TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

SURVEILLANCE INSTRUCTION

SI-7.1

DIESEL GENERATOR AC ELECTRICAL POWER SOURCE OPERABILITY VERIFICATION

(DIESEL GENERATOR/OFFSITE SOURCE)

Revision 5

REV. 6
INPROCESS

PREPARED BY: C. E. Deweese/F. E. Flynn

RESPONSIBLE SECTION: Operations

REVISED BY: Johnny L. Johnson

SUBMITTED BY: _____
Responsible Section Supervisor

PORC REVIEW DATE: NOV 18 1985

APPROVED BY: Boyd Patterson
Plant Manager

DATE APPROVED: NOV 18 1985

Reason for revision (include all Instruction Change Form Nos.):

Revised to ensure that levels are verified for fuel oil day tanks and seven day tanks.

The last page of this instruction is number: 6

SEQUOYAH NUCLEAR PLANT

PLANT INSTRUCTION REVISION LOG

SURVEILLANCE INSTRUCTION SI-7.1

REVISION LEVEL	Date Approved	Pages Affected	REASON FOR REVISION (INCLUDE COMMITMENTS AND ALL ICF FORM NUMBERS)
0	7/17/80	All	
1	8/1/80	1	
2	12/13/82	4	
3	2/25/83	4	
4	4/3/84	2,3	
5	NOV 18 1985	6	

0585L/jlp

1.0 SCOPE

This test includes:

1.1 Verifying operability by manually starting each of the three operable diesel generators prior to taking a diesel generator out of service.

1.2 Verifying operability by manually starting each of the three operable diesel generators within one hour of declaring a diesel generator inoperable (if not a scheduled outage) and at least once per 8 hours thereafter.

1.3 Demonstrating operability of remaining AC sources and that the diesel generators are aligned to provide standby power to the associated shutdown boards.

1.4 Verifying operability any time a Diesel has been declared inoperable and the maintence that was preformed has no Post maintence requirement in the maintence Instruction.

2.0 REQUIREMENTS (Tech Specs)

2.1 The diesel starts from ambient condition and accelerates to at least 900 rpm in ≤ 10 seconds. The generator voltage and frequency shall be between 6210 and 7590 volts and 58.8 and 61.2 Hz within 10 seconds after manual start. (SR-4.8.1.1.2.a.4)

2.2 Determine AC sources operable by verifying correct breaker alignments. (SR-4.8.1.1.1.a)

3.0 PRECAUTIONS

3.1 Do not operate engine without crankcase vent open.

3.2 Do not operate engine with > 205°F. high jacket water temperature.

3.3 Do not operate engine above cranking speed with < 30 lb. lube oil pressure.

3.4 To prevent damage to exciter-regulator field, do not operate the generator system at speeds ≤ 850 RPM for extended periods of time with exciter regulator in operation.

3.5 Operate the unit-local parallel switches in parallel position when synchronizing to the electrical system.

3.6 CO_2 fire protection system should be in service for each D/G room.

3.7 Never isolate D/G on SD board during testing. In the event of a safety injection signal, ESF equipment would start and overload the diesel.

3.9 In the event of a crankcase hi pressure trip DO NOT attempt to restart until a thorough checkout has been performed by maintenance. After a trip of the D/G from high crankcase pressure, DO NOT open top deck cover or handhole until the engine has cooled for two hours to prevent the possibility of an explosion from hot oil vapors.

3.10 Maintain D/G per SOI-82.1C (82.2C),(82.3C) or (82.4C) while diesel is running.

4.0 INSTRUCTIONS

4.1 Complete weekly Electrical Distribution Check sheet (SI-3). Data Sheet 7.1.a (attached).

4.2 Manually start each diesel generator to be proven operable per Data Sheet 7.1.b (three required).

4.3 After a 5 minute run stop the diesel generator per Data Sheet 7.1.b.

DIESEL GENERATOR VERIFICATION OF OPERABILITY WITH ONE DIESEL OUT OF SERVICE

Unit _____ Mode _____

DIESEL GENERATOR OUT OF SERVICE

Performed By _____ Date/Time Started _____/_____
(UO, AUO, ASE) Date/Time Completed _____/_____

List of data sheets attached:

Instruction No.	Data Sheet No.	No. of Pages
_____	_____	_____
_____	_____	_____
_____	_____	_____

Did all SI data meet acceptance criteria? _____ Yes _____ No
If criteria were not satisifed, notify the shift engineer who completes the following:

Was a Potential Reportable Occurrance initiated? _____ Yes _____ No
Was a limiting condition for operation violated?
_____ Yes (explain in remarks) _____ No (explain in remarks)
Verified By _____ Date _____
SRO Time _____

Reason for test:

_____ Required by schedule
_____ Maintenance complete on _____ (Instruction _____)
_____ Another system (_____) inoperable
_____ Plant condition (explain) _____
_____ Other (explain) _____

Review and Approval of Test Results

SRO _____ Date _____

STA _____ Date _____

Plant Services Coordinator _____ Date _____

FQE Staff _____ Date _____

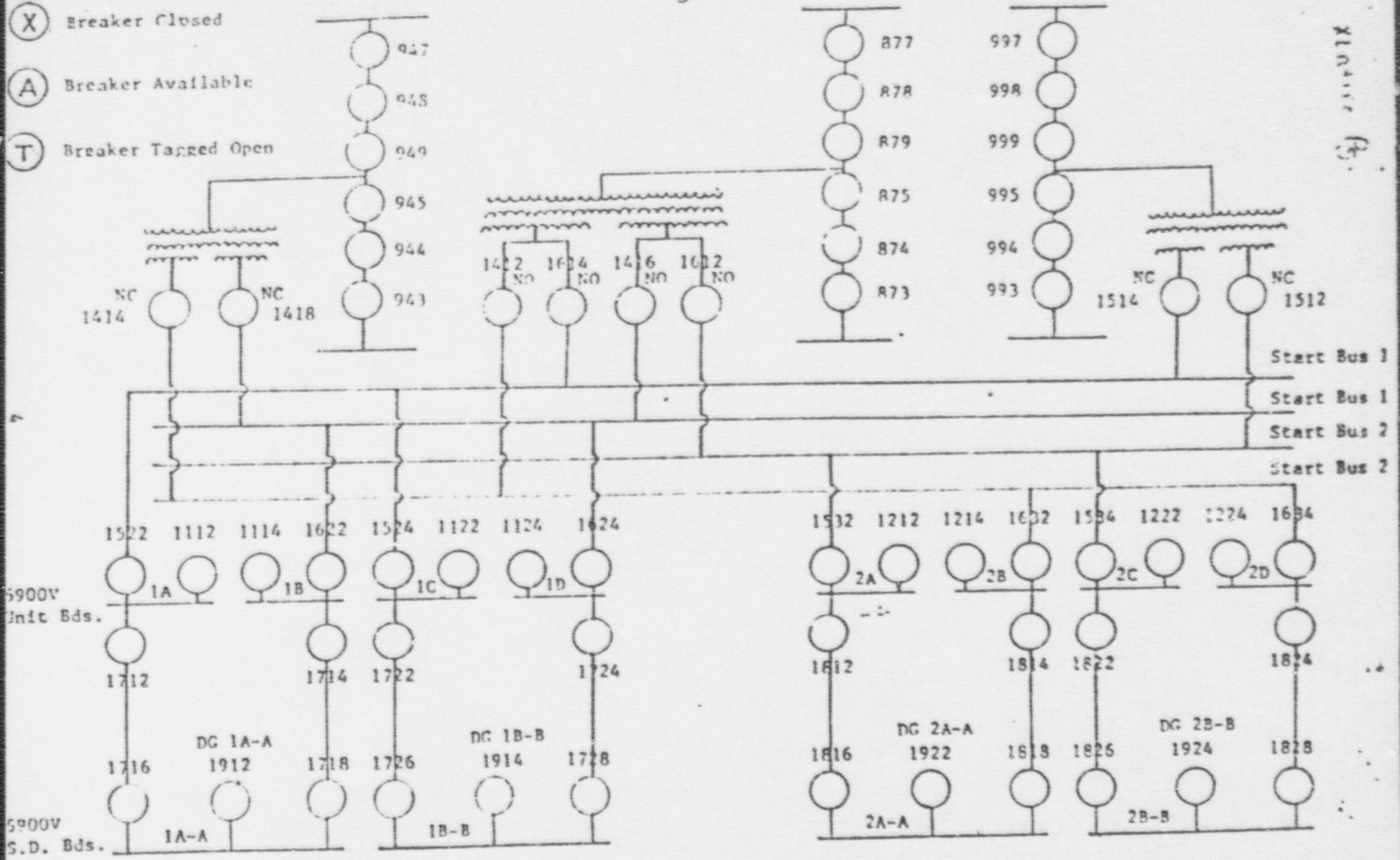
Remarks: _____

* Entire page

0 0 0 9 SOVP 6 1 5 6 4

SI-7.1 Unit 0
Data Sheet 7.1.A
Page 1 of 1
Rev. 3

See 3.2.1 of instruction SI-3 for acceptance criteria.



Diesel Generator _____

Date _____ Rx. Opr. Mode _____

NOTE: Check out two calibrated stop watches from the tool room for this test.

Stop watch calibration due date _____ CSSC No. _____
Stop watch calibration due date _____ CSSC No. _____

1. Manually start the diesel generator:

   a. _____ Check unit-local-parallel switch in unit position on 0-M-26.

   b. _____ Place synchronizing switch to on position.

      NOTE: While starting D/G, verify voltage, frequency and speed are within limits within 10 sec. (with stopwatches).

   c. _____ Place start-stop hand switch on 0-M-26 to start position.

   d. _____ Verify diesel starts from ambient condition and accelerates to at least 900 rpm in ≤ 10 sec.

   e. _____ Verify frequency between 58.8 and 61.2 Hz ≤ 10 sec.

   f. _____ Verify voltage between 6210 and 7590 volts ≤ 10 sec.

   g. _____ Verify on 0-M-27, ERCW valve 1-FCV-67-66 opens (for 1A-A)
   1-FCV-67-67 opens (for 1B-B)
   2-FCV-67-66 opens (for 2A-A)
   2-FCV-67-67 opens (for 2B-B)

2. After 5 minutes of operation stop the diesel generator.

   a. Verify or adjust frequency to 60 Hz and voltage to 6.9 kv prior to stopping D/G.

   b. _____ Stop diesel generator by use of start-stop hand switch.

      NOTE: D/G running alarm will clear below 850 RPM also red light goes out and green light comes on as indicated on 0-M-26 above D/G mimic. When speed decreases below 550 RPM, the field will be removed and the generator voltage will zero. The synchronizing switch 2-HS-54-47 will have to be turned on to see this then turned off. The diesel will go to idle speed and run for 10 minutes then shut down. Operator at diesel building should verify this sequence.

Date _____ Rx Opr. Mode _____

2. Continued

c. _____ Verify ≥ 250 gal. fuel oil in day tank, engine 1 ____ gals.

d. _____ Verify ≥ 250 gal. fuel oil in day tank, engine 2 ____ gals.

e. _____ Verify ≥ 62,000 gal. (4.7 ft.) fuel oil in 7 day tank ____ ft.

f. _____ Verify the diesel generator in standby mode per its respective SOI. (SOI-82.1, 82.2, 82.3, and 82.4)

Acceptance Criteria: Each of the above requirements met.

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