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VICE-PRESIDENT
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SEP 28 1984

Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Docket Nos.: 50-352
50-353

Subject: Limerick Generating Station, Units 1 and 2
Additional Information for Procedure and
Test Review Branch (PTRB)

Reference: Letter from A. Schwencer to E. G. Bauer,
dated September 20, 1984

Attachments: Responses to NRC Requests for Additional
Information

File: GOVT 1-1 (NRC)

Dear Mr. Schwencer:

The reference letter requested additional information on the test abstracts contained in FSAR Tables 14.2-3 and 14.2-4. In accordance with the reference letter, attached are responses to this request for additonal information, including draft FSAR page changes. The information contained in these draft FSAR changes will be incorporated into the FSAR, exactly as it appears on the attachment, in the revision scheduled for November 1984.

Sincerely,

J W Gallagher
for
J S Kemper

RDC/mlb/09248401

cc: See Attached Service List

B001
1/1

cc: Judge Lawrence Brenner (w/enclosure)
Judge Peter A. Morris (w/enclosure)
Judge Richard F. Cole (w/enclosure)
Judge Christine N. Kohl (w/enclosure)
Judge Gary J. Edles (w/enclosure)
Judge Reginald L. Gotchy (w/enclosure)
Troy B. Conner, Jr., Esq. (w/enclosure)
Ann P. Hodgdon, Esq. (w/enclosure)
Mr. Frank R. Romano (w/enclosure)
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Charles W. Elliot, Esq. (w/enclosure)
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Mr. Thomas Gerusky (w/enclosure)
Director, Penna. Emergency Management Agency (w/enclosure)
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David Wersan, Esq. (w/enclosure)
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Atomic Safety & Licensing Appeal Board (w/enclosure)
Atomic Safety & Licensing Board Panel (w/enclosure)
Docket & Service Section (w/enclosure)
Mr. James Wiggins (w/enclosure)
Mr. Timothy R. S. Campbell (w/enclosure)

ATTACHMENT

Responses to NRC Requests for Additional Information

Question:

640.8 Modify the following test abstracts contained in FSAR Table 14.2-4 to clearly indicate the source of acceptance criteria to be used in determining test adequacy.

1. (P-2.1) 125 V (Div III, IV) dc Safeguard Power System
2. (P-2.2) 125/250 V (Div I, II) dc Safeguard Power System
3. (P-11.1) Service Water System
4. (P-15.1) Turbine Enclosure Cooling Water System
5. (P-53.1) Standby Liquid Control System
6. (P-65.1) Radwaste Enclosure HVAC System
7. (P-70.1) Standby Gas Treatment. Reactor Enclosure Air Recirculation, Secondary Containment Isolation
8. (P-76.2) Post-Accident Sampling System

Items 1, 2, and 5-7 are tests which had appropriate acceptance criteria that was deleted by Amendment 28. Items 3, 4 and 8 are test abstracts added by Amendment 28 which do not contain appropriate acceptance criteria.

Response:

The above test abstracts have been changed to indicate the source of acceptance criteria to be used in determining test adequacy.

(P-2.1)

e. The battery will accept a charge equal to or greater than the number of amp-hours required to restore the energy dissipated during a design load discharge test within 8 hours while the charger maintains normal plant loads. (Section 8.3.2.1.1.3)

f. The battery chargers will supply rated load or greater for 8-hours without degradation. (Section 8.3.2.1.1.3 and VENDOR TECHNICAL MANUAL)

g. The battery chargers will supply regulated and conditioned dc within specified limits. (VENDOR TECHNICAL MANUAL)

h. Battery system off-normal conditions are properly identified and annunciated. (RAI 430.57)

(P-2.2) 125/250 V (Div I, II) dc Safeguard Power System

Unit Scope

a. 1P-2.2 (Unit 1, ~~common,~~ and portions of Unit 2 system components)

b. 2P-2.2 (Unit 2, remaining system components)

Test Objective - The test objective is to demonstrate the ability of the 125/250 V dc safeguard power system to provide an uninterruptible source of power to the 125/250 V dc motor control centers and to various 125 V dc distribution panels.

Prerequisites - To the extent necessary to perform this test, construction is completed, and instrumentation and controls are operable and calibrated. Batteries are filled with electrolyte to normal level, and 440 V ac power is available to provide power to the battery chargers. The load resistor bank is available to support the battery load capacity test. Battery room ventilation and emergency eyewash are available and operational.

Test Method - Battery charger capacity is verified by the application of its full load rating for 8 hours. Battery capacity is verified by the application of a constant test load at the battery manufacturer's 4-hour rate. System response to the design load profile is verified by the application of stepped test currents. Battery system recharge characteristics are determined by integrating amp-hours into the battery following the design load profile test.

(P-2.2)

Acceptance Criteria

a. The ac input voltage to the battery chargers is within specified limits. (VENDOR TECHNICAL MANUAL)

b. The dc distribution equipment is connected to the proper Safety Division. (Section 8.3.2.1.1)

c. The battery capacity is equal to or greater than that specified. (Table 8.3-18)

d. The battery capacity is sufficient to supply the specific application requirements with respect to the calculated load discharge profile. (Table 8.3-18)

e. The battery will accept a charge equal to or greater than the number of amp-hours required to restore the energy dissipated during a design load discharge test within 8 hours while the charge maintains normal plant loads. (Section 8.3.2.1.1.3)

f. The battery chargers will supply rated load or greater for 8-hours without degradation. (Section 8.3.2.1.1.3 and VENDOR TECHNICAL MANUAL)

g. The battery chargers will supply regulated and conditioned dc within specified limits. (VENDOR TECHNICAL MANUAL)

h. Battery system off-normal conditions are properly identified and annunciated. (RAI 430.57)

(P-3.1) 13.2 kV Unit Auxiliary Power System

Unit Scope

a. 1P-3.1 (Unit 1, common, and portions of Unit 2 system components)

b. 2P-3.1 (Unit 2, remaining system components)

Test Objective - The test objective is to demonstrate the capability of the 13.2 kV unit auxiliary power system to provide reliable electrical service to the 13.2 kV buses, which include feeder breakers for the 4 kV safeguard power system.

Prerequisites - To the extent necessary to perform this test, construction is completed, and instrumentation and controls are operable and calibrated. Offsite power is available from both

(P11.1)

Acceptance Criteria

a. Service water pumps operate properly. (Section 9.2.1)

b. Service water system provides an adequate water supply to system loads in the normal mode of operation. (Section 9.2.1)

c. Service water system provides an adequate water supply to system loads in the winter bypass mode of operation. (Section 9.2.1)

d. System alarms operate properly. (Section 9.2.1)

(P-13.1) Fire Protection Water System

Unit Scope

a. 1P-13.1 (Unit 1, common, and portions of Unit 2 system components)

b. 2P-13.1 (Unit 2 remaining system components)

Test Objectives - The test objective is to demonstrate that the fire protection water system operates as designed, to supply fire water to required areas.

Prerequisites - To the extent necessary to perform this test, construction is completed, and instrumentation and controls are operable and calibrated. Sufficient water is available in the cooling tower basin to conduct the test.

Test Method - The fire protection water system is placed in operation, and performance data are obtained for the diesel and electric fire pumps. System controls and alarms are actuated, including auto and manual initiation of system sprinklers. The transformer deluge is activated and the system hose reel and hydrants are operated.

Acceptance Criteria

a. System pumps meet acceptable head and flow values. (Section 9.5.1)

b. System automatic and manual initiation operate properly. (Section 9.5.1)

c. System sprinklers operate properly. (Section 9.5.1)

(P-15.1)

operable and calibrated. The service water system is available to provide cooling water for the system.

Test Method - The turbine enclosure cooling water system is placed in operation, and pump performance data is obtained. System controls and alarms are actuated.

Acceptance Criteria:

a. System pumps operate properly. (Section 9.2.9)

b. Standby pump automatic starting controls function properly. (Section 9.2.9)

c. System head tank level controls maintain proper tank level. (Section 9.2.9)

d. System provides cooling water to system components. (Section 9.2.9)

e. System alarms operate properly. (Section 9.2.9)

(P-16.1) Residual Heat Removal Service Water (RHRSW) System

Unit Scope

a. 1P-16.1 (Unit 1, common, and portions of Unit 2 system components)

b. 2P-16.1 (Unit 2, remaining system components)

Test Objective - The test objective is to demonstrate that under normal and emergency conditions, the RHRSW system supplies cooling water as designed.

Prerequisites - To the extent necessary to perform this test, construction is completed, and instrumentation and controls are operable and calibrated. Required portions of the cooling tower are operable, and the spray pond has water to operate the RHRSW pumps. The RHR heat exchangers are installed to provide a flow path for the pumps. The ESW system is available to support the flow verification test, as applicable.

Test Method - The RHRSW pumps and their controls are operated, and flow is measured for normal system operation modes. System automatic valve alignment is initiated for high radiation and ESW pump start. The high-radiation pump trip and the manual override operations are conducted. The spray networks are visually inspected for evenly distributed flow. System alarms are also actuated.

(P-53.1)

determined, including pump flow rates and tank heater operation. System controls and alarms are actuated.

Acceptance Criteria

a. The standby liquid pumps meet acceptable values of flow and discharge pressure. (Section 3.9.3.1.12)

b. The standby liquid control tank temperature is controlled properly. (Section 9.3.5)

c. System manual initiation, both local and remote, operates properly. (Section 9.3.5)

d. System automatic initiation operates properly. (Section 7.4.1.2.3.2)

e. System alarms operate properly. (Section 9.3.5)

f. For each train, the connected explosive valve opens. (Section 9.3.5)

ADD

(P-54.1) Emergency Service Water System

Unit Scope

a. 1P-54.1 (Unit 1 system components)

b. 2P-54.1 (Unit 2 system components)

Test Objective - The test objective is to demonstrate that the ESW system supplies cooling water to safeguard equipment as designed.

Prerequisites - To the extent necessary for performance of this test, construction is completed, and instrumentation and controls are operable and calibrated. The cooling tower basin is operable, and the spray pond is at its normal operating level to provide water for the ESW pumps. The heat exchangers served by this system are available to provide a flow path for the pumps. Applicable portions of the RHRSW system are operable to support the flow verification test.

Test Method - The ESW system pumps are started manually and automatically. System controls in the control room and the remote shutdown station are operated and pump flow rates are measured. System alarms are also actuated.

(P-65.1)

c. Results of in-place filter efficiency testing are acceptable. (TABLE 9.4-18)

d. Supply and exhaust fan controls and interlocks operate properly. (Section 9.4.3)

e. The charcoal vault cooling system operates properly. (Section 9.4.3)

f. Compartment differential pressures are maintained. (Section 9.4.3)

g. System alarms operate properly. (Section 9.4.3.5)

(P-66.1) Reactor Enclosure Unit Cooler System

Unit Scope

a. 1P-66.1 (Unit 1 system components)

b. 2P-66.1 (Unit 2 system components)

Test Objective - The test objective is to demonstrate the capability of the reactor enclosure unit coolers to provide air flow to the reactor core isolation cooling (RCIC), core spray (CS), residual heat removal (RHR), and high pressure coolant injection (HPCI) safeguard pump compartments.

Prerequisites - To the extent necessary to perform this test, construction is completed, and instrumentation and controls are operable and calibrated. Applicable portions of the HVAC air balancing test are completed.

Test Method - The unit coolers are placed in operation. Pump compartment temperature variations are simulated and system response is verified. Unit cooler component interlocks are verified. The emergency service water system valves are operated throughout the test. System alarms are verified under actual and simulated conditions as practicable. System parameters are monitored and recorded for systems cooling ECCS equipment. Heat removal capacity is calculated.

Acceptance Criteria

a. The unit coolers operate properly. (Section 9.4.2)

f. The laundry drain subsystem produces water of acceptable quality to discharge to the environment. (Section 11.2)

g. Contents of the chemical waste tank can be mixed and neutralized prior to discharge for processing. (Section 11.2)

h. System alarms operate properly. (Section 11.2)

(P-70.1) Standby Gas Treatment Reactor Enclosure Air Recirculation, Secondary Containment Isolation

Unit Scope

a. 1P-70.1 (Unit 1 system components)

b. 2P-70.1 (Unit 2 system components)

Test Objective - The test objective is to demonstrate the capability of the reactor enclosure secondary containment to isolate and of the air recirculation and standby gas treatment systems to function properly.

Prerequisites - To the extent necessary to perform this test, construction is completed, and instrumentation and controls are operable and calibrated. The reactor enclosure H&V system and the turbine enclosure vent north stack are available and operational to support the system test.

Test Method - The reactor enclosure secondary containment is isolated, the reactor enclosure air recirculation and the standby gas treatment start automatically by a simulated reactor enclosure isolation signal. The SGTS, REARS, and secondary containment isolation performance is determined by measuring secondary containment pressures, system pressures, and fan air flow rates. Systems controls and alarms are actuated.

Acceptance Criteria

a. System fans, both singularly and in combinations, provide acceptable values of flow through the system filters. (Sections 6.5.1)

b. Fan interlocks, auto-start and shutout features, and damper logic operate properly. (Sections 6.5.1, 7.3.1.1.7, and 7.3.4.8)

c. Results of in-place filter efficiency testing are acceptable. (Sections 6.5.1)

(P-70.1)

d. System alarms operate properly. (Sections 6.5.1, 7.3.1.1.7, 7.3.1.1.8, 7.3.1.1.9)

e. Reactor enclosure isolation logic operates properly. (Section 6.2.3)

f. The reactor enclosure ventilation system is shut down and isolated properly. (Section 6.2.3)

g. The recirculation system auto-starts on receipt of a reactor enclosure isolation signal. (Section 6.5.1) (Th.3 is same as b).

g. System steam flooding damper operation is proper. (Section 9.4.2.1)

(P-72.1) Gaseous Radwaste Recombiners and Filters

Unit Scope

a. 1P-72.1 (Unit 1 and common system components)

b. 2P-72.1 (Unit 2 system components)

Test Objective - The test objective is to demonstrate the operability of the gaseous radwaste system.

Prerequisites - To the extent necessary to perform this test, construction is completed, and instrumentation and controls are operable and calibrated. Nitrogen and auxiliary steam are available as required. Service water and reactor enclosure cooling water are operable, and the turbine enclosure ventilation stack is available for discharges.

Test Method - System recombiner and charcoal treatment trains are operated and their performance is verified.

Acceptance Criteria

a. System recombiner and charcoal treatment trains operate properly. (Section 11.3)

b. System controls and alarms operate properly. (Section 11.3)

(P-73.1) Containment Atmosphere Control System

Unit Scope

a. 1P-73.1 (Unit 1 system components)

Prerequisites - To the extent necessary to perform this test, construction is completed, and instrumentation and controls are operable and calibrated.

Test Method - Each sample station is operated and grab samples are drawn as available. Chemical fume hoods and the turbine enclosure sample station drain recovery tank pumps are operated. System alarms are actuated.

Acceptance Criteria

a. Sample lines are unobstructed. (Section 11.5)

b. Grab sample valves operate properly. (Section 11.5)

c. The turbine enclosure sample station drain recovery tank pumps operate properly. (Section 11.5)

d. The chemical fume hoods operate properly. (Section 11.5)

e. System alarms operate properly. (Section 11.5)

(P-76.2) Post-Accident Sampling System

Unit Scope

a. 1P-76.2 (Unit 1 system components)

b. 2P-76.2 (Unit 2 system components)

Test Objective - The objective is to demonstrate the operability of the post-accident sampling system.

Prerequisites - To the extent necessary to perform this test, construction is completed, and instrumentation and controls are operable and calibrated. The post-accident sampling system and support systems are complete and operational.

Test Method - Component control and status indication will be tested, and base line operating data will be obtained for major components. The system will be operationally checked by taking actual samples.

Acceptance Criteria

a. System gas pumps, gas breakdown pump, and liquid chiller function properly. (Section 11.5.5)

(P-76.2)

b. Component control and status indication devices function properly. (Section 11.5.5)

c. The system is capable of obtaining process samples from all design sampling points. (Section 11.5.5)

(P-78.1) Startup Range Detector Drive Control and Neutron Monitoring System

Unit Scope

a. 1P-78.1 (Unit 1 system components)

b. 2P-78.1 (Unit 2 system components)

Test Objective - The test objective is to demonstrate the operability of the startup range neutron monitoring (SRM) system which includes both source and intermediate range neutron monitoring equipment.

Prerequisites - To the extent necessary to perform this test, construction is completed, and instrumentation and controls are operable and calibrated.

Test Method - Each source and intermediate range detector is positioned from its fully inserted position to its fully retracted position to demonstrate the operability of the insert/retract mechanisms. Using simulated input signals, each source and intermediate range detector loop is tested to demonstrate meter indication, trip circuit operation, retract and insert permissives, associated rod block signals, and alarm operation.

Acceptance Criteria

a. The startup range drive system is capable of positioning each detector through its full length of travel. (Section 7.7.2.6)

b. Startup range neutron flux level and rate circuits indicate properly. (Section 7.7.2.6)

c. Startup range trip signals operate properly. (Section 7.7.2.6)

d. Startup range selector switch logic and insert/retract permissives operate properly. (Section 7.7.2.6)

Question:

640.13 (a) Modify the dc Power System tests (P-2.1, P-2.2) to reinstate testing of all dc loads necessary for safe shutdown at minimum terminal voltage or to demonstrate that the voltage drop at load to these components is acceptable.

(b) Provide justification as to why the acceptance criteria of the 13.2 kV Unit Auxiliary and 4 kV Safeguard Power System test abstracts (P-3.1, P-4.1) have been modified to delete reference to system bus voltages.

(c) The Unit Scope section for the dc Power System tests (P-2.1, P-2.2) states that testing will be performed on Unit 1, Unit 2, and common systems. FSAR Subsection 8.3.2.1 states there are no common or shared dc power systems. Modify the Unit Scope of these two abstracts accordingly.

Response:

(a) In lieu of modifiying P-2.1 and P-2.2 to reinstate testing of all dc loads at minimum terminal voltage, a special dc voltage verification test will be performed during the startup test program. The test and confirmatory analysis comparing the test results to calculated dc voltage drop values will be completed prior to exeeding 5% power.

The test will measure voltage at all Class 1E dc distribution busses and at that Class 1E dc equipment which must be operational when the battery is at minimum terminal voltage.

(b) Preoperational Test P-100.1 and the Voltage Regulation Verification Test, which is required by BTP-PSB-1 measured various bus voltages as loads were applied. These tests verified that proper voltage regulation on the 13.2 kV and 4 kV buses is maintained.

The acceptance criteria of P-3.1 and P-4.1 were modified to delete the reference to system bus voltages because the testing performed in these tests does not influence or test voltage regulation on these buses. These tests are primarily functional tests of the breaker logic and control circuits. For this reason, the voltage measured on the bus was not critical to the success or failure of the test.

(c) The Unit Scope of preoperational tests P-2.1 and P-2.2 have been modified to delete references to testing of common systems.

QUESTION 640.13 (Section 14.2.12)

For DC Power System tests (P-2.1, P-88.1), state your plans to verify that individual cell limits are not exceed during the design discharge test and to demonstrate that the DC loads will function as necessary to assure plant safety at a battery terminal voltage equal to the acceptance criterion that has been established for minimum battery terminal voltage for the discharge load test. Assure that each battery charger is capable of floating the battery on the bus or recharging the completely discharged battery within 24 hours while supplying the largest combined demands of the various steady-state loads under all plant operating conditions.

RESPONSE

The procedure abstract for preoperational test P-2.1 has been changed to include these requirements.

and a DC voltage verification test is performed during the startup test program

Question:

640.14 The Loss of Instrument Air test (P-100.2) has been revised to meet the requirements of Regulatory Guide 1.68.3, "Preoperational Testing of Instrument and Control Air Systems." This modification is acceptable to the NRC staff; however, the following modifications should be made.

1. FSAR Subsections 1.8 and 14.2.7.2 should delete reference to Regulatory Guide 1.80 as it is superceded by Regulatory Guide 1.68.3.

2. FSAR Subsection 1.8 should either state that Limerick will be in conformance with this guide or provide technical justification for any exceptions taken.

Response:

1. Sections 1.8 and 14.2.7.2 have been changed to delete the references to Regulatory Guide 1.80.

2. Section 1.8 has been changed to state that Limerick will be in conformance with the applicable portions of Regulatory Guide 1.68.3.

Details are discussed in Sections 2.2.3 and 6.4.

(Category 1)

REGULATORY GUIDE 1.79	Preoperational Testing of Emergency Core Cooling Systems for Pressurized Water Reactors Rev 1, September 1975

This guide is for pressurized water reactors and therefore does not apply to Limerick.

REGULATORY GUIDE 1.80	Preoperational Testing of Instrument Air Systems Rev 0, June 1974

Safety-related portions of the containment instrument gas system will be subjected to preoperational testing in accordance with the provisions of this Regulatory Guide as discussed in Section 14.2.

Delete

This guide was superseded by Regulatory Guide 1.68.3 in April, 1982.

(Category 4)

REGULATORY GUIDE 1.81	Shared Emergency and Shutdown Electric Systems for Multi-Unit Nuclear Power Plants Rev 1, January 1975

Limerick is in conformance with this guide as discussed in Section 8.1.6.1.

(Category 1)

REGULATORY GUIDE 1.82	Sumps for Emergency Core Cooling and Containment Spray Systems Rev 0, June 1974

This guide is for pressurized water reactors and therefore is not applicable to Limerick.

1.68.1 Preoperational and Initial Startup Testing of Feedwater and Condensate Systems for Boiling Water Reactor Power Plants (Revision 1, January 1977).

1.68.2 Initial Startup Test Program to Demonstrate Remote Shutdown Capability for Water-Cooled Nuclear Power Plants (January 1977).

1.68.3 Preoperational Testing of Instrument and Control Air Systems (April 1982).

Compliance is demonstrated by preoperational test procedures P-18.1, P-83.1, and P-100.2.

1.70 Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (November 1978).

1.80 Preoperational Testing of Instrument Air Systems (June 1974). ~~(Superseded by)~~ delete

1.104 Overhead Crane Handling Systems for Nuclear Power Plants (February, 1976).

Overhead crane testing exceptions are as outlined in Section 9.1.5.

1.108 Periodic Testing of Diesel Generators Used as Onsite Electric Power Systems at Nuclear Power Plants (Rev. 1, August 1977).

Testing of the diesel generators is discussed in Section 8.1.6.1.20.

1.140 Design Testing and Maintenance Criteria for Normal Ventilation Exhaust System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants (Rev. 1, October 1979)

REGULATORY GUIDE 1.68.3 Preoperational Testing of Instrument and Control Air Systems

Rev 0, April 1982

Limerick will be in ~~general~~ conformance with the applicable portions of this guide.

REGULATORY GUIDE 1.69 Concrete Radiation Shields for Nuclear Power Plants

Rev 0, December 1973

Limerick did not apply this guide, which endorses/modifies ANSI N101.6-1972. Limerick concrete standards are discussed in Section 3.8.

(Category 1)

REGULATORY GUIDE 1.70 Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants

Rev 3, November 1978

The Limerick FSAR is in conformance with the format and content requirements of this guide.

(Category 1)

REGULATORY GUIDE 1.71 Welder Qualification for Areas of Limited Accessibility

Rev 0, December 1973

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aches that are evaluated as
tails are discussed in

Question:

640.21 The MSIV Leakage Control System Test (STP-38) has been deleted. The deletion is acceptable if preoperational testing of the system is accomplished at rated temperature.

Response:

The deletion of STP-38 was discussed in the letter from J. S. Kemper to A. Schwencer dated April 18, 1984, and was found acceptable at that time.

Question:

640.23 The Main Steam Relief Valves (MSRVs) Performance test (STP-26) should reinstate measurement of the capacity of each MSRV and provide acceptance criteria consistent with accident analysis assumptions.

Response:

The MSRV Performance test (STP-26) has been changed to reinstate measurement of the flow of each MSRV into the acceptance criteria and test method.

RDC/mib/09248402

Acceptance Criteria - MSIV closure times are within applicable limits. Reactor pressure is maintained below specified values during the transient following full closure of all MSIVs.

(STP-26) Main Steam Relief Valves (MSRVs) Performance (Formerly SUT-22)

Test Objectives - The test objectives are: to demonstrate proper operation of the dual purpose MSRVs and to demonstrate their leaktightness following operation.

Prerequisites - Factory calibration data are verified, and setting adjustment mechanism factory seals, if applicable, are intact. The reactor is on pressure control with adequate bypass or main steam flow.

Test Method - The MSRVs are opened manually so that only one is opened at any time. Proper resetting of each MSRV is verified by observing temperatures in the MSRV discharge piping.

ADD

The capacity of each MSRV is measured by opening the MSRV and observing the corresponding decrease in Main Steam Line Flow.

flow ← ADD

Acceptance Criteria - Each MSRV compares favorably with the value assumed in the accident analysis at design reactor pressure. The leakage of each MSRV is low enough to allow the temperature measured by the thermocouples, in the discharge side of the valves, to fall within an acceptable margin of the temperature recorded, before the valve was opened.

(STP-24) Main Turbine Valves Surveillance Test (Formerly SUT-23)

Test Objective - The test objective is to demonstrate acceptable procedures for routine surveillance testing of the turbine stop, control, and bypass valves at a power level as high as possible, without producing a reactor scram.

Prerequisites - The main turbine is operational, and the power testing program is in progress.

Test Method - The individual turbine valves are closed at several points along the 100% power flow control line, to establish the maximum possible power level for performance of this test, without producing a reactor scram. Turbine bypass valves are opened and flow is measured.

Acceptance Criteria - With the plant at power and testing in progress, peak neutron flux is at a value below the scram setting. Peak reactor pressure is at a value below the

PREOPERATIONAL TEST PROCEDURE ABSTRACTS

(P-2.1) 125 V (Div III, IV) dc Safeguard Power System

Unit Scope

a. 1P-2.1 (Unit 1 ~~and common~~ and portions of Unit 2 system components)

b. 2P-2.1 (Unit 2 remaining system components)

Test Objective - The test objective is to demonstrate the ability of the 125 V dc safeguard power system to provide an uninterruptible source of power to the 125 V dc distribution panels.

Prerequisites - To the extent necessary to perform this test, construction is completed, and instrumentation and controls are operable and calibrated. Batteries are filled with electrolyte to normal level, and 440 V ac power is available to provide power to the battery chargers. The load resistor bank is available to support the battery load capacity test. Battery room ventilation and emergency eyewash are available and operational.

Test Method - Battery charger capacity is verified by the application of its full load rating for 8 hours. Battery capacity is verified by the application of a constant test load at the battery manufacturer's 4-hour rate. System response to the design load profile is verified by the application of stepped test currents. Battery system recharge characteristics are determined by integrating amp-hours into the battery following the design load profile discharge test.

Acceptance Criteria

a. The ac input voltage to the battery chargers is within specified limits. (VENDOR TECHNICAL MANUAL)

b. The dc distribution equipment is connected to the proper Safety Division. (Section 8.3.2.1.1)

c. The battery capacity is equal to or greater than that specified. (Table 8.3-18)

d. The battery capacity is sufficient to supply the specific application requirements with respect to the calculated load discharge profile. (Table 8.3-18)