	STATUS	INITIALS	IV
1. Unit/Parallel Switch 1-HS-4414A(4452A)	Center After Unit	_____	_____
2. Local/Remote Switch 1-HS-4516(4517)	REMOTE	_____	_____
3. Lockout Relays:			
a. 186A	RESET	_____	_____
b. 186B	RESET	_____	_____
c. 186C	RESET	_____	_____
4. Voltage Regulator	AUTO	_____	_____
a. Automatic Voltage Regulator Light	ON	_____	_____
b. Manual Voltage Regulator Light	OFF	_____	_____

## MOTOR CONTROL CENTER 1NBI(1NBO)

1. Air After Cooler Fan No. 1	AUTO	_____	_____
2. Air Compressor No. 1	AUTO	_____	_____
3. Air After Cooler Fan No. 2	AUTO	_____	_____
4. Air Compressor No. 2	AUTO	_____	_____
5. Jacket Water Circulating Pump	AUTO	_____	_____
6. Jacket Water Heater	AUTO	_____	_____
7. Lube Oil Circulating Pump	AUTO	_____	_____
8. Lube Oil Heater	AUTO	_____	_____
9. Generator Space Heater	AUTO	_____	_____



Sheet 3 of 4

## CHECKLIST 1

DIESEL GENERATOR SKIDSTATUSINITIALS

IV

## 1. Governor Settings

Speed Droop

A: 2.6

B: 2.6

Load Limit

MAX FUEL

Speed

A: 14.48

B: 12.18

Oil Level

Above  
centerline  
of  
sight glass2. Overspeed Trip Air Press  
(located under right bank turbocharger)

58-62 psig

## 3. Lube Oil Level - Dipstick

MAX STATIC  $\pm 1"$ 4. Jacket Water Keep-Warm Pressure  
1-PI-19124 (19134)

15-35 psig

5. Lube Oil Keep-Warm Pressure  
1-PI-19145 (19152)

25-50 psig

## 6. Run/Stop Switch 1-HS-4688(4689)

PULL-TO-RUN

## 7. Generator Bearing Oil Level

Centerline of  
sight glass  
or above

## 8. Turbocharger Bearings

a. Right Bank Sight Glass

Flowing

b. Left Bank Sight Glass

Flowing

UPSTAIRS - DIESEL GENERATOR BLDG

## 1. Intake Air Filter

a. Screens

Unobstructed

b. Oil Level Sight Glass

Half Full

## 2. Exhaust Silencer

No Combustibles  
in Room

Sheet 4 of 4

## CHECKLIST 1

ELECTRICAL CONTROL PANEL QEAB - MAIN  
CONTROL ROOM

STATUS	INITIALS	IV
NORMAL		
AFTER UNIT		
AUTO		
AUTO		

1. DSL GEN 1A(1B) UNIT/PARALLEL Switch  
1-HS-4414B(4452B)2. SYNC MODE SELECTOR Switch 1-TS-DG1A  
(DG1B)3. DG1A(DG1B) OUTPUT BRKR 1-HS-1AA0219  
(1BA0319)4160V AC SWGR 1AA02(1BA03) - CONTROL BLDG LVL A1. DIESEL GENERATOR BRKR CONT SELECT  
SWITCH 1-HS-1AA0219B(1BA0319B)

CONT RM

REVIEWED BY

DATE

(SS, USS, or STA)



PROCEDURE NO.

VEGP 00052-C

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VOID

## TEMPORARY CHANGE TO PROCEDURE FORM

TCP No. 14980-1-19-90-1

Expiration Date June 9, 1990

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Required Final Approval Date June 9, 1990

PROCEDURE NO. 14980-1

REVISION NO. 19

PROCEDURE TITLE Diesel Generator Operability Test

RESPONSIBLE DEPARTMENT Operations

CHANGE IS RECOMMENDED TO BE MADE PERMANENT: YES ☒ NO ☐

REASON FOR CHANGE: Incorporate DCP 90-VINO138-0-1

which installs instrument valves in instrument lines to Jacket Water Hi-temp switch and specifies that they be closed during operations such that Hi-Jacket Water Temperature trip is negated for emergency D/G starts.

## BRIEF DESCRIPTION:

This TCP modifies the procedure to open the instrument valves in the instrument lines to Jacket Water Hi-temp switch such that the Hi-Jacket Water Temperature trip is in effect and hence protecting the D/G in surveillance testing state. DCP is implemented in Train B D/G only.

Affected pages are 5, 6, 7, 19, 25, 29.

ORIGINATOR

DATE 5/25/90

INTERIM APPROVAL ONLY IF NO CHANGE OF INTENT IS INVOLVED

COGNIZANT SUPV.: APPROVE ☒ DISAPPROVE ☐OSOS: APPROVE ☒ DISAPPROVE ☐

SIGNATURE

SIGNATURE

DATE

DATE

FINAL APPROVAL - PRB REVIEW REQUIRED YES ☐ NO ☐

CHANGE IS TO BE MADE PERMANENT

AND PROCEDURE WRITER ASSIGNED: YES ☒ NO ☐RESP. DEPT. HEAD: APPROVE ☒ DISAPPROVE ☐

SIGNATURE

DATE 5-24-90

PRB RECOMMEND APPROVE ☐ DISAPPROVE ☐

PRB CHAIRMAN

MTG NO.

DATE

GENERAL MANAGER: APPROVE

DISAPPROVE

SIGNATURE

DATE

Figure 1

*Flash*

Date  
4-5-90

Vogtle Electric Generating Plant  
NUCLEAR OPERATIONS

Unit 1



Georgia Power

Procedure No.  
14980-1

Revision No.  
19

Page No.  
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DIESEL GENERATOR OPERABILITY TEST

MANUAL SET  
NO. 19

**VOID**

1.0

PURPOSE

1.1

This surveillance procedure is used to demonstrate the operability of the Emergency Diesel Generators. This procedure should not be used for maintenance troubleshooting or testing.

1.2

This surveillance satisfies these Technical Specification Requirements:

4.8.1.1.2.a

4.8.1.1.2.b

4.8.1.1.2.g

1.3

The frequency of this test is given by Technical Specification Table 4.8-1.

2.0

APPLICABILITY

2.1

This surveillance is applicable in Modes 1, 2, 3 and 4.

2.2

Portions of this surveillance are applicable in Modes 5 and 6.

3.0

PRECAUTIONS AND LIMITATIONS

3.1

The Unit Shift Supervisor (USS) shall be notified immediately if a subsystem or component malfunctions or test data indicate a potential problem during a surveillance test.

3.2

The rated capacity of a Diesel Generator is 7000 kW. Load should not be permitted to exceed this limit during testing. The Diesel Generator should not be operated at less than 30% load (2100 kW) for prolonged periods of time.

3.3

During Diesel Generator load testing, loads in excess of 7000 kW or momentary variations due to changing bus loads shall not invalidate the test.



INITIALS**CAUTION**

The cylinder moisture check shall not be performed if this test is performed as an action item of Technical Specification 3.8.1.1 or 3.8.1.2.

**NOTE**

Cylinder moisture checks are not required if the Diesel Generator is started within four hours of a Diesel Generator shutdown.

5.1.3

If it has not been performed within the preceding 4 hours, PERFORM a Cylinder Moisture Check per 13145-1, "Diesel Generators".

5.1.4

RECORD the Diesel Generator pre-startup readings on Section A of 11885-C, "Diesel Generator Operating Log".

5.1.5

RECORD the Engine Hours on Data Sheet 1.

5.1.6

TEST the annunciator lights at the alarm panel at PDG2 (PDG4), and VERIFY that all annunciator lights are operable.

5.1.7

5.1.7

8

*See Insert*  
If this test is performed as the regular monthly surveillance ALIGN the starting air system as follows:

5.1.7.1

8

If the month is January, April, July or October, UNLOCK and CLOSE the Air Start Receiver 1 Discharge Isolation 1-2403-U4-765(722).

5.1.7.2

8

If the month is February, May, August or November, UNLOCK and CLOSE the Air Start Receiver 2 Discharge Isolation 1-2403-U4-769(729).

5.1.7.3

8

RECORD the valve which was closed on Data Sheet 1. If both valves were left open, RECORD "Both Valves Open" on Data Sheet 1.

WCM  
5/25/90WCM  
5/25/90WCM  
5/25/90WCM  
5/25/90

# Insert

WCM

5/25/90

1.7 ... this surveillance is being performed on Train B Diesel Generator, then ENABLE the High Jacket Water Temperature trip by opening the Jacket Water Hi-Temp Switch Instrument Valves as listed below. If Train A Diesel Generator is being tested, then mark this step N/A.

a. DIESEL GEN B 1-TSH-19117 BLOCK VALVE 1-2403-TSH-19117-DI

---

b. DIESEL GEN B 1-TSH-19119 BLOCK VALVE 1-2403-TSH-19119-DI

---

c. DIESEL GEN B 1-TSH-19118 BLOCK VALVE 1-2403-TSH-19118-DI

---



INITIALS**CAUTION**

The Turbo Lube Oil Orifice Bypass Valve should be opened (Step 5.1.8) 1-2 minutes prior to diesel start, and should be promptly closed (Step 5.1.12) after the start. Steps 5.1.8 through 5.1.12 should be performed expeditiously. Excess prelubrication may result in oil accumulation in the exhaust piping and an exhaust fire upon engine start.

WCM  
5/25/90WCM  
5/25/90  
WCM  
5/25/905.1.8  
9

OPEN the Turbo Lube Oil Orifice Bypass Valve 1-2403-U4-130(131).

WCM  
5/25/905.1.9  
10

PLACE the DSL GEN 1A(1B) VM SW Switch to A-B.

WCM

5/25/90

5.1.10  
11

When starting the Diesel Generator, TIME the following:

WCM

5/25/90

5.1.10.1  
11

The time from depressing the Diesel Generator START Pushbutton until voltage reaches 4025 to 4330 volts.

WCM  
5/25/905.1.10.2  
11

The time from depressing the Diesel Generator START Pushbutton until frequency reaches 58.8 to 61.2 Hz.

WCM  
5/25/90**NOTES**

- a. While the diesel engine is starting the operator in the Diesel Room should listen for the escape of air from the Starting Air Manifold Vent to verify the manifold vent is open and unobstructed.
- b. When the Diesel Generator is started in the next step, the Generator Trouble Alarm may annunciate due to a spurious Generator Field Ground relay actuation. This is a normal startup alarm and relay.

At Panel QEAB, DEPRESS the DIESEL GENERATOR START Pushbutton.

WCM  
5/25/90

INITIALS

5.1.12 CLOSE the Turbo Lube Oil Orifice  
13 Bypass Valve 1-2403-U4-130(131).

WCM  
5/25/90

5.1.13 RECORD the time to voltage and  
14 frequency on Data Sheet 1.

WCM  
5/25/90

5.1.14 RECORD the Diesel Generator voltage  
15 and frequency on Data Sheet 1.

WCM  
5/25/90

5.1.15 If the Generator Field Ground relay  
16 flag is visible, then PERFORM the  
following at Generator Control Panel  
PDG1 (PDG3):

WCM  
5/25/90

a. RESET the DG1A (DG1B) Generator  
Field Ground relay flag by  
placing the Generator Field  
Ground Relay Test Switch to the  
RESET position,

b. DEPRESS the Relay Target Reset  
Pushbutton.

5.1.16 LOCK OPEN the Air Start Receiver  
17 Discharge Isolation which was closed  
in Step 5.1.7.

WCM  
5/25/90

5.1.17 If the Diesel Generator is to be  
18 paralleled to the 4160V AC bus,  
PROCEED to Section 5.2.

WCM  
5/25/90  
WCM  
5/25/90

5.1.18 If the Diesel Generator is to be  
19 shut down, immediately PROCEED to  
Section 5.3.

WCM  
5/25/90



INITIALS

5.6

## SYSTEM RESTORATION

5.6.1

PERFORM Checklist 1, Diesel Generator Standby Mode Status Check, for the Diesel Generator which was tested.

5.6.2

RECORD DFO Storage Tank level  
1-LI-9024(9025) on Data Sheet 1.

5.6.3

RECORD DFO Day Tank level  
1-LI-9018(9019) on Data Sheet 1.

5.6.4

RECORD Air Start Receiver 1 pressure  
1-PI-9060(9061) on Data Sheet 1.

5.6.5

RECORD Air Start Receiver 2 pressure  
1-PI-9064(9065) on Data Sheet 1.

5.6.6

See Insert

5.7

## INDEPENDENT VERIFICATION

5.7.1

Independently VERIFY LOCKED OPEN the Air Start Receiver Discharge Isolation which was opened in Step 5.1.16.

5.7.2

Independently VERIFY CLOSED  
1-2403-U4-130(131) which was closed in Step 5.1.12.

5.7.3

Independently VERIFY LOCKED CLOSED the DFO Day Tank Drain Valve 1-2403-U4-035(036) which was closed in Step 5.3.10.5.

5.7.4

Independently VERIFY CLOSED the Air Start Receiver 1 Drain 1-2403-X4-762(723) which was closed in Step 5.5.7.

5.7.5

Independently VERIFY CLOSED the Air Start Receiver 2 Drain 1-2403-X4-772(728) which was closed in Step 5.5.18.

5.7.6

Independently VERIFY OPEN the L.O. Keep-Warm Pump 1-PI-19145(19152) Root 1-2403-X4-798(797) which was operated in Step 5.1.4.

WCM  
5/25/10

WCM  
5/25/10

WCM  
5/25/10



Insert

WCM  
5/25/90

6.6 IF this surveillance is being performed on Train B Diesel Generator, then DISABLE the High Jacket Water Temperature trip by closing the Jacket Water Hi-temp Switch Instrument Valves (opened in Step 5.1.7) as listed below. IF Train A Diesel Generator is being tested, then mark this step N/A.

a. DIESEL GEN B 1-TSH-19117 BLOCK VALVE 1-2403-TSH-19117-DI

IV

b. DIESEL GEN B 1-TSH-19119 BLOCK VALVE 1-2403-TSH-19119-DI

IV

c. DIESEL GEN B 1-TSH-19118 BLOCK VALVE 1-2403-TSH-19118-DI

IV

## DATA SHEET 1

Sheet 1 of 2

## DIESEL GENERATOR SURVEILLANCE DATA

DG under test: \_\_\_\_\_ Date: \_\_\_\_\_ Mode: \_\_\_\_\_

5.1 Diesel Generator Startup

5.1.5 Engine Hours at Startup: \_\_\_\_\_

5.1.7.3 Air Start Receiver Valve Closed: \_\_\_\_\_

5.1.13 Time to voltage: \_\_\_\_\_

5.1.14 Time to frequency: \_\_\_\_\_

5.1.15 Voltage: A-B \_\_\_\_\_ B-C \_\_\_\_\_ C-A \_\_\_\_\_

Frequency: \_\_\_\_\_ Hz

WCM  
5/25/90  
WCM  
5/25/90WCM  
5/25/90

5.2 Diesel Generator Loading

5.2.12.5 Diesel Generator Loading Time (6 month surveillance only) \_\_\_\_\_ seconds

5.2.16 Time load exceeded 6800kW: \_\_\_\_\_

5.2.19.1 Time load reduced to less than 6800kW: \_\_\_\_\_

5.3 Diesel Generator Shutdown

5.3.2 Diesel Shutdown Time: \_\_\_\_\_

5.3.8 Diesel Engine Hours at Shutdown \_\_\_\_\_

5.5.9 Air Compressor 1 start time \_\_\_\_\_

5.5.11 Air Compressor 1 stop time \_\_\_\_\_

5.5.20 Air Compressor 2 start time \_\_\_\_\_

5.5.22 Air Compressor 2 stop time \_\_\_\_\_



## CHECKLIST 1

Sheet 2 of 4

## GENERATOR CONTROL PANEL - PDG1(PDG3)

	STATUS	INITIALS	IV
1. Unit/Parallel Switch 1-HS-4414A(4452A)	Center		
	After Unit		
2. Local/Remote Switch 1-HS-4516(4517)	REMOTE		
3. Lockout Relays:			
a. 186A	RESET		
b. 186B	RESET		
c. 186C	RESET		
4. Voltage Regulator	AUTO		
a. Automatic Voltage Regulator Light	ON		
b. Manual Voltage Regulator Light	OFF		

## MOTOR CONTROL CENTER 1NBI(1NBO)

1. Air After Cooler Fan No. 1	AUTO		
2. Air Compressor No. 1	AUTO		
3. Air After Cooler Fan No. 2	AUTO		
4. Air Compressor No. 2	AUTO		
5. Jacket Water Circulating Pump	AUTO		
6. Jacket Water Heater	AUTO		
7. Lube Oil Circulating Pump	AUTO		
8. Lube Oil Heater	AUTO		
9. Generator Space Heater	AUTO		

## AT ENGINE BELIND THE JACKET WATER HEAT EXCHANGER (BTRAIN ONLY)

1. DIESEL GEN B 1-TSH-19117 BLOCK VALVE	CLOSED		
1-2403-TSH-19117-DI			
2. DIESEL GEN B 1-TSH-19119 BLOCK VALVE	CLOSED		
1-2403-TSH-19119-DI			
3. DIESEL GEN B 1-TSH-19118 BLOCK VALVE	CLOSED		
1-2403-TSH-19118-DI			



# TAPE REVIEW RECORD

Tape No.: 44

Tape Date(s): April 13, 1990

Concerns: (include side and counter time of concerns noted)

<u>Side</u>	<u>Time</u>	<u>Comments</u>
	4	

3 1/2 - 4 (S.S. side) <sup>A</sup> RER EXIT FOR VOGTLE NUCLEAR PLANT.  
6 - 7 DISCUSSION BETWEEN MOSBAUGH AND  
GEORGE BUCHOLTZ WHICH IDENTIFIED  
SPECIFIC SAFEGUARDS VULNERABILITIES.

Total time expended in review (Man-hours): 4 Hrs

Were any safety or security concerns identified: 4/18/85 Yes  
[Indicate each item by asterisking the relevant item(s).]

Reviewer #1 Signature: Walter Thompson 11-18-91  
(date)

Reviewer #2 Signature: [Signature] 11-18-91  
(date)

Reviewer #3 Signature: Dr. H. L. L. 11/18/91  
(date)

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SUMMARY REPORT

TAPE # 44

SUMMARY:

A PORTION OF THE RER EXIT DISCUSSED SECURITY VULNERABILITIES WHICH UNTIL CORRECTED WERE SAFEGUARDS.

A DISCUSSION BETWEEN MOSBAUGH AND (WE BELIEVE) BULHOLTZ WAS A DIRECT CONVERSATION CONCERNING A COMPUTER VULNERABILITY.

SPECIFIC ITEMS OF INTEREST:

- RER EXIT
- LICENSEE CONVERSATION AFTER EXIT.
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SIGNIFICANCE:

Safeguards Information DISCUSSED AND MATERIALS NOT SECURED AS SAFEGUARDS.

SECURITY IMPLICATIONS:

VIOLATION OF 73.21(b)(3)(i)

DT 11/18/91  
11/18/91  
11/18/91