

ORIGINAL

05-27-90

TEMPORARY PROCEDURE APPROVAL FORM

TEMPORARY PROCEDURE NUMBER T-ENC-90-12 UNIT Cone

TITLE B-Train Undercables Test REV C

ONE TIME USE ONLY: YES NO; IF NO, TERMINATION DATE 4/1/90

PURPOSE: Simulate UV experienced 3/20/90 in aid in trouble shooting of anomalies experienced during event

PRB REVIEW REQUIRED: YES NO

ORIGINATED BY W.T. Ferkand 13/25/90 ON-SITE OFFSITE
Terrance Ferkand 3-25-90 DATE

COGNIZANT SUPERVISOR [Signature] DATE 3/25/90

DEPARTMENT MANAGER/SUPT [Signature] DATE 3-26-90

PRB REVIEW (if required)

MEETING NO. 90-42 DATE W.F. Kitchens 3-26-90

RECOMMEND: () APPROVAL () DISAPPROVAL - Return to responsible department Mgr./Supt.

UNREVIEWED SAFETY QUESTION INVOLVED: YES () NO ()

PRB CHAIRMAN W.F. Kitchens

GENERAL MANAGER - NUCLEAR PLANT (if required)

DISPOSITION: () APPROVED () REJECTION

REASON FOR REJECTION: _____

[Signature] 3/26/90
GENERAL MANAGER - NUCLEAR PLANT DATE

FOR INFORMATION ONLY

FIGURE 2 (Example)

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DETERMINATION OF NEED FOR SAFETY EVALUATION SHEET 1 OF 4

Document ID No. T-ENG-90-12 Rev. 0

SECTION 1.0

1.1 Description of proposed change, test, or experiment:

B Train Diesel Generator test simulating LOSP. This temporary procedure aligns the plant and simulates a Loss of Offsite Power. The plants response is recorded, documenting the proper operation of the Diesel Generators, the Sequencer and various safety related, sequenced loads. The test equipment is removed at the end of the test, and the plant is restored under the control of the Unit One Shift Supervisor. The test structure and methodology is similar to that of the recently completed ESFAS Surveillance procedures, 54055-1, and 54065-1.

1.2 Reason for proposed change, test, or experiment:

This UV (LOSP) is being simulated to assist in the troubleshooting of the two A Train Diesel Generator (DG) trips experienced during the March 20, 1990 LOSP event. This procedure will place the B train of the plant into a configuration which is similar to that during the LOSP event. The response of the Diesel Generator and Sequencer will be closely monitored and recorded. The results of this procedure will be used to determine the root cause of the trips such that corrective action can ensure that the Diesel Generator and Sequencer are prepared to perform their safety function should another LOSP occur.

1.3 Does the proposed change involve a change to Technical Specifications? Yes No X

Explanation: The Tech Specs for the affected components, Diesel Generators and Sequencer, are not affected by this temporary procedure. The test of the plants response to a LOSP is required to be demonstrated at least every 18 months by Tech Spec 4.8.1.1.2. This is normally performed by Engineering Surveillance procedures 54055-1 and 54065-1. This procedure performs the same testing as those procedures, and is required to assist in the trouble shooting of the DG trips. This procedure represents no physical change to the plant. The Tech Spec associated with this test is 3/4.8.1.1.2.h.

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SHEET 2 OF 4

1.4 Does the proposed change involve a change in the facility as described in the FSAR? Yes No

Explanation: This temporary procedure represents no physical change to the plant. The operation of the Diesel Generators/Sequencer is addressed in section 8.3 of the FSAR. The performance of this procedure will be similar in structure and methodology to the testing performed in the 18 month Engineering Surveillance tests of the ESFAS System, 54055-1, and 54065-1 which are required by FSAR section 8.3 and Tech Spec 3/4.8.1.1.2.h.

1.5 Does the proposed change involve a change in procedures as described in the FSAR? Yes No

Explanation: This temporary procedure is similar in structure and methodology to the 18 month Engineering Surveillance procedures which test the ESFAS System, 54055-1, and 54065-1. The ESFAS procedures are addressed in sections 8.3, and 16.3 of the FSAR and in Tech Spec 3/4.8.1.1.2.h. The performance of this procedure is required to provide information needed to identify the root cause of the DG1A trips. This procedure involves no changes to procedures described in the FSAR, although it is modeled after one.

1.6 Does the proposed change involve a test or experiment not described in the FSAR? Yes No

Explanation: This temporary procedure performs testing of the Diesel Generator and Sequencer as described in FSAR section 8.3 and Tech Spec 3/4.8.1.1.2. No other test or experiment is involved with this temporary procedure. This procedure is intended to assist in the trouble shooting of the recent DG1A trips, and to demonstrate the proper operation of the Diesel Generator/Sequencer. The operation of the Diesel Generator/Sequencer is described in FSAR section 8.3, and the ESFAS testing of the Diesel Generator/Sequencer is addressed in Tech Spec 3/4.8.1.1.2.h.

Evaluator

W. Shaw

Date

3/26/90

Supervisor

J. Mansfield

Date

3/26/90

If the proposed change involves a design modification (DCP, Temp Mod, Minor Departure from Design (MDD)), Section 2.0 must be completed. VEGP 00056-C

SAFETY EVALUATION

Document ID No. T-ENG-90-12 Rev. 0

SECTION 2.0

- 2.1 The proposed change, test, or experiment may increase the probability of occurrence or consequences of an accident described in the FSAR?
Yes No X

Explanation/Justification: This procedure simulates a Loss of Offsite Power as described in FSAR section 8.3. This procedure is being performed to assist in the trouble shooting of the DG1A trips experienced during the March 20, 1990 LOSP event. The performance of this procedure will not increase the probability of occurrence or consequences of a LOSP as described in FSAR chapter 8.3. This procedure will be used to identify the cause of the recent trips. This will allow corrective actions which will ensure that, if a LOSP were to occur, the Diesel Generator will be prepared to operate to mitigate the event.

- 2.2 The proposed change, test, or experiment may increase the probability of occurrence or consequences of a malfunction of safety-related equipment or component previously evaluated in the FSAR? Yes No X

Explanation/Justification: This temporary procedure will not increase the probability of occurrence or consequences of failure of any component evaluated in the FSAR. The procedure is being performed to identify the cause of the DG1A trips during the March 20, 1990 LOSP event. Corrective actions taken as a result of this information will provide the assurance that the DG is prepared to respond to an LOSP as described in section 8.3 of the FSAR. Testing will be performed as described in 3/4.8.1.1.2.h of the Tech Specs.

- 2.3 The proposed change, test, or experiment may create the possibility for an accident or equipment/component malfunction of a different type other than any evaluated previously in the FSAR? Yes No X

Explanation/Justification: The structure and methodology of this procedure is similar to that of the ESFAS System testing specifically required by Tech Spec 3/4.8.1.1.2.h and described in FSAR section 8.3. This testing is being performed to ensure that the Diesel Generator and Sequencer is prepared to perform its safety related function in response to an LOSP.

- 2.4 Does the proposed change, test, or experiment decrease the margin of safety defined by the bases for the Technical Specification?
Yes No X

Explanation/Justification: The methodology and structure of this procedure is similar to that of the ESFAS System Tests, 54055-1 and 54065-1. The relative safety of this procedure is the same as that of the ESFAS procedures which are specifically required by Tech Spec 3/4.8.1.1.2.h and FSAR section 8.3.

2.5 The proposed change, test, or experiment may involve an unreviewed safety question? Yes No

Explanation/Justification: Based on the answers to the above questions, this temporary procedure raises no Unreviewed Safety Question. This testing is required to provide information which will identify the cause of DGI A trips during the March 20, 1990 LQSP event. This knowledge will be used to perform corrective maintenance to ensure that the safety related Diesel Generator/Sequencer is prepared to perform its safety function as described in FSAR section 8.3, and Tech Spec 3/4.8.1.1.2.h.

Evaluator MS Stone Date 3/26/90
Supervisor J. Deenansfield Date 3/26/90
Department Manager Mike Horton Date 3-26-90

ORIGINAL ENVIRONMENTAL EVALUATION DETERMINATION

Document ID: T-ENG-90-12

Revision No.: 0

1. Could implementation of this document pose adverse environmental effects of any type either directly or indirectly? (Unit 1 and Unit 2 Operating License, Appendix B) Check a or b

a. Possibly. (Explain): not

b. No. The nature of this document is such that it will not result in a condition which significantly alters the impact of the station on the environment.

Evaluator *William McChance* Date 3/24/90

Supervisor *J. Paul Sanford* Date 3/25/90

2. If an environmental question is posed (item 1a is checked) the document will not be approved until evaluated. Forward the package to the Health Physics/Chemistry Department for an environmental review.

3. Attach completed environmental review and return to the evaluator (item 1) for continued processing.

FIGURE 2

T-ENG-90-12

Rev. 0

B-TRAIN UNDERVOLTAGE TEST

Expiration Date: April 8, 1990

W T Forehand

NSSS Engineer

Approval

Boek L. U.

Dept. Mgr. or GMNP as required.

Date

3/26/90

1.0 PURPOSE/SCOPE:

The purpose of this procedure is to, in part, prove operability of the B-Train DG. Data collected during this test will be used to determine the root cause of the DG anomalies experienced during the most recent DG run on March 23, 1990. This test alone is not intended to prove operability of the DG.

2.0 PRECAUTIONS AND LIMITATIONS:

2.1 This test, once begun, shall be carried through to completion. If the test must be interrupted, then a detailed explanation of the interruption must be entered in the test log.

2.2 Operator assistance shall be obtained to operate equipment as required.

2.3 Procedures 11885-C, "DG Operating Log", 13145-C, "Diesel Generators", and ETP 55038-C, "DG Start Log" shall be filled out throughout the test.

2.4 Observe all appropriate precautions and limitations in plant operating procedures for equipment operated during the test.

2.5 Power for test equipment shall be taken from verified reliable power sources other than those powered by the train in test. These are detailed in Attachment 1.

2.6 Observe all precautions and limitations for Diesel Generator Operation as listed in Procedure 13145-1, "Diesel Generators".

2.7 Prior to the start of the test, the Responsible Engineer shall review the Prerequisites and Initial Conditions, section 4.0.

2.8 If testing must be suspended due to equipment malfunction, unacceptable plant response, or significant scheduling delays then the Unit Shift Supervisor (USS) may realign systems as required to support plant operation. If system alignment changes are required, the Responsible Engineer shall make appropriate entries in the Test log and ensure performance of applicable prerequisites, initial conditions, and/or alignments upon test restart. The test log entry should detail the reason and the procedure step number/section.

2.9 All procedural steps may be signed off by the Responsible Engineer, Unit Shift Supervisor, or designated individual.

2.10 In the event of a DG trip, observe the appropriate trip annunciator at the DG engine panel and transfer the thermocouple selector switch, 1TS-19169, to the appropriate position and record the temperature and switch position in the test log.

3.0 MEASUREMENT AND TEST EQUIPMENT:

3.1 One (1) Gould 3000 Series Recorder or equivalent.

4.0 PREREQUISITES OR INITIAL CONDITIONS:

4.1 The following must be completed prior to establishing or verifying testing prerequisites or initial conditions per this procedure.

4.1.1 The Responsible Engineer has reviewed Section 2.0.

_____ / _____

4.1.2 Open DG MWO's have been reviewed by the DG System Engineer and determined NOT to have any negative impact on this test.

_____ / _____
DG System Engineer

4.1.3 Unit 1 is operating in mode 5 or 6.

_____ / _____

4.1.4 The Unit Shift Supervisor has reviewed the applicable test section(s) and given permission for performance of prerequisites and initial conditions.

_____ / _____

4.1.5 Shutdown loads are supported by Train A and electrical requirements are met by Train A.

_____ / _____

4.2 The following Train B systems are functional and lined up, as required to support this test, per the following:

4.2.1 11405-1, "125V DC 1E Electrical Distribution System Alignment For Startup and Normal Operation"

4.2.2 11427-1, "4160V AC 1E Electrical Distribution System Alignment For Startup and Normal Operation"

4.2.3 11429-1, "480V AC 1E Electrical Distribution System Alignment For Startup and Normal Operation"

4.2.4 11431-1, "120V AC 1E Vital Instrument Distribution System Normal Alignment"

4.2.5 11145-1, and 13145-1 "Diesel Generator Alignment for Startup and Normal Operation" & "Diesel Generators".

4.2.6 Train "B" NSCW is aligned as required and in operation per Procedure 13150-1, "Nuclear Service Cooling Water System". (Pumps 2 & 4 in service)

4.2.7 Train "B" CCW is aligned as required and in operation per Procedure 13715-1, "Component Cooling Water System". (Pumps 2 & 4 in service)

4.2.8 Train B Containment Cooling Fans are aligned in standby per Procedure 13120-1, "Containment Building Cooling System".

4.3 Ensure RHR "A" letdown is in service if needed.

_____ / _____

4.4 Ensure "A" Charging is in service, if needed.

_____ / _____

4.5 No other testing or maintenance activities are being performed on the Reactor Trip System of the ESF Actuation System which will, or has significant potential to, cause signal inputs to Train B Solid State Protection System.

_____ / _____

4.6 Train B Safety Features Sequencer Subsystem (SFSS) is operational as indicated by no Main Control Room Alarms annunciated.

_____ / _____

4.7 Train B Solid State Protection System Input Error Inhibit Switch is in the "INHIBIT" position, and the Mode Selector Switch is in "TEST".

_____ / _____

4.8 Notify Chemistry that PERMS may be affected during the actuation.

_____ / _____

4.9 Sufficient support personnel are available to perform/monitor/document performance of the test and have been briefed on test sequence and individual scope of responsibility. All involved personnel have synchronized their personal watches with the Control Room clock. Communications have been established as follows:

QHVC: One

QEAB: One on Headset

SWGR 1BA03: One on Headset (Signal Initiator)

Sequencer Panel: One on Headset

QMCB: One on Headset

BOP Board: One

DG1B: One on Headset, Four for data recording

_____ / _____

4.10 Ensure the PROTEUS computer is powered from MCC 1NBS instead of the maintenance power supply 1NER.

4.11 It is not desirable to have the following components operating during this test. At the discretion of the Shift Supervisor the following components are to be locked out from auto energization if doing so will not negatively impact the plant: SIP-B, CCP-B, ACCWP-B, MDAFWP-B, CSP-B.

4.12 A designated individual is prepared to acoustically monitor the outlet of the jacket water HX for any anomalies. Note any anomalies in the test log.

4.13 Prior to DG start position the thermocouple selector switch ITS-19169 to position "J W OUT".

4.14 Install test equipment in accordance with Attachment 1.

4.15 Preparations have been made to record D/G parameters and annunciators through the use of video cameras per the NOTE just prior to step 5.5.

5.0 TEST SECTION: DIESEL GENERATOR START ON LOSS OF OFFSITE POWER

5.1 The Responsible Engineer has verified all required Prerequisites and Initial Conditions per section 4.0, completed and satisfactory for test start.

_____ / _____

5.2 Pretest briefing completed and all personnel on station for test support.

_____ / _____

5.3 Obtain Unit Shift Supervisor authorization to perform test.

_____:_____/_____/_____
TIME DATE UNIT SHIFT SUPV.

5.4 If the Diesel Generator engine cylinder have not been checked for moisture within the last four hours refer to Procedure 13145-1, "Diesel Generators" and COMPLETE "Cylinder Moisture Check".

_____ / _____

NOTE

PREPARATIONS MUST BE MADE TO RECORD D/G PARAMETERS AND ANNUNCIATORS AS THEY ALARM AND RESET. THE USE OF TWO OR MORE VIDEO CAMERAS AT THE D/G PANELS AND THE SOUTH END OF THE ENGINE IS REQUIRED. NOTES FROM THESE RECORDINGS MUST BE ATTACHED TO THIS PROCEDURE UPON COMPLETION.

5.5 Alert personnel in the plant that a Train B LOSP, and Diesel Generator start is commencing.

_____ / _____

5.6 Verify the Diesel Data Recorder is in Standby Readiness.

_____ / _____

5.7 Initiate data recording on the Data Sheet.

_____ / _____

5.7.1 Record the ambient room temperature.

_____ F _____ / _____

5.7.2 Record both air receivers' pressures prior to DG start.

1PI-9065 _____ PSIG

1PI-9061 _____ PSIG

_____ / _____

5.8 Open the turbo lube oil orifice bypass valve, 1-2403-U4-131, one to two minutes before starting the Diesel Generator.

_____ / _____

5.9 In the Train B Diesel Generator room start the Diesel Data Recorder with a speed of 10 mm/second, immediately prior to Diesel start per performance of Step 5.10.

_____ / _____

5.10 At 1BA0300 initiate a UV signal by simultaneously pressing the test pushbuttons PB-1 and PB-2 for about 2 seconds and verify that 1BA0301 trips. Immediately release the pushbuttons.

_____ / _____

5.11 Close T/C Lube Oil valve 1-2403-U4-131 immediately after Diesel Generator start.

_____ / _____

5.12 Record both air receivers' pressures about 1 minute after DG start.

1PI-9065 _____ PSIG

1PI-9061 _____ PSIG

_____ / _____

5.13 Verify the following components are load shed and auto energized as appropriate:

MPL/ COMPONENT	LOAD SHED SATISFACTORY	AUTO ENERGIZATION SATISFACTORY
(1) 1-1202-P4-002 NSCWP 2	_____ / _____	_____ / _____
(2) 1-1202-P4-004 NSCWP 4	_____ / _____	_____ / _____
(3) 1-1203-P4-002 CCWP 2	_____ / _____	_____ / _____
(4) 1-1203-P4-004 CCWP 4	_____ / _____	_____ / _____
(5) 1-1501-A7-003 CCU (HS)	_____ N/A _____	_____ / _____
(6) 1-1501-A7-004 CCU (HS)	_____ N/A _____	_____ / _____
(7) 1-1501-A7-007 CCU (HS)	_____ N/A _____	_____ / _____
(8) 1-1501-A7-008 CCU (HS)	_____ N/A _____	_____ / _____

5.14 About 1 minute after DC start decrease the Diesel Data recorder chart speed to 5 mm/second and mark the chart with this speed change.

_____ / _____

5.15 Stop the Diesel after > 15 minutes of run time and request the SS to realign, per the appropriate procedures, all equipment which has been cycled during this test to support the plant conditions at the completion of this section.

_____ / _____

5.16 Verify the following and attach charts to procedures:

a. Diesel starts on the auto start signal (LOSP) and energizes emergency bus 1BA03, with permanently connected loads (diesel output breaker 1BA0319 closure) within 11.5 seconds.

$$\frac{\text{Actual time}}{\text{sec}} \leq 11.5 \text{ sec}$$

T.S. Max

b. Diesel operates for greater than, or equal to, 5 minutes while its generator is loaded with the shutdown loads.

$$\frac{\text{Actual time}}{\text{min}} \geq 5 \text{ min}$$

T.S. Min

c. After energization the steady state voltage and frequency of the emergency busses remain within the limits below for the duration of the test.

$$3750 \text{ volts} \leq \frac{\text{Actual}}{\text{volts}} \leq 4330 \text{ volts}$$

T.S. Min T.S. Max

$$58.8 \text{ Hz} \leq \frac{\text{Actual}}{\text{Hz}} \leq 61.2 \text{ Hz}$$

T.S. Min T.S. Max

5.17 Advise the Shift Supervisor of the test results.

6.0 RESTORATION

6.1 Remove Test Equipment and perform IVOR per Attachment 1.

_____ / _____

6.2 Remove all video cameras.

_____ / _____

_____ / _____
IVOR

7.0 ACCEPTANCE CRITERIA

7.1 All steps have been completed satisfactorily.

_____ / _____

DG1B INSTRUMENT DATA SHEET

1-TI-19138 JW HX IN DEG F.	1-TI-19139 JW HX OUT DEG F.	1-TI-19141 JW NSCW IN DEG F.	1-TI-19140 JW NSCW OUT DEG F.	TIME MINUTES/ SECONDS
_____	_____	_____	_____	0
_____	_____	_____	_____	:30
_____	_____	_____	_____	1:00
_____	_____	_____	_____	1:30
_____	_____	_____	_____	2:00
_____	_____	_____	_____	2:30
_____	_____	_____	_____	3:00
_____	_____	_____	_____	3:30
_____	_____	_____	_____	4:00
_____	_____	_____	_____	4:30
_____	_____	_____	_____	5:00
_____	_____	_____	_____	6:00
_____	_____	_____	_____	7:00
_____	_____	_____	_____	8:00
_____	_____	_____	_____	9:00
_____	_____	_____	_____	10:00
_____	_____	_____	_____	11:00
_____	_____	_____	_____	12:00
_____	_____	_____	_____	13:00
_____	_____	_____	_____	14:00
_____	_____	_____	_____	15:00
_____	_____	_____	_____	16:00

ATTACHMENT 1

DIESEL DATA RECORDER CHANNEL DESCRIPTIONS
(See notes 2 and 4)

RCDR CHANNEL	COMPONENT	TEST PARAMETER	SIGNAL RANGE SCALING
1.	Tach Relay	DG speed	1-5 VDC 0-600 RPM
2.	DG Frequency Meter	DG1B Voltage	0-120 VAC 0-4200 VAC (See note 1)
3.	LOSP Signal to DG1B	LOSP Signal	Contact Closure
4.	DG Load	DG1B Load	1-5 VDC 0-10,500 KW
5.	DG Frequency Meter	DG1B Frequency	55-65 Hz (FREQ MODULE)
6.	DG1B Output Brkr	Breaker Position	Contact Closure
7.	DG1B Remote Stop Signals	DG1B Remote Stop Signals	Contact Closure
8.	DG1B Emergency Stop Signal	DG1B Emerg. Stop Signal	Contact Closure

MEASUREMENT AND TEST EQUIPMENT

M&TE	VP-#	CAL DUE	INITIAL/DATE
_____	VP-_____	____/____/____	____/____
_____	VP-_____	____/____/____	____/____
_____	VP-_____	____/____/____	____/____
_____	VP-_____	____/____/____	____/____

ATTACHMENT 1

DIESEL DATA RECORDER INSTALLATION/REMOVAL

RECORDER CHANNEL	COMPONENT COMPONENT PT. REF DWG	INSTALLED INIT/DATE	REMOVED INIT/DATE	REMOVAL INIT/DATE
1.	TACH RELAY (NOTE 3) TERM 7(+), 8(-) 1BCPDG4 1X4AK01-462 AX4AK01-563	_____ / _____	_____ / _____	_____ / _____
2.	DG FREQ METER (VOLTS) TERM 3, 5 1BCPDG3 1X4AK01-445	_____ / _____	_____ / _____	_____ / _____
3.	LOSP SIGNAL TBE 52(-), 54(+) 1BCPDG4 1X4AK01-46	_____ / _____	_____ / _____	_____ / _____
4.	LG1B LOAD (NOTE 5) TB, SECT 2 7th PT FROM TOP LEFT LAAELED AS 5 1BCPDG3 1X4AK01-448	_____ / _____	_____ / _____	_____ / _____
5.	DG FREQ METER TERM 3, 5 1BCPDG3 1X4AK01-445 (USE FREQ MODULE)	_____ / _____	_____ / _____	_____ / _____
6.	DG OUTPUT BRKR TBL 4(-), 41(+) 1BCPDG4 1X4AK01-47	_____ / _____	_____ / _____	_____ / _____
7.	DG REMOTE STOP SIGNALS (NOTE 6) TERM 221(+), 224(-) 1BCPDG3 1X4AK01-47	_____ / _____	_____ / _____	_____ / _____
8.	DG EMERGENCY STOP SIGNAL (NOTE 6) TERM 194(-), 195(+) 1BCPDG3 1X4AK01-47	_____ / _____	_____ / _____	_____ / _____

ATTACHMENT 1

NOTES

Note 1: Set scale deflection for 3750-5250 VAC

Note 2: Label the chart recording with M&TE number, test number, date, time, chart speed, channel number, channel scaling, and Technician initial and date.

Note 3: Requires installation of a precision 250 ohm resistor across terminals 7 and 8. Removal of 50 ohm resistor will be required, if installed.

Note 4: The power supply for the DG Data Recorders is to be from level 2 in the DG Bldg to avoid losing power.

Note 5: Requires installation of a precision 250 ohm resistor across the sliding link of terminal 7. Recorder negative to be connected on internal side of terminal block, recorder positive to external side of terminal block. Open link after installation of the resistor.

Note 6: Signal range is 0-125 VDC. 0 VDC equals trip signal present or contact closed. 125 VDC equals trip signal NOT present or contact open.

05-28-90

TEMPORARY PROCEDURE APPROVAL FORM

TEMPORARY PROCEDURE NUMBER T-ENG-90-13 UNIT 1

TITLE Sequence Operability Check REV 0

ONE TIME USE ONLY: YES NO; IF NO, TERMINATION DATE April 6 1990

PURPOSE: This Procedure will test the Safety Related functions of the Unit One Train B Sequence Panel

PRB REVIEW REQUIRED: YES NO

ORIGINATED BY D.W. HINES 3/25/90 ON-SITE OFFSITE

COGNIZANT SUPERVISOR J. Mansfield DATE 3/25/90

DEPARTMENT MANAGER/SUPT Mike Horton DATE 3-26-90

PRB REVIEW (if required)

MEETING NO. 90-42 DATE 3/26/90

RECOMMEND: (APPROVAL () DISAPPROVAL - Return to responsible department Mgr./Supt.

UNREVIEWED SAFETY QUESTION INVOLVED: YES () NO ()

PRB CHAIRMAN W.F. Kitchens

GENERAL MANAGER - NUCLEAR PLANT (if required)

DISPOSITION: () APPROVED () REJECTION

REASON FOR REJECTION: _____

[Signature] 3/26/90
GENERAL MANAGER - NUCLEAR PLANT DATE

FIGURE 2
(Example)

4202170542

FOR INFORMATION ONLY

DETERMINATION OF NEED FOR SAFETY EVALUATION
SHEET 1 OF

Document ID No. T-ENG-90-13 Rev. 0

SECTION 1.0

1.1 Description of proposed change, test, or experiment:

This procedure will test the undervoltage and safety injection functions of the Train B Sequencer panel. The Sequencer Manual Test Panel will be used to inject a Test U/V and a Test SI signal to the sequencer logic. The Manual Test Panel is designed to allow periodic manual testing of the Sequencer logic without actuating the sequence step output relays.

1.2 Reason for proposed change, test, or experiment:

This procedure is being performed as an operability check for the Train B Sequencer.

1.3 Does the proposed change involve a change to Technical Specifications? Yes No X

Explanation: This procedure will not actuate the sequence step output relays of the sequencer panel. Tech. Spec. sections 3/4.3.2 and 4.8.1.1.2.h do not address testing of the sequencer logic only. These sections only address sequencer actions requiring sequencer output relay actuations.

1.4 Does the proposed change involve a change in the facility as described in the FSAR? Yes No X

Explanation: This procedure does not involve a change in the facility as described in FSAR sections 8.3.1.1.2.H or 8.3.1.1.3.F. The Sequencer is designed to allow testing of the sequencer logic from the Manual Test Panel without operating the sequence step output relays.

1.5 Does the proposed change involve a change in procedures as described in the FSAR? Yes No X

Explanation: This procedure does not involve a change in procedures as described in Section 8.3.1.1.3.H.3 or Chapter 13 of the FSAR.

1.6 Does the proposed change involve a test or experiment not described in the FSAK? Yes No X

Explanation: This procedure does not involve a test or experiment not described in the FSAK. The Sequencer is designed to allow logic testing from the Manual Test Panel. Performance of this procedure will not affect the normal operation of the Sequencer because an actual SI or U/V signal will override the test function of the panel.

Evaluator Michael Shank Date 3-25-90

Supervisor J. P. Mansfield Date 3/25/90
If the proposed change involves a design modification (DCP, Temp Mod, Minor Departure from Design (MDD), Section 2.0 must be completed.

ENVIRONMENTAL EVALUATION DETERMINATION

Document ID: T-ENG-90-13Revision No.: 0

1. Could implementation of this document pose adverse environmental effects of any type either directly or indirectly? (Unit 1 and Unit 2 Operating License, Appendix B) Check a or b

a. Possibly. (Explain): _____

- b. No. The nature of this document is such that it will not result in a condition which significantly alters the impact of the station on the environment.

Evaluator Michael L. Flade Date 3-25-90

Supervisor J. Deo Jones Date 3/25/90

2. If an environmental question is posed (item 1a is checked) the document will not be approved until evaluated. Forward the package to the Health Physics/Chemistry Department for an environmental review.
3. Attach completed environmental review and return to the evaluator (item 1) for continued processing.

T-ENG-90-13

Rev 0

SEQUENCER OPERABILITY CHECK

D.W. HINES

Expiration Date: April 6, 1990

Approval WF Kitchener for G. Rockhold Date: 3/26/90

1.0 PURPOSE:

This procedure will test the safety related functions of the Unit One Train B Sequencer Panel. The Sequencer Test Panel is used to inject test signals into the Sequencer.

2.0 PRECAUTIONS AND LIMITATIONS:

- 2.1 This test, once begun, shall be carried through to completion. If the test must be interrupted, then a detailed explanation of the interruption must be entered into the log.
- 2.2 Operator assistance should be obtained to operate equipment as required.
- 2.3 Observe all appropriate precautions and limitations in the plant operating procedures for the Sequencer during this test.
- 2.4 Prior to the start of the test, the Responsible Engineer shall review the Prerequisites and Initial Conditions, Section 4.0.
- 2.5 All procedural steps may be signed off by the Responsible Engineer, Shift Supervisor, or designated individual.
- 2.6 Do not perform this test with the DG1B operating in PARALLEL Mode. This procedure will force the Diesel Generator into UNIT Mode.
- 2.7 Section 5.1 and 5.2 are independent of each other and may be performed in any order.
- 2.8 Performing this test does not make the Sequencer In-operable.
- 2.9 All switches and lights are located on the Unit One Train B Sequencer Test Panel unless otherwise stated.

3.0 MEASUREMENT AND TEST EQUIPMENT

NONE

4.0 PREREQUISITES OR INITIAL CONDITIONS:

4.1 The Responsible Engineer has reviewed Section 2.0

_____ / _____

4.2 The Unit One Train B Sequencer is in normal operating mode.

4.3 The 1BA03 Swgr is aligned as required to support this test.

_____ / _____

4.4 Place DG1B into "LOCAL / MAINTINANCE" mode.

_____ / _____

4.5 Place DG1B Output Brk α , HS-1BA0319, into PTL.

_____ / _____

4.6 Establish communications, using sound powered phones, from the Unit One Train B Sequencer panel to the control room.

_____ / _____

4.7 The Unit One Shift Supervisor has given permission to perform this test.

_____/_____/_____
SS Signature Date Time

5.0 TEST SECTION

5.1 U/V Operational Check

5.1.1 Place the TEST MODE SWITCH into the "SYS" position and verify that the SYS light is flashing.

_____ / _____

5.1.2 Push the **TEST MANUAL** pushbutton and ensure the pushbutton illuminates. This places the sequencer in the system test mode.

5.1.3 **ENSURE** the **OUTPUT RELAYS BLOCKED** red indicator is illuminated.

5.1.4 Push the **TEST BLOCK D-G ENGINE** pushbutton and ensure the pushbutton illuminates.

Note: Steps 5.1.6, and 5.1.7 will occur for a short time and clear after performing step 5.1.5.

5.1.5 Push the **Test U/V** pushbutton and verify it is illuminated.

5.1.6 Verify the **U/V SIGNAL** red indicator illuminates for approximately 0.2 seconds.

5.1.7 Verify the **U/V RELAY ACTUATED** red indicator illuminates for approximately 0.2 seconds.

Note: Steps 5.1.8 through 5.1.11 will initiate at the same time and last for approximately 30 seconds.

5.1.8 Push the **TEST D-G BRKR CLOSE** pushbutton and verify that it illuminates.

5.1.9 Verify the D-G BRKR CLOSE indicator
illuminates

_____ / _____

5.1.10 Verify the Elapsed Time Meter is
running.

_____ / _____

5.1.11 Verify the SEQ STEPS INDICATION lamps do
NOT illuminate.

_____ / _____

5.1.12 The Sequencer automatically resets to
normal operating conditions at the
completion of this U/V test.

_____ / _____

5.1.13 Push the following alarm reset switches.

SAF EQPT FAIL TO START

UNDERVOLTAGE

SEQ LOGIC FAILURE

_____ / _____

5.1.14 Place the TEST MODE SWITCH into the
"SEQ" position and verify the SEQ light
is illuminated.

_____ / _____

Section 5.1 Complete _____ / _____
sign date

5.2 SI Operational Test

5.2.1 Place the TEST MODE SWITCH into the
"SYS" position and verify that the SYS
light is flashing.

_____ / _____

5.2.2 Push the **TEST MANUAL** pushbutton and ensure the pushbutton illuminates. This places the sequencer in the system test mode.

5.2.3 **ENSURE** the **OUTPUT RELAYS BLOCKED** red indicator is illuminated.

5.2.4 Push the **TEST BLOCK D-G ENGINE** pushbutton and ensure the pushbutton illuminates.

5.2.5 Push the **TEST SI** pushbutton and verify it is illuminated.

5.2.6 Verify the **SI MAIN RELAYS ACTUATED** red indicator illuminates ON for approximately 0.2 seconds.

5.2.7 Verify the **SI MOM RELAY ACTUATED** red indicator illuminates for approximately 0.2 seconds

5.2.8 Verify the **SI SIGNAL** red indicator illuminates for approximately 0.2 seconds.

5.2.9 Verify the Elapsed Time Meter is running. The timer will run for approximately 30 seconds.

5.2.10 The SEQ STEPS INDICATION lamps do NOT illuminate.

5.2.11 The Sequencer automatically resets to normal operating conditions at the completion of this SI test.

5.2.12 Push the following alarm reset switches.

SAF EQPT FAIL TO START

UNDERVOLTAGE

SEQ LOGIC FAILURE

5.2.13 Place the TEST MODE SWITCH into the "SEQ" position and verify the SEQ light is illuminated.

Section 5.2 Complete _____
sign date

6.0 RESTORATION

6.1 Verify the following lights are not illuminated

TEST MANUAL pushbutton
OUTPUT RELAYS BLOCKED
TEST BLOCK D-G ENGINE
TEST U/V pushbutton
TEST D-G BRKR CLOSE
TEST SI

7.0 ACCEPTANCE CRITERIA

7.1 All steps have been completed satisfactorily.

TO: M. Horton

PRB COMMENT REVIEW SHEET

THRU: D. Hanes

PRB-90-42

Date 3/26/90

The PRB has reviewed the attached procedure and recommends approval with comments as noted below. Mandatory (M) comments shall be incorporated prior to approval of the procedure. If not incorporated the procedure shall be resubmitted to the board. You have the responsibility to determine whether the Optional (O) comments should be included at this time, saved for later inclusion, or otherwise resolved. This procedure does not constitute an unreviewed safety question.

No.	Section	M/O	PRB Initials	Comments	Resolutions
1	Proced. Text.	M	JES	Include ^{two} steps to specifically list those alarm/lights expected to be on/off (upon initial performance and then at end of test)	Incorporated
2	4.3	M	JES	Need "as required" for setup of IBA03	DWH 3/26/90
3	4.0	M	JES	Put prerequisite in for diesel in maintenance mode (breaker in pull-to-lock)	
4	New 7.0	M	HMH	Add Acceptance Criteria step that "all steps have been completed satisfactorily"	
5	S. Eval 1.5	M	JGA	Need to include broader review of FSAR	
6	2.1	M	JGA	Reword "If this test is not carried through to completion, explanations will be placed in test log."	
7	5.1.11	M	JGA	Add "Verify"	
8	5.2.6/5.2.7	M	JGA	Change "amber" to "red"	

Changes to this procedure other than those addressing the board's comments will require resubmittal to the board. Upon resolution of the above comments, the procedure should be forwarded to the General Manager for approval. Upon approval the procedure should be returned to the PRB Secretary for further processing.

TEMPORARY PROCEDURE APPROVAL FORM

05-29-90

TEMPORARY PROCEDURE NUMBER T-ENG-90-14 UNIT ONE

TITLE Unit One Train B DCP 88-VIN0070 SEQUENCER FUNCTIONAL REV 0

ONE TIME USE ONLY: YES NO; IF NO, TERMINATION DATE APRIL 20 1990

PURPOSE: This Procedure will Functional test the change made to Unit One Train B Sequencer for DCP 88-VIN0070

PRB REVIEW REQUIRED: YES NO

ORIGINATED BY Don Hines 13/27/90 ON-SITE OFFSITE

COGNIZANT SUPERVISOR Mike Hester DATE 3-27-90

DEPARTMENT MANAGER/SUPT Mike Hester DATE 3-27-90

PRB REVIEW (if required)

MEETING NO. 90-44 DATE 3/27/90

RECOMMEND: APPROVAL () DISAPPROVAL - Return to responsible department Mgr./Supt.

UNREVIEWED SAFETY QUESTION INVOLVED: YES () NO

PRB CHAIRMAN w7 kitchens

GENERAL MANAGER - NUCLEAR PLANT (if required)

DISPOSITION: APPROVED () REJECTION

REASON FOR REJECTION: _____

R Becklund 3/27/90
GENERAL MANAGER - NUCLEAR PLANT DATE

FIGURE 2 (Example)

ORIGINAL

FOR INFORMATION ONLY

420196542

DETERMINATION OF NEED FOR SAFETY EVALUATION

SHEET 1 OF 2

Document ID No. Y-ENG-90-14 Rev. 0

SECTION 1.0

1.1 Description of proposed change, test, or experiment:

This procedure will functionally test the U/V RESET SWITCH, the remote U/V reset relay (K311), the D-G Brkr Fail To Close relay (K317), and the U/V Reset Enable relay (K306). The Train B 4160V Switchgear will be de-energized and the D-G output breaker will be locked out during the performance of this procedure. The Train B Sequencer will receive a U/V signal and will operate the sequencer output relays. This test will prove that the Sequencer can be manually reset by the U/V RESET SWITCH or relay K311 if the D-G output breaker does not close. It will also prove that the Sequencer cannot be reset by the U/V RESET SWITCH or relay K311 while the D-G output breaker is closed and the Sequencer is cycling.

1.2 Reason for proposed change, test, or experiment:

This procedure is being performed as a functional test for modifications made by DCP 88-V1N0070.

1.3 Does the proposed change involve a change to Technical Specifications? Yes No X

Explanation: This is a functional test of modifications made in the reset logic of the Sequencer and does not require a change to the Technical Specifications. Tech. Spec. sections 3/4.3.2 and 4.8.1.1.2.h do not address testing of the sequencer with a de-energized buss.

1.4 Does the proposed change involve a change in the facility as described in the FSAR? Yes No X

Explanation: This procedure does not involve a change in the facility as described in FSAR sections 8.3.1.1.2.H or 8.3.1.1.3.F. The Sequencer is not discussed in this level of detail in the FSAR.

1.5 Does the proposed change involve a change in procedures as described in the FSAR? Yes No

Explanation: This procedure does not involve a change in procedures as described in Section 8.3.1.1.3.H.3 or Chapter 13 of the FSAR.

1.6 Does the proposed change involve a test or experiment not described in the FSAR? Yes No

Explanation: This procedure does not involve a test or experiment not described in the FSAR. This procedure will cycle the Sequencer as in tests outlined in FSAR Sections 8.3.1.1.3.H.3.a and b except this test will not operate any major plant equipment due to buss 1BA&3 being de-energized.

Evaluator Michael Zlack Date 3-27-90

Supervisor Mike Norton Date 3-27-90
If the proposed change involves a design modification (DCP, Temp Mod, Minor Departure from Design (MDD), Section 2.0 must be completed.

ENVIRONMENTAL EVALUATION DETERMINATION

Document ID: T-ENV-90-14

Revision No.: 0

1. Could implementation of this document pose adverse environmental effects of any type either directly or indirectly? (Unit 1 and Unit 2 Operating License, Appendix B) Check a or b

a. Possibly. (Explain): _____

b. No. The nature of this document is such that it will not result in a condition which significantly alters the impact of the station on the environment.

Evaluator Michael A. Block Date 3/27/90

Supervisor Mike Houston Date 3-27-90

2. If an environmental question is posed (item 1a is checked) the document will not be approved until evaluated. Forward the package to the Health Physics/Chemistry Department for an environmental review.

3. Attach completed environmental review and return to the evaluator (item 1) for continued processing.

FIGURE 2

5-27-90

T-ENG-90-14
REV 0

UNIT ONE TRAIN B
DCP 88-VIN0070 SEQUENCES FUNCTIONAL
TEST

D.W. HINES

Expiration Date: April 20, 1990

Approval: J. Beckhold Date: 3/27/90

READ AND DESTROY



Released to perform the test
Paul Klein
3/27/90

RECEIVED
MARCH 27 1990

1.0 PURPOSE:

This procedure will test the U/V RESET SWITCH and the remote U/V reset relay (K311) installed in Unit One Train B Sequencer. A Sequencer Operability Check along with this procedure will complete the functional test requirements of DCP 88-V1N0070 for Train B. The DG Brkr Fail To Close relay (K317) and the U/V Reset Enable relay (K306) will also be tested in this procedure.

2.0 PRECAUTIONS AND LIMITATIONS:

- 2.1 This test, once begun, shall be carried through to completion. If the test must be interrupted, then a detailed explanation of the interruption must be entered into the log.
- 2.2 Operator assistance should be obtained to operate equipment as required.
- 2.3 Observe all appropriate precautions and limitations in the plant operating procedures for the equipment operated during this test.
- 2.4 Prior to the start of the test, the Responsible Engineer shall review the Prerequisites and Initial Conditions, Section 4.0.
- 2.5 All procedural steps may be signed off by the Responsible Engineer, Shift Supervisor, or designated individual.
- 2.6 All switches and lights are located on the Unit One Train B Sequencer Test Panel unless otherwise stated.
- 2.7 Train A 4160Vac (1AA02) is meeting the electrical needs of Unit One. Train B 4160Vac (1BA03) switchgear will be de-energized during this procedure.
- 2.8 Alarms generated during performance of this procedure may be reset at the discretion of the Responsible Engineer.
- 2.9 Relay K311 may be removed to connect and disconnect the temporary power supply.

3.0 MEASUREMENT AND TEST EQUIPMENT

- 3.1 Volt-ohm meter, Simpson model 260 or equivalent, for monitoring a K317 spare normally open contact. This meter will check the operation of K317 relay and will be referred to as relay K317 in this procedure.
- 3.2 Volt-ohm meter, Simpson model 260 or equivalent, for monitoring a K306 spare normally open contact. This meter will check the operation of K306 relay and will be referred to as relay K306 in this procedure.
- 3.3 Stop Watch. The stop watch will be used to check the approximate time of relay and light operation.
- 3.4 A 48Vdc power supply to operate the remote U/V reset relay K306.
- 3.5 A switched jumper that will be used to simulate DG1B breaker (1BA0319) is closed.

4.0 PREREQUISITES OR INITIAL CONDITIONS:

- 4.1 The Responsible Engineer has reviewed Section 2.0

DWH / 3/28/90

- 4.2 The Unit One Train B Sequencer is in normal operating mode.

DWH / 3/28/90

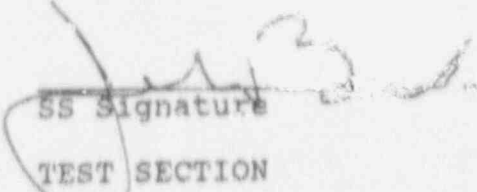
- 4.3 The Diesel Generator Output Brkr, 1BA0319, is open.

DWH / 3/28/90

- 4.4 Establish communications, using sound powered phones, from the Unit One Train B Sequencer panel to the control room.

DWH / 3/28/90

4.5 The Unit Operator Shift Supervisor has given permission to perform this test.


SS Signature

5/27/90
Date

2337
Time

5.0 TEST SECTION

5.1 Initial Setup

5.1.1 Connect a VOM across a spare normally open contact, 8 and 9, of relay K317.

DWH / 3/28/90

5.1.2 Connect a VOM across a spare normally open contact, 4 and 5, of relay K306.

DWH / 3/28/90

5.1.3 Set the DC voltage supply for approximately 48Vdc.

DWH / 3/28/90

5.1.4 Connect a 48Vdc supply, supply turned off, across the coil, 6 and 7, of relay K311.

DWH / 3/28/90

Section 5.1 Complete


sign

3/28/90
date

5.2 SEQUENCER TEST - U/V RESET WITH DE-ENERGIZED BUSS AND DIESEL GENERATOR 1B NOT RUNNING

5.2.1 Place DG1B OUTPUT BRKR (HS-1BA0319 at QEAB) into PTL.

DWH / 3/28/90

5.2.2 Place the DG1B in the LOCAL MAINTENANCE mode.

DWH / 3/28/90

3/11

NOTE:
THE FOLLOWING STEP
WILL DE-ENERGIZE
BUSS 1BA03.

5.2.3 Open the PREF NORM INCM BRKR (1BA0301)

DWH / 3/28/90

5.2.4 Wait 60 seconds for time delay relays to operate.

DWH / 3/28/90

5.2.5 Using the toggle switch located on the card in slot A4-2, reset the "3 UV in 2 hours" card. One of the lights on this card should illuminate after reset.

A reflect of the design indicates this card's pulse for a U/V signal. The LED

DWH / 3/28/90

5.2.6 Verify relays K317 and K306 are energized.

DWH / 3/28/90

5.2.7 Verify the UV RESET SWITCH is illuminated.

DWH / 3/28/90

NOTE
Step 5.2.11 will occur approximately 15 seconds after step 5.2.8 is performed. Start the stopwatch at step 5.2.8

5.2.8 Depress the UV RESET SWITCH.

DWH / 3/28/90

5.2.9 Verify relays K317 and K306 de-energize.

DWH / 3/28/90

5.2.10 Verify the UV RESET SWITCH is not illuminated.

DWH / 3/28/90

5.2.11 Verify relay K317 energizes approximately 15 seconds after the UV RESET SWITCH was depressed.

DWH / 3/28/90

5.2.12 Verify relay K306 energizes and the UV RESET SWITCH illuminates approximately 60 seconds after the UV RESET SWITCH was depressed.

DWH / 3/28/90

NOTE

Step 5.2.16 will occur approximately 15 seconds after step 5.2.13 is performed. Start the stopwatch at step 5.2.13.

5.2.13 Momentarily energize relay K311.

DWH / 3/28/90

5.2.14 Verify relays K317 and K306 de-energize.

DWH / 3/28/90

5.2.15 Verify the UV RESET SWITCH is not illuminated.

DWH / 3/28/90

5.2.16 Verify relay K317 energizes approximately 15 seconds after relay K311 is energized.

DWH / 3/28/90

5.2.17 Verify relay K306 energizes and the UV RESET SWITCH illuminates approximately 60 seconds after relay K311 is energized.

DWH / 3/28/90

5.2.18 Using the toggle switch located on the card in slot A4-2, reset the "3 UV in 2 hours" card. One of the lights on this card should illuminate after reset.

See 5.2.5

DWH / 3/28/90

Section 5.2 Completed

DWH / 3/28/90
sign date

5.3 SEQUENCER TEST - U/V WILL NOT RESET WHILE SEQUENCER IS CYCLING

NOTE

The following steps must be performed before the Sequencer step timer completes the sequence steps (approximately 30 seconds). The sequence will begin when step 5.3.1 is performed.

5.3.1 Place a jumper from 1TB51-1 to 1TB51-3

DWH / 3/28/90

5.3.2 Verify the Sequencer begins to sequence by observing the Elapsed Timer is running.

DWH / 3/28/90

5.3.3 Depress the UV RESET SWITCH.

DWH / 3/28/90

5.3.4 Verify that the Sequencer does not reset by observing the Elapsed Timer does not restart from 0.

DWH / 3/28/90

5.3.5 Momentarily energize relay K311.

DWH / 3/28/90

5.3.6 Verify that the Sequencer does not reset by observing the Elapsed Timer does not restart from 0.

DWH / 3/28/90

5.3.7 Remove the jumper from 1TB51-1 to 1TB51-3.

DWH / 3/28/90

M / 3/28/90
IVOR

Section 5.3 Complete DWH / 3/28/90
sign data

6.0 RESTORATION

6.1 Remove all test equipment.

1) VOM connected to relay K317

DWH / 3/28/90

M / 3/28/90
IVOR

2) VOM connected to relay K306

DWH / 3/28/90

M / 3/28/90
IVOR

3) Power supply connected to relay K311

DWH / 3/28/90

M / 3/28/90
IVOR

6.2 Verify K311 is installed correctly.

DWH / 3/28/90

M / 3/28/90
IVOR

6.3 Inform the Unit One Shift Supervisor of the completion of this test and 1BA03 may be returned to service.

7.0 ACCEPTANCE CRITERIA DWH / 3/28/90
28
215 3/28/90

7.1 All steps have been completed satisfactorily.

DWH / 3/28/90

