Baca, Bernadette

Greg,

This is the Ops procedure for the Unit 2 Train A (2G002) slow-start test.

(b)(6)

Regulatory Affairs, SCE

(b)(6)

1

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                        ATTACHMENT 2

DIESEL GENERATOR OPERATION

CONTINUOUS USE

OBJECTIVE:

Provide direction to perform Emergency Diesel Generator (D/G) runs. Sections are provided to start, raise speed to specified frequency and voltage, load the D/G, run loaded maintaining normal operating parameters, and secure the D/G. Individual sections may be used to support Post-Maintenance Testing and other D/G starts or runs. This attachment DOES NOT document Tech. Spec. Surveillance Acceptance Criteria. (LS-11.0)

UNIT __2__ MODE __1__ DG No._2G002_ DATE __3-8-11__ TIME __0100__

PREREQUISITES

PERF. BY INITIALS

Verify this document is current by checking a controlled copy or by using the method described in SO123-XV-HU-3.   (b)(6)

NOTE

Steps performed by Field Operators are identified by an *f*.   (b)(6)

Reason attachment is initiated:

✔	REASON
X	Post Maintenance Test: WCA/WCD# 70015875
	Start Verification
	EOIs (Mark N/A Steps 1.3, 1.4, 1.9, and 1.12)
	Unloading and/or Stopping the Diesel Generator
	Other (specify):

1.3 The Opposite Train D/G is NOT paralleled with the preferred offsite source. (LS-6.1)   (b)(6)

1.4 Ensure Switchyard evolutions in progress or planned, will not conflict with Diesel Generator Operation. (LS-6.6)

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1.0   <u>PREREQUISITES</u> (Continued)

PERF. BY
<u>INITIALS</u>

(1.5) Determine the performance requirements of this attachment:
(LS-11.0)

(b)(6)

✔	DIESEL GENERATOR OPERATION	PERFORM SECTION(S)
X	Prestart Requirements	2.2 (pages 27 to 31)
X	Diesel Generator Start	2.3 (pages 32 to 35)
X	Synchronizing and Loading the Diesel Generator	2.4 (pages 36 to 39)
X	Re-aligning Start Air System	2.5 (page 40 to 41)
	Paralleling a Diesel Supplied Bus to the RAT	2.6 (page 42)
	Paralleling a Diesel Supplied Bus to the UAT	2.7 (page 43)
X	Unloading the Diesel Generator	2.8 (page 44)
X	Stopping the Diesel Generator	2.9 (pages 45 to 47)
X	Post Run Actions	2.10 (pages 48 to 50)
✔	Logging Results of Diesel Generator Run	3.0 (page 51)

(1.5.1) Mark N/A for the remaining unused Sections.
(Mark N/A if all Sections will be performed.)

(b)(6)

(1.6) Determine type of Start: (Mark N/A if not performing Section 2.3.)

✔	TYPE OF START	MARK N/A STEPS
X	SLOW START	2.3.3
	LOCAL FAST START	1.9, 2.3.2, 2.3.2.1, 2.3.3, 2.3.8, 2.3.15, 2.3.15.1
	CONTROL ROOM OR SIAS START	1.9, 2.3.1, 2.3.1.1, 2.3.2, 2.3.2.1, 2.3.4, 2.3.8, 2.3.15, 2.3.15.1, 2.3.16, 2.3.16.1

(1.7) If Diesel Control will remain in LOCAL for duration of run, <u>then</u> Mark N/A
Sections 2.3.16 and 2.9.1. (Mark N/A if Diesel Control will NOT remain
in LOCAL.)

N/A

(1.0)   PREREQUISITES (Continued)

<div align="right">

PERF. BY
INITIALS
</div>

(1.8)   Determine if start is to be timed.
(Mark N/A Section 1.8 and Step 2.10.2 if not performing Section 2.3.)

(b)(6)

✔	DG START TO BE TIMED?
	YES: Request the Maintenance Department to install temporary recording equipment monitoring parameters required for Diesel Start, and request this alteration be documented per SO123-II-15.3.
✗	NO: Mark N/A Step 1.8.1, Sections 2.3.17, and 2.3.19, and Step 2.10.2

1.8.1   Name of Maintenance Department person contacted: N/A

_____
          Person Contacted   Date   Time

(1.9)   Determine if Diesel will be operated at 450 RPM for duration of run:
(Mark N/A if not performing Section 2.3.)

(b)(6)

✔	///	MARK N/A
	YES	Steps 2.3.15, 2.3.15.1, 2.3.16, 2.3.16.1, and Section 2.9.2
✗	NO	NONE

(1.10)   If adjusting Diesel Load and VARs will only be performed from the
Control Room for duration of run, then Mark N/A Sections 2.4.18, 2.4.19,
and 2.4.20. (Mark N/A If to local load and VAR control will be
performed at any time during this run.)

(b)(6)

NOTE

It Is preferred to reduce diesel speed to idle prior to stopping to minimize engine wear.

(b)(6)

(1.11)   Determine type of Diesel Generator Stop:

| ✔	TYPE OF STOP	MARK N/A
✗	LOCAL STOP FROM IDLE SPEED	Section 2.9.5
	LOCAL STOP FROM FAST SPEED	Sections 2.9.2 and 2.9.5, Steps 2.9.7.1 and 2.9.7.2
	CONTROL ROOM STOP	Sections 2.9.1, 2.9.2, 2.9.6, and 2.9.7

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1.0   <u>PREREQUISITES</u> (Continued)

PERF. BY
<u>INITIALS</u>

(b)(6)

1.12   Determine if Handbarring is required:
(Mark N/A Section 1.12 if not performing Section 2.3.)
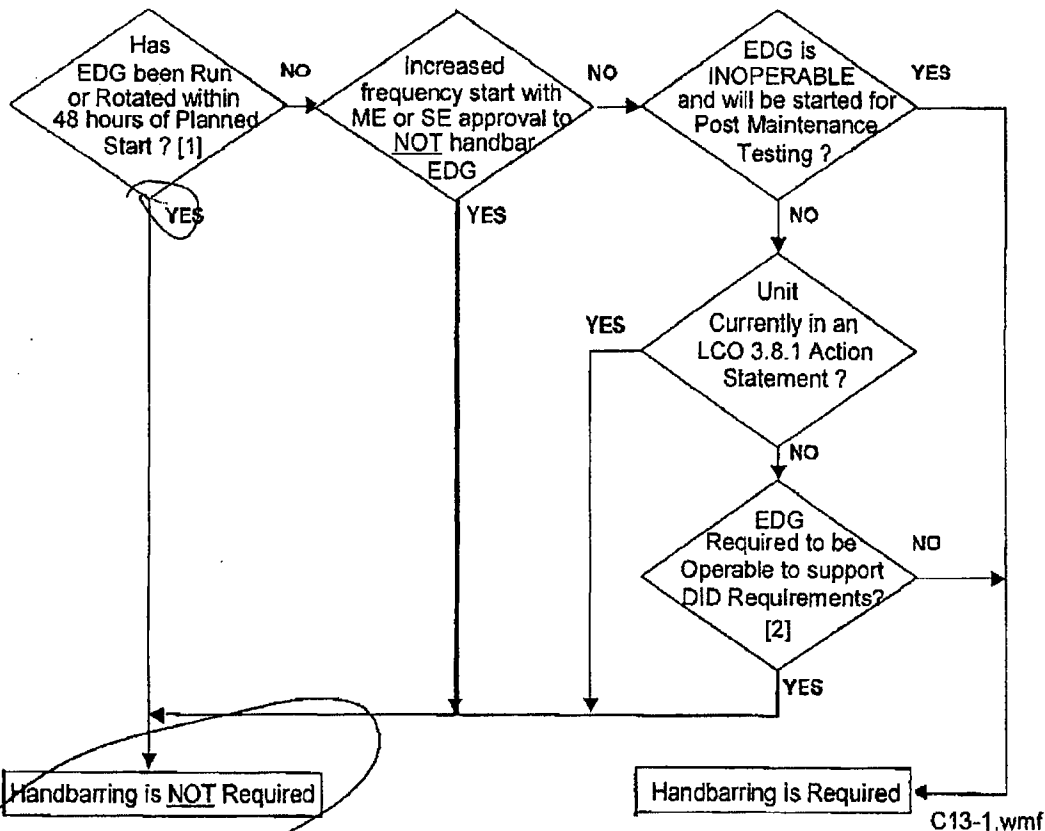
C13-1.wmf

1.12.1   If required, <u>then</u> HANDBAR the Diesel Generator per
Attachment 12 or 13. (Mark N/A if handbarring not
required.)

N/A

[1]   Rotation may be performed by either Operations or Maintenance.

[2]   If the Diesel is AVAILABLE, can be started within Time to Boil requirements, <u>and</u> not
required to be OPERABLE, <u>then</u> Select NO.
The Diesel remains AVAILABLE for DID during Handbarring.

1.0 **PREREQUISITES** (Continued)

PERF. BY
INITIALS

1.13 Determine if Unit 2 Diesel Generators are to be started during normal working hours (Monday-Friday from 0700-1600):
(Mark N/A Section 1.13 if not performing Section 2.3.)

(b)(6)

☐ YES   Request Facilities (PAX 83979 or 83333) to close fresh air dampers to D1N to minimize exhaust entering building.

☒ NO   Mark N/A Step 1.13.1 and Section 2.10.8.

~~1.13.1~~   Name of Facilities Department person contacted:

_N/A_

| Person Contacted | Date | Time |

1.14 Determine which AVR is to be used as determined by the Red Book or other controlling document (e.g. Daily Production Package, WCA/WCD, etc.): (Mark N/A if not performing Section 2.2.)
(AR 990601338-10) (LS-7.1, LS-7.5)

(b)(6)

✔	AVR	MARK N/A
X	AVR A	Sections 2.2.6 and 2.2.7
	AVR B	Sections 2.2.5 and 2.2.7
	OFF	Sections 2.2.5 and 2.2.6

1.15 SELECT Air Start alignment as determined by the SRO Ops Supv. or controlling document (e.g. WCA/WCD, Red Book, Daily Production Package, etc.): (Mark N/A if not performing Section 2.2.) (LS-1.8)

(b)(6)

✔	SUBSYSTEM TO BE ALIGNED	MARK N/A SECTIONS
	G002	
	BOTH	2.2.8, 2.2.9, 2.2.10, 2.2.11, 2.3.25, 2.5
☒	1	2.2.9, 2.2.10, 2.2.11, 2.5.2, 2.5.3, 2.5.4
	2	2.2.8, 2.2.10, 2.2.11, 2.5.1, 2.5.3, 2.5.4
	G003	
	BOTH	2.2.8, 2.2.9, 2.2.10, 2.2.11, 2.3.25, 2.5
	1	2.2.8, 2.2.9, 2.2.11, 2.5.1, 2.5.2, 2.5.4
	2	2.2.8, 2.2.9, 2.2.10, 2.5.1, 2.5.2, 2.5.3

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1.0 PREREQUISITES (Continued)

PERF. BY
INITIALS

1.16 Determine if Air Start Receiver Pressure Drop Monitoring is to be performed: (Mark N/A if not performing Section 2.2.)

(b)(6)

✔	/////	MARK N/A
	SUBSYSTEM 1 TO BE TESTED?	
☒	YES	NONE
	NO	Steps 2.2.13, 2.2.15, 2.3.23, and 2.3.26
	SUBSYSTEM 2 TO BE TESTED?	
	YES	NONE
☒	NO	Steps 2.2.14, 2.2.16, 2.3.24, and 2.3.27

1.17 Determine if measuring devices are to be installed to monitor/record Diesel Generator parameters. (Mark N/A if not performing Section 2.2.)

(b)(6)

✔	MEASURING DEVICES TO BE INSTALLED?	MARK N/A STEPS
	YES	NONE
✗	NO	2.2.12, 2.10.1

1.18 If 10 Meter Temperature indication is NOT available from Met Tower Recorder or PCS, then Notify Diesel Maintenance Engineer that he/she will need to take ambient temperatures, using appropriate M&TE, and report temperatures to the Unit CRS during Diesel operation. (Mark N/A if 10 Meter Temperature indication is available from the Met Tower Recorder and/or PCS, or if not performing Section 2.4.) (LS-6.14)

N/A

Name of Maintenance Engineer   Date   Time

1.19 Verify all steps in Section 1.0 are complete, and all steps in Sections 1.0 and 2.0 required to be marked N/A as directed above, are correctly marked N/A.

(b)(6)

SRO Ops.
Supv.

END OF SECTION 1.0

2.0   PROCEDURE

2.1   Performance Guidelines

2.1.1   If the D/G needs to be secured and restarted rapidly during performance of this attachment, e.g. Hot Restart, then the initial standby actions do not need to be reperformed.

2.1.2   This attachment allows multiple starts/stops and loading/unloading of the Diesel, leave unused columns blank.

GUIDELINE

Due to Air Start System valve position tracking difficulties, separate copies of this attachment are required if testing involves various Air Start System alignments.

2.1.3   If required due to post-maintenance testing, then maintenance testing may be performed concurrently with this attachment at any time the Diesel is in a steady state condition (e.g. varying speed or adjusting Governor with the engine unloaded at 900 rpm). (LS-6.2, LS-6.3)

.1   If maintenance testing requires unloading, stopping, or tripping the Diesel, then Mark N/A unused steps of the current start column.

2.1.4   If a valid Degraded Grid Voltage condition occurs with the D/G output breaker CLOSED, then initiate a controlled unloading of the D/G, and OPEN the output breaker. This is necessary to return the SDVS protection circuit to Automatic. (With the D/G output breaker closed, the SDVS circuit is defeated.)

2.1.5   If Diesel operation is planned for > 8 hours cumulative, then oil will need to be added to ensure level is ≥ FULL RUN Level.

END OF SECTION 2.1

2.0   PROCEDURE (Continued)   PERF. BY
                                                                 INITIALS

2.2   Prestart Requirements

f   2.2.1   Ensure SO23-3-3.23, Attachment for Diesel Generator   (b)(6)
                Standby Verification, has been performed.

f   2.2.2   RECORD PI-E938 (PI-E988), Engine No. 1 Auxiliary
                Turbocharger Filter Circ. Oil Outlet Pressure: (Ref. 2.3.1.6)
                        3 0.5   psig

f   2.2.3   RECORD PI-E937 (PI-E987), Engine No. 2 Auxiliary
                Turbocharger Filter Circ. Oil Outlet Pressure: (Ref. 2.3.1.6)
                        33.5   psig

f   2.2.4   Report Auxiliary Turbocharger Filter Circ. Oil Outlet
                Pressures to the Control Room. (LS-5.5)

       2.2.5   If either pressure is ≤ 10 psig, **then** DO NOT START the
                Diesel without Maintenance Engineer concurrence.
                (Mark N/A if both engines >10 psig.)   N/A

        _____
        Name of Maintenance Engineer   Date   Time

f   2.2.5   ENSURE HS-E941(HS-E991), VOLTAGE REGULATOR,   (b)(6)
                selected to AVR A.

f   .1   VERIFY ILLUMINATED ZL-E921(ZL-E971), AVR A
                SELECTED.

f   2.2.6   ENSURE HS-E941(HS-E991), VOLTAGE REGULATOR,
                selected to AVR B.   N/A

f   .1   VERIFY ILLUMINATED ZL-E922(ZL-E972), AVR B
                SELECTED.   N/A

f   2.2.7   ENSURE HS-E941(HS-E991), VOLTAGE REGULATOR,
                selected to OFF.   N/A

f   .1   VERIFY EXTINGUISHED ZL-E921(ZL-E971), AVR A
                SELECTED.   N/A

f   .2   VERIFY EXTINGUISHED ZL-E922(ZL-E972), AVR B
                SELECTED.   N/A

2.0   PROCEDURE (Continued)   PERF. BY
                                                     INITIALS

    2.2.8   **Use G002 Starting Air Subsystem 1 to start the Diesel.**

f   .1   ENSURE LOCKED OPEN S2(3)2420MU087, DG G002
           Starting Air Subsystem #1 Air Receiver T335 Outlet
           Isolation Valve.

f   .2   ENSURE LOCKED CLOSED S2(3)2420MU086, DG G002
           Starting Air Subsys #1 T335 and Subsys #2 T336 Outlet
           Crosstie Valve.

f   .3   ENSURE LOCKED OPEN S2(3)2420MU081, DG G002
           Eng #2 (20 Cyl) Start Air Subsys #1 Right Bank Vlv
           HV5931A Inlet Iso.

f   .4   ENSURE LOCKED OPEN S2(3)2420MU082, DG G002
           Eng #1 (16 Cyl) Start Air Subsys #1 Left Bank Vlv
           HV5931B Inlet Iso.

f   .5   UNLOCK and CLOSE S2(3)2420MU083, DG G002
           Eng #1 (16 Cyl) Start Air Subsys #2 Right Bank Vlv
           HV5931D Inlet Iso.

f   .6   UNLOCK and CLOSE S2(3)2420MU084, DG G002
           Eng #2 (20 Cyl) Start Air Subsys #2 Left Bank Vlv
           HV5931C Inlet Iso.

f   .7   UNLOCK and CLOSE S2(3)2420MU085, DG G002
           Starting Air Subsystem #2 Air Receiver T336 Outlet
           Isolation Valve.

(b)(6)

END OF SECTION 2.2.8

2.0 <u>PROCEDURE</u> (Continued)   PERF. BY
                                                               <u>INITIALS</u>

    2.2.9 **Use G002 Starting Air Subsystem 2 to start the Diesel.**

f   1   ENSURE LOCKED OPEN S2(3)2420MU085, DG G002
           Starting Air Subsystem #2 Air Receiver T336 Outlet
           Isolation Valve.   N/A

f   .2   ENSURE LOCKED CLOSED S2(3)2420MU086, DG G002
           Starting Air Subsys #1 T335 and Subsys #2 T336 Outlet
           Crosstie Valve.

f   3   ENSURE LOCKED OPEN S2(3)2420MU083, DG G002
           Eng #1 (16 Cyl) Start Air Subsys #2 Right Bank Vlv
           HV5931D Inlet Iso.

f   4   ENSURE LOCKED OPEN S2(3)2420MU084, DG G002
           Eng #2 (20 Cyl) Start Air Subsys #2 Left Bank Vlv
           HV5931C Inlet Iso.

f   .5   UNLOCK and CLOSE S2(3)2420MU081, DG G002
           Eng #2 (20 Cyl) Start Air Subsys #1 Right Bank Vlv
           HV5931A Inlet Iso.

f   .6   UNLOCK and CLOSE S2(3)2420MU082, DG G002
           Eng #1 (16 Cyl) Start Air Subsys #1 Left Bank Vlv
           HV5931B Inlet Iso.

f   7   UNLOCK and CLOSE S2(3)2420MU087, DG G002
           Starting Air Subsystem #1 Air Receiver T335 Outlet
           Isolation Valve.   N/A

END OF SECTION 2.2.9

2.0   PROCEDURE (Continued)   PERF. BY
                                                           INITIALS

      2.2.10   **Use G003 Starting Air Subsystem 1 to start the Diesel.**

f   .1   ENSURE LOCKED OPEN S2(3)2420MU096, DG G003
Starting Air Subsystem #1 Air Receiver T337 Outlet
Isolation Valve.

f   .2   ENSURE LOCKED CLOSED S2(3)2420MU095, DG G003
Starting Air Subsys #1 T337 and Subsys #2 T338 Outlet
Crosstie Valve.

f   .3   ENSURE LOCKED OPEN S2(3)2420MU109, DG G003
Eng #2 (20 Cyl) Start Air Subsys #1 Right Bank Vlv
HV5931E Inlet Iso.

f   .4   ENSURE LOCKED OPEN S2(3)2420MU110, DG G003
Eng #1 (16 Cyl) Start Air Subsys #1 Left Bank Vlv
HV5931F Inlet Iso.

f   .5   UNLOCK and CLOSE S2(3)2420MU111, DG G003
Eng #1 (16 Cyl) Start Air Subsys #2 Right Bank Vlv
HV5931H Inlet Iso.

f   .6   UNLOCK and CLOSE S2(3)2420MU112, DG G003
Eng #2 (20 Cyl) Start Air Subsys #2 Left Bank Vlv
HV5931G Inlet Iso.

f   .7   UNLOCK and CLOSE S2(3)2420MU094, DG G003
Starting Air Subsystem #2 Air Receiver T338 Outlet
Isolation Valve.

END OF SECTION 2.2.10

2.0   PROCEDURE (Continued)   PERF. BY
                                                            INITIALS

f   2.2.11   **Use G003 Starting Air Subsystem 2 to start the Diesel.**

f   .1   ENSURE LOCKED OPEN S2(3)2420MU094, DG G003
                      Starting Air Subsystem #2 Air Receiver T338 Outlet
                      Isolation Valve.   N/A —

f   .2   ENSURE LOCKED CLOSED S2(3)2420MU095, DG G003
                      Starting Air Subsys #1 T337 and Subsys #2 T338 Outlet
                      Crosstie Valve

f   .3   ENSURE LOCKED OPEN S2(3)2420MU111, DG G003
                      Eng #1 (16 Cyl) Start Air Subsys #2 Right Bank Vlv
                      HV5931H Inlet Iso.

f   .4   ENSURE LOCKED OPEN S2(3)2420MU112, DG G003
                      Eng #2 (20 Cyl) Start Air Subsys #2 Left Bank Vlv
                      HV5931G Inlet Iso.

f   .5   UNLOCK and CLOSE S2(3)2420MU109, DG G003
                      Eng #2 (20 Cyl) Start Air Subsys #1 Right Bank Vlv
                      HV5931E Inlet Iso.

f   .6   UNLOCK and CLOSE S2(3)2420MU110, DG G003
                      Eng #1 (16 Cyl) Start Air Subsys #1 Left Bank Vlv
                      HV5931F Inlet Iso.

f   .7   UNLOCK and CLOSE S2(3)2420MU096, DG G003
                      Starting Air Subsystem #1 Air Receiver T337 Outlet
                      Isolation Valve.   N/A —

             2.2.12   Request Maintenance to ensure all required test
                      equipment is installed, and pretests have been
                      performed on the measuring devices installed to
                      monitor/record Diesel Generator parameters.   N/A —

                      VERIFIED BY:

                      _____   _____   _____
                      Maintenance General Foreman   Date   Time

f   2.2.13   PLACE C-012A (C-013A), Starting Air Compressor   (b)
                      Power Supply Handswitch, at BDX-09 (BHX-09) to OFF.   (6)

f   2.2.14   PLACE C-012B (C-013B), Starting Air Compressor
                      Power Supply Handswitch, at BDX-10 (BHX-10) to OFF.   N/A

f   2.2.15   RECORD Subsystem #1 Prestart Air Start Manifold
                      pressure: (b)(6)
                                    197   PI-5958B(D)

f   2.2.16   RECORD Subsystem #2 Prestart Air Start Manifold
                      pressure:
                                  _____ PI-5958A(C)   N/A —

2.0   PROCEDURE (Continued)

2.3 Diesel Generator Start

		PERF. BY INITIALS START 1	PERF. BY INITIALS START 2	PERF. BY INITIALS START 3	PERF. BY INITIALS START 4
2.3.1	TRANSFER HS-1665-1(HS-1644-2), MODE SELECTOR, to LOCAL CONTROL at CR-63.	(b)(6)			
.1	VERIFY ILLUMINATED ZL-E918 (ZL-E968), LOCAL CONTROL light. [L-160(L-161)]	(b)(6)			
2.3.2	DEPRESS HS-1701A(B), IDLE SPEED ON pushbutton. [L-160(L-161)]				
.1	VERIFY ILLUMINATED ZL-1700A(B), IDLE SPEED light. [L-160(L-161)]				
2.3.3	START the Diesel Generator and RECORD time. (LS-5.4)	N/A			
	Start Time:				
.1	If the D/G fails to start, then refer to Attachment 7. (Ref. 2.2.1) (LS-1.7)	////////	////////	////////	////////
2.3.4	Using a Concurrent Verifier: ROTATE HS-5995-1(2), Local Engine Control, to START and RECORD time. (LS-5.4)	(b)(6)			
	Concurrent Verification				
	Start Time: 0340				
.1	If the D/G fails to start, then refer to Attachment 7. (Ref. 2.2.1) (LS-1.7)	////////	////////	////////	////////
2.3.5	VERIFY all Air Start Motors have Disengaged.	(b)(6)			
.1	If any Air Start Motor has NOT Disengaged, then IMMEDIATELY SECURE the D/G, and notify the Control Room of this condition.	////////	////////	////////	////////
2.3.6	If the Diesel Generator exhibits "hunting" as indicated by large swings in the fuel rack position, speed, and/or engine loading, then refer to Attachment 7. (LS-5.7)	////////	////////	////////	////////

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2.0   PROCEDURE (Continued)

2.3 Diesel Generator Start

		PERF. BY INITIALS START 1	PERF. BY INITIALS START 2	PERF. BY INITIALS START 3	PERF. BY INITIALS START 4
ƒ 2.3.7	RECORD Diesel Generator Lube Oil Pressure: Engine No. 1: __95__ [>25 psig] (PI-5991B, D) Engine No. 2: __104__ [>25 psig] (PI-5991A, C)	(b)(6)	/////	/////	/////
2.3.8	RUN at idle speed (~450 rpm) 5 to 10 minutes for warmup, or as needed for testing. (LS-6.3)		/////	/////	/////
ƒ 2.3.9	If required to shutdown the Diesel from 450 rpm, then SECURE the Diesel per Section 2.9, and REALIGN the Start Air system per Section 2.5.	/////	/////	/////	/////
ƒ 2.3.10	LOCALLY VERIFY STARTED E-550 (E-549), Diesel Radiator Fan.	(b)(6)			
ƒ 2.3.11	LOCALLY VERIFY STARTED E-546 (E-547), Diesel Radiator Fan.				
~~2.3.12~~	VERIFY STARTED A-274 (A-276), D/G Building Emergency Ventilation Fan. (Ref. 2.3.1.2)				
~~2.3.13~~	VERIFY STARTED A-275 (A-277), D/G Building Emergency Ventilation Fan. (Ref. 2.3.1.2)				
ƒ ~~2.3.14~~	Ensure desired AVR is Selected, per SRO Ops. Supv. direction.				
	AVR (Circle one.)	Ⓐ B NONE	A B NONE	A B NONE	A B NONE
/////	NOTE: 159/81, Volts per Cycle Relay, may drop during transfers between idle speed and rated speed, and windows 63B19(63C19) and/or 63B29(63C29) may annunciate. (AR 021101161, AR 070100987)	/////	/////	/////	/////

2.0   PROCEDURE (Continued)

2.3   Diesel Generator Start

		PERF. BY INITIALS START 1	PERF. BY INITIALS START 2	PERF. BY INITIALS START 3	PERF. BY INITIALS START 4
ƒ 2.3.15	Following the warmup period, or as needed for testing, RAISE DIESEL SPEED to 900 rpm by DEPRESSING HS-1702A(B), IDLE SPEED OFF. [L-160(L-161)] (LS-6.2, LS-7.2)	(b)(6)			
ƒ	VERIFY EXTINGUISHED ZL-1700A(B), IDLE SPEED light. [L-160(L-161)]				
2.3.16	DEPRESS HS-1665-1(HS-1644-2), MODE SELECTOR, LOCAL CONTROL pushbutton at CR-63 to transfer Diesel Control to the Control Room. (Mark N/A if not transferring to Control Room at this time.)				
ƒ	VERIFY EXTINGUISHED ZL-E918 (ZL-E968), LOCAL CONTROL light. (Mark N/A if not transferring to Control Room at this time.)				
2.3.17	Time required to reach 4.224 kV: _____ seconds (Ref. 2.3.3.1) Performed by: _____ Electrical Test	N/A			
2.3.18	VERIFY generator voltage at 4.27 kV to 4.57 kV and RECORD value. (Ref. Tech. Spec. SR 3.8.1.2 and Ref. 2.3.3.1) D/G Voltage 4.37 kV EI-1672-1(EI-1651-2	(b)(6)			
2.3.19	Time required to reach 59.76 HZ: _____ seconds (Ref. 2.3.3.1) Performed by: _____ Electrical Test	N/A			
2.3.20	VERIFY generator frequency ≥59.9 Hz and ≤61.2 Hz. (Ref. Tech. Spec. SR 3.8.1.2 and Ref. 2.3.3.1) D/G Frequency 60.1 Hz SI-1672-1(SI-1651-2)	(b)(6)	/////	/////	/////

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2.0   PROCEDURE (Continued)

2.3 Diesel Generator Start

		PERF. BY INITIALS START 1	PERF. BY INITIALS START 2	PERF. BY INITIALS START 3	PERF. BY INITIALS START 4
ƒ 2.3.21	VERIFY air blowing from S2(3)2420MU302 [S2(3)2420MU304], Diesel Generator G002(3) Engine #1 (16 CYL) Airbox Drain Valve.	(b)(6)			
ƒ .1	If Air is not blowing from the Air Box Drain S2(3)2420MU302 [S2(3)2420MU304], then THROTTLE OPEN the drain valve until air is blowing from drain.				
ƒ 2.3.22	VERIFY air blowing from S2(3)2420MU301 [S2(3)2420MU303], Diesel Generator G002(3) Engine #2 (20 CYL) Airbox Drain Valve.	(b)(6)			
ƒ .1	If Air is not blowing from S2(3)2420MU301 [S2(3)2420MU303], then THROTTLE OPEN the drain valve until air is blowing from drain.				
ƒ 2.3.23	RECORD Subsystem #1 Post start Air Start Manifold pressure: ___187___ PI-5958B(D)	(b)(6)			
ƒ 2.3.24	RECORD Subsystem #2 Post start Air Start Manifold pressure: _____ PI-5958A(C)	N/A			
ƒ 2.3.25	COMMENCE REALIGNING the Diesel Air Start System per Section 2.5. (May be performed after Diesel is loaded.)	(b)(6)			
ƒ 2.3.26	ENSURE IN AUTO C-012A (C-013A), Starting Air Compressor Power Supply Handswitch, at BDX-09 (BHX-09).				
ƒ 2.3.27	ENSURE IN AUTO C-012B (C-013B), Starting Air Compressor Power Supply Handswitch, at BDX-10 (BHX-10).	N/A			
2.3.28	If desired to shutdown the Diesel prior to loading the engine, then SECURE the Diesel per Section 2.9.				
2.3.29	If it is desired to return the Diesel to 450 rpm, then Mark N/A steps of next start column per the guidance of Section 1.0, Mark N/A Steps 2.3.3 through 2.3.13, and go to Step 2.3.2. (Attach additional copies of Section 2.3 if required.)				

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2.0   PROCEDURE (Continued)

2.4 Synchronizing and Loading the Diesel Generator (LS-6.6)

		PERF. BY INITIALS START 1	PERF. BY INITIALS START 2	PERF. BY INITIALS START 3	PERF. BY INITIALS START 4
2.4.1	ENSURE D/G control aligned to the Control Room.	(b)(6)			
2.4.2	SELECT HS-1627-1(2), SYNC CKT CONTROL, to ON.				
2.4.3	DEPRESS HS-1664-1(HS-1642-2), D/G Breaker SYNC pushbutton.				
2.4.4	Using HS-1669-1(HS-1648-2), VOLTAGE REGULATOR, and the Control Room *digital voltmeters* MATCH incoming and running voltages. (LS-7.2)				
2.4.5	Using HS-1671-1(HS-1650-2), GOVERNOR CONTROL, ADJUST D/G SPEED so that the synchroscope is *moving slowly in the clockwise direction.*				
2.4.6	When the synchroscope is within 2 minutes of the straight up position, then CLOSE A0413(A0613), Diesel Generator Breaker. (LS-6.7, LS-6.8, and LS-6.9)				
	RAISE LOAD to approximately 1.2 MW by depressing HS-1671-1(HS-1650-2), GOVERNOR CONTROL.				
	MAINTAIN positive VAR loading of 0.1 to 0.5 MVARS for duration of load ramp using HS-1669-1 (HS-1648-2), VOLTAGE REGULATOR. (LS-7.2)				
2.4.7	VERIFY ILLUMINATED HS-1671-1(HS-1650-2), GOVERNOR CONTROL, DROOP IN light.				
2.4.8	DEPRESS HS-1664-1(HS-1642-2), D/G Breaker SYNC pushbutton.				
	SELECT HS-1627-1(2), SYNC CKT CONTROL, to OFF.				

2.0   PROCEDURE (Continued)

2.4 Synchronizing and Loading the Diesel Generator (LS-6.6)

		PERF. BY INITIALS START 1	PERF. BY INITIALS START 2	PERF. BY INITIALS START 3	PERF. BY INITIALS START 4
/////	**NOTE** Loads and/or durations may be modified as required for specific testing, e.g., per script.)	/////	/////	/////	/////
2.4.9	After Diesel Generator load has been maintained at ~1.2 MW for 5 to 10 minutes, then RAISE load to ~2.4 MW using HS-1671-1(HS-1650-2), GOVERNOR CONTROL. (LS-6.2, LS-6.5, and LS-6.10) (Mark N/A if not loading > ~1.2 MW.)	(b)(6)			
2.4.10	After Diesel Generator load has been maintained at ~2.4 MW for 5 to 10 minutes, then RAISE load to ~3.6 MW using HS-1671-1(HS-1650-2), GOVERNOR CONTROL. (LS-6.2, LS-6.5, and LS-6.10) (Mark N/A if not loading > ~2.4 MW.)				
2.4.11	After Diesel Generator load has been maintained at ~3.6 MW for 5 to 10 minutes, then RAISE load to $\geq$ 4.45 MW and $\leq$ 4.70 MW (Normal full load) using HS-1671-1(HS-1650-2), GOVERNOR CONTROL. (LS-6.2, LS-6.5, and LS-6.10) (Mark N/A if not loading > ~3.6 MW.)				
2.4.12	After Diesel Generator load has been maintained at $\geq$ 4.45 MW and $\leq$ 4.70 MW for 5 to 10 minutes, then RAISE load to > 4.70 MW and $\leq$ 5.17 MW using HS-1671-1(HS-1650-2), GOVERNOR CONTROL. (LS-6.2, LS-6.5, and LS-6.10) (Mark N/A if not loading > 4.70 MW.)	N/A			
2.4.13	MAINTAIN desired load using HS-1671-1(HS-1650-2), GOVERNOR CONTROL, for duration of Diesel Generator run. (LS-7.2)	(b)(6)			

2.0   PROCEDURE (Continued)

2.4 Synchronizing and Loading the Diesel Generator (LS-6.6)

		PERF. BY INITIALS START 1	PERF. BY INITIALS START 2	PERF. BY INITIALS START 3	PERF. BY INITIALS START 4
2.4.14	When Load Is ≥ 4.45 MW and ≤ 4.70 MW, then ADJUST positive VAR loading using HS-1669-1 (HS-1648-2), VOLTAGE REGULATOR, until one of the following conditions is met: (Mark N/A if load is not ≥ 4.45 MW and ≤ 4.70 MW.) (LS-7.2 and LS-7.4) • 3.0 - 3.2 MVAR 3.13 • 4.53 kV to 4.55 kV Bus Voltage • 730-750 amps D/G Output Current • For all EDGs except 3G003 - Exciter field current of 3.8 - 4.0 amps DC • For 3G003 only - Exciter field current of 5.1 - 5.5 amps DC	(b)(6)			
2.4.15	MAINTAIN VAR loading for duration of Diesel Generator run.	(b)(6)			
.1	If VAR loading cannot be maintained, then Declare the aligned AVR INOPERABLE. (DCE 070300161) (LS-7.2 and LS-7.5)	/////////	/////////	/////////	/////////

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2.0   PROCEDURE (Continued)

2.4 Synchronizing and Loading the Diesel Generator (LS-6.6)

		PERF. BY INITIALS START 1	PERF. BY INITIALS START 2	PERF. BY INITIALS START 3	PERF. BY INITIALS START 4
f 2.4.16	After the Diesel Generator has been at the desired load for ≥ 45 minutes, then record Diesel local parameters. (Handheld Computer or a Computer printout.) (Mark N/A if not loaded ≥ 45 minutes.)	(b)(6)			
2.4.17	After the Diesel Generator has been at the desired load for ≥ 45 minutes, then record 10 Meter temperature from the Met Tower Recorder, PCS, or as reported by Diesel Maintenance Engineer: (LS-6.14) (Mark N/A if not loaded ≥ 45 minutes.) 10 Meter Temperature: 99 C° (include units)				
.1	If Temperature is > 80°F (>26.7°C), then initiate a Notification to Maintenance Engineering to evaluate the impact on engine maintenance. (LS-6.13)	///////	///////	///////	///////
2.4.18	TRANSFER HS-1665-1(HS-1644-2), MODE SELECTOR, to LOCAL CONTROL at CR-63. (Mark N/A Section 2.4.18 if not desired to locally control load.)	N/A			
f .1	VERIFY ILLUMINATED ZL-E918(ZL-E968), LOCAL CONTROL light. [L-160(L-161)]	N/A			
f 2.4.19	Using HS-940(HS-E990), GOVERNOR, and HS-942(HS-E992), VOLTAGE ADJUST, Locally Adjust Diesel Load and VARs as directed by Electrical Test and/or Engineering. (Mark N/A if not desired to locally control load.)	N/A			
f 2.4.20	When local load control is complete, then DEPRESS HS-1665-1(HS-1644-2), MODE SELECTOR, LOCAL CONTROL pushbutton at CR-63 to transfer Diesel Control to the Control Room. (Mark N/A Section 2.4.20 if not desired to locally control load.)	N/A			
f .1	VERIFY EXTINGUISHED ZL-E918(ZL-E968), LOCAL CONTROL light. [L-160(L-161)]	N/A			

2.0   PROCEDURE (Continued)   INITIALS
                                                                PERF /IND VER

2.5 Re-aligning Start Air System (Section 2.5 not required to be reperformed for Diesel restarts.)

2.5.1   Re-align from G002 Starting Air Subsystem #1 alignment, as follows:

f   .1   LOCK OPEN S2(3)2420MU085, DG G002 Starting Air Subsystem #2 Air Receiver T336 Outlet   (b)(6)
              Isolation Valve.

f   .2   LOCK OPEN S2(3)2420MU083, DG G002 Eng #1 (16 Cyl) Start Air Subsys #2 Right Bank Vlv
              HV5931D Inlet Iso.

f   .3   LOCK OPEN S2(3)2420MU084, DG G002 Eng #2 (20 Cyl) Start Air Subsys #2 Left Bank Vlv
              HV5931C Inlet Iso.

2.5.2   Re-align from G002 Starting Air Subsystem #2 alignment, as follows:

f   .1   LOCK OPEN S2(3)2420MU087, DG G002 Starting Air Subsystem #1 Air Receiver T335 Outlet   N/A   (b)(6)
              Isolation Valve.

f   .2   LOCK OPEN S2(3)2420MU081, DG G002 Eng #2 (20 Cyl) Start Air Subsys #1 Right Bank Vlv   N/A
              HV5931A Inlet Iso.

f   .3   LOCK OPEN S2(3)2420MU082, DG G002 Eng #1 (16 Cyl) Start Air Subsys #1 Left Bank Vlv   N/A
              HV5931B Inlet Iso.

END OF SECTION 2.5.2

2.0   PROCEDURE (Continued)

INITIALS
PERF /IND VER

2.5.3   Re-align from G003 Starting Air Subsystem #1 alignment, as follows:

_f_   .1. LOCK OPEN S2(3)2420MU094, DG G003 Starting Air Subsystem #2 Air Receiver T338 Outlet
            Isolation Valve.   N/A

_f_   .2. LOCK OPEN S2(3)2420MU111, DG G003 Eng #1 (16 Cyl) Start Air Subsys #2 Right Bank Vlv
            HV5931H Inlet Iso.

_f_   .3. LOCK OPEN S2(3)2420MU112, DG G003 Eng #2 (20 Cyl) Start Air Subsys #2 Left Bank Vlv
            HV5931G Inlet Iso.

2.6.4   Re-align from G003 Starting Air Subsystem #2 alignment, as follows:

_f_   .1. LOCK OPEN S2(3)2420MU096, DG G003 Starting Air Subsystem #1 Air Receiver T337 Outlet
            Isolation Valve.

_f_   .2. LOCK OPEN S2(3)2420MU109, DG G003 Eng #2 (20 Cyl) Start Air Subsys #1 Right Bank Vlv
            HV5931E Inlet Iso.

_f_   .3. LOCK OPEN S2(3)2420MU110, DG G003 Eng #1 (16 Cyl) Start Air Subsys #1 Left Bank Vlv
            HV5931F Inlet Iso.   N/A

END OF SECTION 2.5.4

2.0 PROCEDURE (Continued)

PERF. BY
INITIALS

2.6 Paralleling a Diesel Supplied Isochronous Bus to the RAT: (LS-6.6)

f 2.6.1 Ensure the affected Switchgear Room is clear of all unnecessary personnel and maintain it clear until after the Diesel is paralleled to the 4kV bus.   N/A

2.6.2 Verify that the associated Reserve Auxiliary Transformer is energized and available to pick up the load.

2.6.3 PLACE Synchronization Master Control switch to ON.

2.6.4 DEPRESS the Reserve Auxiliary Transformer XR1(XR2) FDR BKR A0418 (A0618) SYNC Pushbutton.

2.6.5 Using HS-1669-1(HS-1648-2), VOLTAGE REGULATOR, MATCH incoming and running voltages at the synchroscope.

2.6.6 Using HS-1671-1(HS-1650-2), GOVERNOR CONTROL, ADJUST D/G SPEED so that the synchroscope is *moving slowly in the clockwise direction.*

NOTES

1. To prevent a reverse power condition, the Diesel should have a minimum load applied immediately after being paralleled to the 4kV bus.

2. If SIAS is actuated, then the Diesel Output Breaker will Open when the RAT Breaker is Closed. (NN 200368724)

2.6.7 When the Synchroscope is within "3 minutes" of the straight up position, then CLOSE the Reserve Auxiliary Transformer Breaker. (LS-6.8)

2.6.8 RAISE LOAD on the Diesel to approximately 1.2 MW by depressing HS-1671-1(HS-1650-2), GOVERNOR CONTROL. (Mark N/A if affected Train SIAS is actuated.)

2.6.9 VERIFY ILLUMINATED HS-1671-1(HS-1650-2), GOVERNOR CONTROL DROOP IN light.
(Mark N/A if affected Train SIAS is actuated.)

2.6.10 MAINTAIN VARS between 0.1 to 0.5 MVARS positive by adjusting the D/G Voltage Regulator using HS-1669-1 (HS-1648-2), VOLTAGE REGULATOR. (Mark N/A if affected Train SIAS is actuated.)

2.6.11 REMOVE the Reserve Auxiliary Transformer Breaker from sync circuit.

2.6.12 SELECT HS-1627-1(2), SYNC CKT CONTROL, to OFF.   N/A

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2.0   PROCEDURE (Continued)

PERF. BY
INITIALS

2.7   Paralleling a Diesel Supplied Isochronous Bus to the UAT: (LS-6.6)

ƒ   2.7.1   Ensure the affected Switchgear Room is clear of all unnecessary personnel and maintain it clear until after the Diesel is paralleled to the 4kV bus.

N/A

2.7.2   Verify that the associated Unit Auxiliary Transformer is energized and available to pick up the load.

2.7.3   PLACE Synchronization Master Control switch to ON.

2.7.4   DEPRESS the Unit Auxiliary Transformer XU1 FDR BKR A0419 (A0616) SYNC Pushbutton.

2.7.5   Using HS-1669-1(HS-1648-2), VOLTAGE REGULATOR, MATCH incoming and running voltages at the synchroscope.

2.7.6   Using HS-1671-1(HS-1650-2), GOVERNOR CONTROL, ADJUST D/G SPEED so that the synchroscope is *moving slowly in the COUNTER-CLOCKWISE direction.* (LS-6.12)

NOTES

1.   To prevent a reverse power condition, the Diesel should have a minimum load applied immediately after being paralleled to the 4kV bus.

2.   If SIAS is actuated, then the Diesel Output Breaker will Open when the UAT Breaker is Closed. (NN 200368724)

2.7.7   When the Synchroscope is within "3 minutes" of the straight up position, then CLOSE the Unit Auxiliary Transformer Breaker. (LS-6.8)

2.7.8   RAISE LOAD on the Diesel to approximately 1.2 MW by depressing HS-1671-1(HS-1650-2), GOVERNOR CONTROL. (Mark N/A if affected Train SIAS is actuated.)

2.7.9   VERIFY ILLUMINATED HS-1671-1(HS-1650-2), GOVERNOR CONTROL DROOP IN light. (Mark N/A if affected Train SIAS is actuated.)

2.7.10   MAINTAIN VARS between 0.1 to 0.5 MVARS positive by adjusting the D/G Voltage Regulator using HS-1669-1 (HS-1648-2), VOLTAGE REGULATOR. (Mark N/A if affected Train SIAS is actuated.)

2.7.11   REMOVE the Unit Auxiliary Transformer Breaker from sync circuit.

2.7.12   SELECT HS-1627-1(2), SYNC CKT CONTROL, to OFF.

N/A

2.0   PROCEDURE (Continued)

2.8 Unloading the Diesel Generator

		PERF. BY INITIALS START 1	PERF. BY INITIALS START 2	PERF. BY INITIALS START 3	PERF. BY INITIALS START 4
2.8.1	Ensure all required operating readings are complete. (Mark N/A if Step 2.4.16 was marked N/A.)	(b)(6)			
2.8.2	REDUCE load on the Diesel Generator to the following values: (Mark N/A Section 2.8.2 if Output Breaker to be opened under load.) (LS-6.2, LS-6.11, and LS-7.3)	///////	///////	///////	///////
	0.1 MW to 0.2 MW using HS-1671-1(HS-1650-2), GOVERNOR CONTROL.	(b)(6)			
	0.1 to 0.5 MVARS using HS-1669-1 (HS-1648-2), VOLTAGE REGULATOR.				
2.8.3	OPEN A0413(A0613), Diesel Generator Breaker.				
2.8.4	If it is desired to load the Diesel using the currently selected AVR prior to stopping, then go to Step 2.4.1.	///////	///////	///////	///////

END OF SECTION 2.8

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2.0   PROCEDURE (Continued)

2.9   Stopping the Diesel Generator

		PERF. BY INITIALS START 1	PERF. BY INITIALS START 2	PERF. BY INITIALS START 3	PERF. BY INITIALS START 4
2.9.1	Transfer Diesel Control to LOCAL, as follows:	/////	/////	/////	/////
.1	TRANSFER HS-1665-1(HS-1644-2), MODE SELECTOR, to LOCAL CONTROL at CR-63.	(b)(6)			
.2	VERIFY ILLUMINATED ZL-E918 (ZL-E968), LOCAL CONTROL light. [L-160(L-161)]				
2.9.2	Reduce speed to idle, as follows: (LS-6.2 and LS-7.3)	/////	/////	/////	/////
.1	DEPRESS HS-1701A(B), IDLE SPEED ON pushbutton. [L-160(L-161)]	(b)(6)			
.2	VERIFY ILLUMINATED ZL-1700A(B), IDLE SPEED light. [L-160(L-161)]				
.3	VERIFY the Diesel at idle speed. Idle Time: 0543				
.4	If it is desired to continue testing, then Mark N/A the remaining steps of the current START Column of this section, and go to Step 2.3.14.	/////	/////	/////	/////
.5	Allow to run at idle for at least: (Check one.) (LS-6.4) ☒ Diesel was loaded: 15 minutes ☐ Diesel was not loaded: 5 minutes	(b)(6)			
2.9.3	ENSURE both AC Lube Oil Circulating Pumps and both Turbocharger Pumps are operating.				
2.9.4	VERIFY the Air Start Manifolds > 185 psig as indicated on PI-5958A(C) and PI-5958B(D).				
.1	If NO, then initiate Attachment 14.	/////	/////	/////	/////

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2.0   PROCEDURE (Continued)

2.9 Stopping the Diesel Generator

2.9 Stopping the Diesel Generator		PERF. BY INITIALS START 1	PERF. BY INITIALS START 2	PERF. BY INITIALS START 3	PERF. BY INITIALS START 4
2.9.5	ENSURE D/G control aligned to the Control Room.	N/A			
.1 ☞	STOP the Diesel from the Control Room and RECORD time.	N/A			
	Stop Time:	N/A			
2.9.6	Locally shut down the Diesel, as follows:	/////	/////	/////	/////
ƒ ① ☞	After notifying the Control Room that the Diesel has run in idle for >15 minutes or >5 minutes, as required, _or_ if **locally stopping** from 900 rpm, **then** using a Concurrent Verifier, ROTATE HS-5995-1(2), Local Engine Control, to STOP and RECORD time. (LS-5.5)	(b)(6)			
	Concurrent Verification				
	Stop Time: 0601				
2.9.7	Return Diesel Control to Control Room, as follows:	/////	/////	/////	/////
ƒ .1	DEPRESS HS-1702A(B), IDLE SPEED OFF. [L-160(L-161)]	(b)(6)			
ƒ .2	VERIFY EXTINGUISHED ZL-1700A(B), IDLE SPEED light. [L-160(L-161)]				
③	DEPRESS HS-1665-1(HS-1644-2), MODE SELECTOR, LOCAL CONTROL pushbutton at CR-63 to transfer Diesel Control to the Control Room.				
ƒ .4	VERIFY EXTINGUISHED ZL-E918 (ZL-E968), LOCAL CONTROL light. [L-160(L-161)]				
ƒ 2.9.8	RECORD Engine Hours from KI-E928(KI-E978) located on L-160(161): Engine Hours: 1868.45				
ƒ 2.9.9	RECORD kWh Meter at A0413 (A0613): (Mark N/A if Diesel was not loaded.) kWh Meter: 1932				

2.0   PROCEDURE (Continued)

2.9 Stopping the Diesel Generator

		PERF. BY INITIALS START 1	PERF. BY INITIALS START 2	PERF. BY INITIALS START 3	PERF. BY INITIALS START 4
////	**NOTE:** 159/81, Volts per Cycle Relay, may drop during transfers between idle speed and rated speed, and windows 63B19(63C19) and/or 63B29(63C29) may annunciate. (AR 021101161, AR 070100987)	////	////	////	////
∫ 2.9.10	After Diesel is stopped, then ENSURE RESET 159/81, Volts per Cycle Relay for G-002(G-003) on A0414(A0614).	(b)(6)			
2.9.11	If it is desired to rapidly restart the Diesel, then Mark N/A steps of next start column per the guidance of Section 1.0, and go to Step 2.3.1.	////	////	////	////

END OF SECTION 2.9

2.0   PROCEDURE (Continued)   PERF. BY
                                                        INITIALS

2.10 Post Run Actions

~~2.10.1~~   Ensure all measuring devices installed to monitor/record   N/A
              Diesel Generator parameters are removed.

~~2.10.2~~   If time to reach generator voltage of 4.224 kV in
              Step 2.3.17, or generator frequency of 59.76 HZ in
              Step 2.3.19 was > 8.25 seconds (with both air
              start systems aligned), then initiate a Notification for
              D/G degraded performance, and notify the
              Maintenance Engineer for enhanced monitoring.
              (This step does NOT make D/G INOPERABLE.)   N/A
              (Mark N/A if Steps 2.3.17 and 2.3.19 were
              ≤ 8.25 seconds, or only one air system aligned.)

              _____   _____   _____
              Name of ME Notified   Date   Time

NOTE

This attachment DOES NOT document Tech. Spec. Surveillance Acceptance Criteria.
Tech. Specs. are called out for reference only.

2.10.3   RECORD the level in the Diesel Fuel Oil Storage Tank
          T-035 (T-036) at CR-60 or Local Soundings. (LS-4.1)   (b)(6)

                              94   %
                      LI-5903-1 (LI-5906-2)
                       or Local Soundings

.1   Is Fuel Oil Storage Tank at the required level?
          (Tech. Spec. SR 3.8.3.1, Ref. 2.3.3.3)

✔	FOST LEVEL	APPLICABLE TS
✔	≥87% (Mode 1-4) ≥78% (Mode 5-6)	NONE
	≥74% and <87% (Mode 1-4) ≥67% and <78% (Mode 5-6)	Tech. Spec. 3.8.3
	<74% (Mode 1-4) <67% (Mode 5-6)	Tech. Spec. 3.8.1

                                            YES / NO   (b)(6)

2.0   PROCEDURE (Continued)   PERF. BY
                                                         INITIALS

~~2.10.3.2~~   If Fuel Oil Storage Tank level is:

- ≤ 89% (Mode 1-4), or
- ≤ 80% (Mode 5 or 6)

then notify SRO Ops. Supv. to request the NOA obtain
Diesel Fuel Oil for the affected Tank(s) per NOA-11.
[Mark N/A if Storage Tank level is greater than the limits   _N/A_
above.] (ACE 200161596)

.3   If in Modes 5-6, and Fuel Oil Storage Tank is < 87%,
       then initiate a Mode 4 EDMR.

ƒ   2.10.4   T-133(T-134), Day Tank Fuel Level, ≥31.5 inches. (LS-4.1)
              (Tech. Spec. SR 3.8.1.4, SR 3.8.2.1, Ref. 2.3.3.2)   (b)(6)

                                          (YES) / NO

ƒ   2.10.5   Both engine lube oil levels are at the required level on
              dipstick. (LS-10.1, LS-10.2) (Tech. Spec. SR 3.8.3.2)

✔	LUBE OIL LEVEL	APPLICABLE TS
✓	≥ TSMIN mark	NONE
	≥ TSINOP mark and < TSMIN mark	Tech. Spec. 3.8.3
	< TSINOP	Tech. Spec. 3.8.1

                                          (YES) / NO   (b)(6)

                    CONTINUED ON NEXT PAGE

2.0   PROCEDURE (Continued)   PERF. BY
                                                         INITIALS

ƒ   2.10.6   Air Receivers at required pressure as indicated on
                 PI-5958A(C) & PI-5958B(D), Air Start Manifold Pressure
                 Indicators. Separate Actions are applicable for each
                 Subsystem. (Tech. Spec. SR 3.8.3.4)

✔	AIR RECEIVER PRESSURE	APPLICABLE TS
✓	≥ 175 psig	NONE
	≥ 136 psig <u>and</u> < 175 psig	Tech. Spec. 3.8.3
	< 136 psig (LS-1.3)	Affected Air Start Subsystem INOPERABLE. (Tech. Spec. 3.8.3)
	All aligned Air Receivers < 136 psig	Tech. Spec. 3.8.1.

                                          (YES)/ NO   (b)(6)

ƒ   2.10.7   Inspect for signs of fuel leakage in the associated Tank Vault /
                 (inspection tube) and under the grating of the Diesel Building
                 Trenches. (AR 030100114)

                 ☑ Leakage not found.   (b)(6)
                 ☐ Leakage found: Notification #_____

~~2.10.8~~   Request Facilities (PAX 83979 or 83333) align D1N HVAC
                 dampers to normal. (Mark N/A all of Section 2.10.8 if another /
                 Diesel Start is to be performed per Return to Service plan.)   N/A

       _/_   Name of Facilities Department person contacted: N/A

                 _____ _____ _____
                 Person Contacted   Date   Time

~~2.10.9~~   Request Maintenance to perform contact resistance check   (b)(6)
                 for K2, K13, K23, and K52 relays. (NN 200581670)
                 (b)(6)   3-8-11   0715
                 _____ _____ _____
                 Name of Maintenance Person Date   Time

~~2.10.10~~   ATTACH a copy of the readings taken in Step 2.4.16 to   (b)(6)
                 this attachment. (Mark N/A if not loaded ≥ 45 minutes.)

                          END OF SECTION 2.10

3.0   Logging Results of Diesel Generator Run

PERF. BY
INITIALS

3.1   Complete Diesel Generator Start Evaluation Report per SO123-0-A4,
      Attachment for Diesel Generator Starts - Units 2 and 3.

(b)(6)

NOTE

Reports on Diesel Generator failures, valid or non-valid, shall be reported to the NRC in accordance with LCS 5.0.104.2.b.

3.1.1   If a Diesel Generator failure occurred, then request
        Licensing prepare report to the NRC in accordance with
        LCS 5.0.104.2.b. (Mark N/A if no failure occurred.)   N/A

_____   _____   _____
Name of Licensing Person Notified   Date   Time

3.1.2   Notify the Maintenance Engineer of any D/G failures.

COMMENTS: _____

_____

_____

_____

_____

_____

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_____

REVIEWED BY: (b)(6) _____   DATE: 3/8/11
             SRO Ops. Supv.

FILE DISPOSITION: File per SO123-0-A3.
                      Surveillance/Compliance Group: Forward a copy of this attachment and
                      readings taken in Step 2.4.16 to the Maintenance Engineer.

San Onofre Nuclear Generating Station
Record of Completed Rounds or Shift Logs

Procedure Number: R-2G002
Procedure Title: 2G002 Surveillance

Caption	Value	Notes	In Alarm	Alarm Messages	Gathered By	Gathered Date	Point ID
Exciter Field Current at L160 Panel	3.9				(b)(6)	3/8/2011 05:21	P2D2_073A
Exciter Field Voltage at L160 Panel	56					3/8/2011 05:22	P2D2_074A
Generator Voltage at L160 Panel	4450					3/8/2011 05:22	P2D2_075A
Generator Current at L160 Panel	730					3/8/2011 05:22	P2D2_076A
Generator Frequency at L160 Panel	59.9					3/8/2011 05:22	P2D2_077A
Generator Stator Temperature RTD #1 at L160 Panel	160					3/8/2011 05:22	P2D2_001A
Generator Stator Temperature RTD #2 at L160 Panel	160					3/8/2011 05:22	P2D2_001B
Generator Stator Temperature RTD #3 at L160 Panel	170					3/8/2011 05:22	P2D2_001C
Generator Stator Temperature RTD #4 at L160 Panel	165					3/8/2011 05:23	P2D2_001D
Generator Stator Temperature RTD #5 at L160 Panel	165					3/8/2011 05:23	P2D2_001E
Generator Stator Temperature RTD #6 at L160 Panel	165					3/8/2011 05:23	P2D2_001F
Generator Vibration at L160 Panel	0.2					3/8/2011 05:23	P2D2_002A
Cooling Water Temperature from 20 Cylinder Engine	168					3/8/2011 05:24	P2D2_008A
Cooling Water Temperature to 20 Cylinder Engine	157.5					3/8/2011 05:25	P2D2_007A
20 Cylinder Engine Lube Oil Cooler Inlet Temperature	198					3/8/2011 05:25	P2D2_009A
Fuel Oil Filter D/P, 20 Cylinder Engine	19.5					3/8/2011 05:25	P2D2_005A
Lube Oil Filter D/P, 20 Cylinder Engine	3					3/8/2011 05:25	P2D2_004A
Main Lube Oil Pressure, 20 Cylinder Engine	76					3/8/2011 05:26	P2D2_003A
20 Cylinder Engine, #1 Cylinder Exhaust Temperature	840					3/8/2011 05:26	P2D2_020A
20 Cylinder Engine, #2 Cylinder Exhaust Temperature	860					3/8/2011 05:26	P2D2_020B
20 Cylinder Engine, #3 Cylinder Exhaust Temperature	905					3/8/2011 05:26	P2D2_020C
20 Cylinder Engine, #4 Cylinder Exhaust Temperature	860					3/8/2011 05:26	P2D2_020D
20 Cylinder Engine, #5 Cylinder Exhaust Temperature	880					3/8/2011 05:26	P2D2_020E
20 Cylinder Engine, #6 Cylinder Exhaust Temperature	840					3/8/2011 05:26	P2D2_020F
20 Cylinder Engine, #7 Cylinder Exhaust Temperature	815					3/8/2011 05:26	P2D2_020G
20 Cylinder Engine, #8 Cylinder Exhaust Temperature	815					3/8/2011 05:27	P2D2_020H
20 Cylinder Engine, #9 Cylinder Exhaust Temperature	880					3/8/2011 05:27	P2D2_020I

Caption	Value	Notes	In Alarm	Alarm Messages	Gathered By	Gathered Date	Point ID
20 Cylinder Engine, #10 Cylinder Exhaust Temperature	870				(b)(6)	3/8/2011 05:27	P2D2_020J
20 Cylinder Engine, #11 Cylinder Exhaust Temperature	920					3/8/2011 05:27	P2D2_020K
20 Cylinder Engine, #12 Cylinder Exhaust Temperature	890					3/8/2011 05:27	P2D2_020L
20 Cylinder Engine, #13 Cylinder Exhaust Temperature	910					3/8/2011 05:27	P2D2_020M
20 Cylinder Engine, #14 Cylinder Exhaust Temperature	860					3/8/2011 05:27	P2D2_020N
20 Cylinder Engine, #15 Cylinder Exhaust Temperature	850					3/8/2011 05:28	P2D2_020O
20 Cylinder Engine, #16 Cylinder Exhaust Temperature	860					3/8/2011 05:28	P2D2_020P
20 Cylinder Engine, #17 Cylinder Exhaust Temperature	920					3/8/2011 05:28	P2D2_020Q
20 Cylinder Engine, #18 Cylinder Exhaust Temperature	850					3/8/2011 05:28	P2D2_020R
20 Cylinder Engine, #19 Cylinder Exhaust Temperature	880					3/8/2011 05:28	P2D2_020S
20 Cylinder Engine, #20 Cylinder Exhaust Temperature	840					3/8/2011 05:28	P2D2_020T
EQ: 20 Cylinder Engine, Min. Temp	815					3/8/2011 05:28	P2D2_020U
EQ: 20 Cylinder Engine, Max. Temp	920					3/8/2011 05:28	P2D2_020V
EQ: 20 Cylinder Engine, Diff. Temp	105					3/8/2011 05:29	P2D2_020W
EQ: 20 Cylinder Engine, Average Temp	867.25					3/8/2011 05:29	P2D2_020X
20 Cylinder Engine Lube Oil Cooler Outlet Temperature	172					3/8/2011 05:29	P2D2_010A
Is 20 cyl. Governor Oil level clearly visible in the sightglass?	Yes					3/8/2011 05:29	P2D2_107A
Cooling Water Temperature from 16 Cylinder Engine	168					3/8/2011 05:30	P2D2_016A
Cooling Water Temperature to 16 Cylinder Engine	150					3/8/2011 05:30	P2D2_015A
16 Cylinder Engine Lube Oil Cooler Inlet Temperature	189					3/8/2011 05:30	P2D2_017A
Fuel Oil Filter D/P, 16 Cylinder Engine	20.5					3/8/2011 05:31	P2D2_013A
Lube Oil Filter D/P, 16 Cylinder Engine	3					3/8/2011 05:31	P2D2_012A
Main Lube Oil Pressure, 16 Cylinder Engine	83					3/8/2011 05:31	P2D2_011A
16 Cylinder Engine, #1 Cylinder Exhaust Temperature	859					3/8/2011 05:31	P2D2_023A
16 Cylinder Engine, #2 Cylinder Exhaust Temperature	864					3/8/2011 05:32	P2D2_023B
16 Cylinder Engine, #3 Cylinder Exhaust Temperature	888					3/8/2011 05:32	P2D2_023C
16 Cylinder Engine, #4 Cylinder Exhaust Temperature	866					3/8/2011 05:32	P2D2_023D
16 Cylinder Engine, #5 Cylinder Exhaust Temperature	889					3/8/2011 05:32	P2D2_023E
16 Cylinder Engine, #6 Cylinder Exhaust Temperature	857					3/8/2011 05:32	P2D2_023F
16 Cylinder Engine, #7 Cylinder Exhaust Temperature	859					3/8/2011 05:32	P2D2_023G
16 Cylinder Engine, #8 Cylinder Exhaust Temperature	852					3/8/2011 05:32	P2D2_023H

Caption	Value	Notes	In Alarm	Alarm Messages	Gathered By	Gathered Date	Point ID
16 Cylinder Engine, #9 Cylinder Exhaust Temperature	817				(b)(6)	3/8/2011 05:32	P2D2_023I
16 Cylinder Engine, #10 Cylinder Exhaust Temperature	850					3/8/2011 05:32	P2D2_023J
16 Cylinder Engine, #11 Cylinder Exhaust Temperature	900					3/8/2011 05:32	P2D2_023K
16 Cylinder Engine, #12 Cylinder Exhaust Temperature	886					3/8/2011 05:33	P2D2_023L
16 Cylinder Engine, #13 Cylinder Exhaust Temperature	848					3/8/2011 05:33	P2D2_023M
16 Cylinder Engine, #14 Cylinder Exhaust Temperature	863					3/8/2011 05:33	P2D2_023N
16 Cylinder Engine, #15 Cylinder Exhaust Temperature	855					3/8/2011 05:33	P2D2_023O
16 Cylinder Engine, #16 Cylinder Exhaust Temperature	838					3/8/2011 05:33	P2D2_023P
EQ: 16 Cylinder Engine, Min. Temp	817					3/8/2011 05:33	P2D2_023Q
EQ: 16 Cylinder Engine, Max. Temp	900					3/8/2011 05:33	P2D2_023R
EQ: 16 Cylinder Engine, Diff. Temp	83					3/8/2011 05:33	P2D2_023S
EQ: 16 Cylinder Engine, Average Temp	861.9375					3/8/2011 05:33	P2D2_023T
EQ: 16 cyl MAX - 20 Cyl MIN temp	85					3/8/2011 05:33	P2D2_104C
EQ: 20 cyl MAX - 16 Cyl MIN temp	103					3/8/2011 05:33	P2D2_104D
16 Cylinder Engine Lube Oil Cooler Outlet Temperature	166					3/8/2011 05:34	P2D2_018A
Is 16 cyl. Governor Oil level clearly visible in the sightglass?	Yes					3/8/2011 05:34	P2D2_109A
Is a steady stream of oil leaking from Turbocharger Casing drain holes?	No					3/8/2011 05:36	P2D2_120A
Record Subsystem #1 Prestart Air Start Man. Pressure	197					3/8/2011 05:36	P2D2_100A
Record Subsystem #2 Prestart Air Start Man Pressure	N/A					3/8/2011 05:36	P2D2_100B
Record Subsystem #1 Post-start Air Start Man. Pressure	187					3/8/2011 05:37	P2D2_100C
Record Subsystem #2 Post-start Air Start Man. Pressure	N/A					3/8/2011 05:37	P2D2_100D