

UNION ELECTRIC COMPANY
1901 GRATIOT STREET
ST. LOUIS, MISSOURI

September 16, 1981

JOHN K. BRYAN
VICE PRESIDENT

MAILING ADDRESS:
P. O. BOX 149
ST. LOUIS, MISSOURI 63166



Mr. Harold R. Denton
Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Denton:

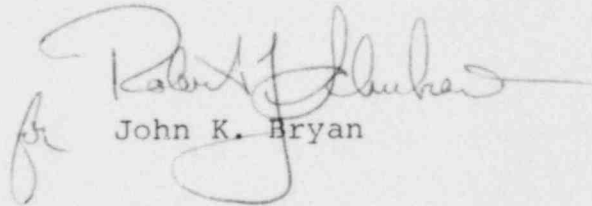
ULNRC- 508

DOCKET NUMBERS 50-483 AND 50-486
CALLAWAY PLANT, UNITS 1 & 2
RESPONSES TO NRC QUESTIONS ON CALLAWAY'S
INITIAL TEST PROGRAM

Reference: NRC letter dated August 7, 1981 signed by
B. J. Youngblood for R. L. Tedesco.

The referenced letter requested additional information concerning the Callaway Plant Initial Test Program. Transmitted herewith are the responses to the items in the referenced letter. This information will be formally incorporated into the next Callaway Plant FSAR as applicable. This information is hereby incorporated into the Callaway Application.

Very truly yours,


John K. Bryan

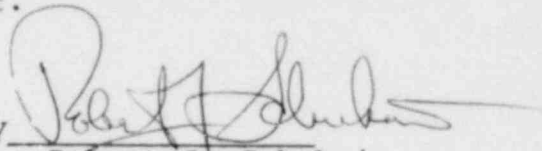
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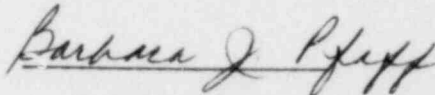
STATE OF MISSOURI)
) S S
CITY OF ST. LOUIS)

Robert J. Schukai, of lawful age, being first duly sworn upon oath says that he is General Manager-Engineering (Nuclear) for Union Electric Company; that he has read the foregoing document and knows the content thereof; that he has executed the same for and on behalf of said company with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By


Robert J. Schukai
General Manager-Engineering
Nuclear

SUBSCRIBED and sworn to before me this 16th day of September, 1981



BARBARA J. PFAFF
NOTARY PUBLIC, STATE OF MISSOURI
MY COMMISSION EXPIRES APRIL 22, 1985
ST. LOUIS COUNTY

cc: Glenn L. Koester
Vice President
Operations
Kansas Gas & Electric
P.O. Box 208
Wichita, Kansas 67201

John E. Arthur
Chief Engineer
Rochester Gas & Electric Company
89 East Avenue
Rochester, New York 14649

A. V. Dienhart
Vice President
Plant Engineering and Construction
Northern States Power
414 Nicollet Mall
Minneapolis, Minnesota 55401

Donald T. McPhee
Vice President
Kansas City Power and Light Company
1330 Baltimore Avenue
Kansas City, Missouri 64141

Gerald Charnoff, Esq.
Shaw, Pittman, Potts & Trowbridge
1800 M. Street, N.W.
Washington, D.C. 20036

Nicholas A. Petrick
Executive Director
SNUPPS
5 Choke Cherry Road
Rockville, Maryland 20850

W. Hansen
Callaway Resident Office
U.S. Nuclear Regulatory Commission
RR#1
Steedman, Missouri 65077

Gordon Edison
Project Manager-SNUPPS
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Responses To NRC Questions On
Callaway's Initial Test Program

ITEM 640.1C Subsection 14.2.2.4 refers to Section 13.1 regarding the qualifications of key personnel involved in the initial testing program. Section 13.1 references ANSI/ANS 3.1-1978. Our current position is that the individuals involved in preoperational or startup testing should hold the qualifications stated in Regulatory Position 3 of proposed Revision 2 to Regulatory Guide 1.8, February 1979 (issued for comment). State that your minimum qualification requirements will be in accordance with this regulatory position or provide justification for requiring any lesser qualifications.

Response: As indicated in Section 14.2.2.4 the qualifications of key personnel from the plant operating staff are described in Section 13.1 of the FSAR Site Addendum. Of those key personnel from the plant operating staff the individuals who supervise the conduct of individual preoperation and startup tests as well as those who review the test results shall be qualified in accordance with Regulatory Guide 1.8 proposed revision 2, February 1979.

Also included in Section 14.2.2.4 is the following statement: "Personnel who review, approve, supervise, or direct preoperational tests.... shall meet the requirements of Regulatory Guide 1.8 for those functions." Appendix 3A of the FSAR Site Addendum commits Union Electric to the requirements of proposed revision 2, February 1979 of Regulatory Guide 1.8. Therefore these statements provide the commitment to the referenced regulatory position.

SNUPPS-C

ITEM 640.2C Appendix 3A states in the section on Regulatory Guide 1.58 that an alternative method for qualifying nuclear plant power plant inspection, examination, and testing personnel will be used. Insufficient detail is available to determine whether or not the alternative qualification program provides the same quality training. Expand the description of the alternative qualification method in Appendix 3A or delete this exception to Regulatory Guide 1.58,. Note: Regulatory Positions C.5, 6, 7, 9, and 10 of Regulatory Guide 1.58 (Rev 1, 9/80) apply to the Callaway nuclear station.

Response: Appendix 3A of the FSAR Site Addendum has been changed as a result of the NRC review. This revision will be submitted as revision 4 to the FSAR and commits Union Electric to Regulatory Guide 1.58.

SNUPPS-C

ITEM 640.3C For SNUPPS-C, list all tests that will only be performed on Unit 1. In addition cite the criteria that will be used during the Unit 2 testing program to ensure that the second unit performs in an identical manner regarding those tests to be deleted.

Response: Relative to the tests listed in the Callaway FSAR Addendum, all the tests listed shall be performed for both units.

ITEM 640.4C Certain terminology used in the individual test descriptions does not clearly indicate the source of the acceptance criteria to be used in determining test adequacy. An acceptable format for providing acceptance criteria for test results includes any of the following:

Referencing technical specifications

Referencing specific sections of the FSAR

Referencing vendor technical manuals

Referencing specific quantitative bounds (only if the information cannot be provided in any of the above ways).

Modify the individual test description subsection presented or, if applicable add a paragraph to 14.2.16 that provides a acceptable description of each of the unclear terms.

(1) Within design specification

14.2.12.1.1
1.2

(2) In Accordance with system design

14.2.12.1.1
2.2

(3) Responds properly, properly respond, function correctly properly

14.2.12.1.2
1.3
2.1
2.2
2.2

(4) Adequate

14.2.12.2.1
2.3

(5) Specified

14.2.12.2.1
2.2
2.3

SNUPPS-C

Response:

(1) The acceptance criteria provided in the individual test description meets the requirement of Regulatory Guide 1.70 Rev. 3, Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Specific Acceptance criteria is subject to change and which if included in the FSAR, would require unnecessary changes to the FSAR. Technical Specifications, the FSAR, vendor technical manuals, design drawings, etc. are the documents that establish the actual criteria that is referred to when terms such as "Within design specification", "In accordance with system design", and "In accordance with design" are used. The abstracts in the Callaway Site Addendum, Chapter 14 are being reviewed and where appropriate, the abstracts will be revised.

(2) See response to 640.4C(1).

(3) See revised abstracts, attached for reference.

14.2.12.1.2
14.2.12.1.3
14.2.12.2.1
14.2.12.2.2
14.2.12.2.3

(4) See revised abstract, attached for reference.

14.2.12.2.1
14.2.12.2.2
14.2.12.2.3

(5) See revised abstract, attached for reference.

14.2.12.2.1
14.2.12.2.2
12.2.12.2.3

14.2.12.1.2 Essential Service Water System Preoperational Test (S-U3EF01)

14.2.12.1.2.1 Objectives

To demonstrate the operating characteristics of the essential service water (ESW) pumps and verify their response to safety signals.

14.2.12.1.2.2 Prerequisites

- a. Required component testing, instrument calibration, and system flushing/cleaning are completed.
- b. Required electrical power supplies and control circuits are operational.
- c. The ESW system is available to receive flow from the ESW pumps.

14.2.12.1.2.3 Test Method

- a. The ESW pumps are operated and pump operating data are recorded.
- b. The response of the ESW pumps to safety signals is verified.

14.2.12.1.2.4 Acceptance Criteria

- a. The ESW pumps' operating characteristics are within design specifications.
- b. Each ESW pump responds to load sequence and load shed signals in accordance with design.

14.2.12.1.3 Essential Service Water Ultimate Heat Sink
Preoperational Test (S-U3EF02)

14.2.12.1.3.1 Objectives

- a. To demonstrate the operability of the ultimate heat sink (UHS) cooling tower fans and verify their response to ESW pump operating signals.

14.2.12.1.3.2 Prerequisites

- a. Required component testing, instrument calibration, and system flushing/cleaning are completed.
- b. Required electrical power supplies and control circuits are operational.
- c. The ESW system is available to receive flow from the pumps.

14.2.12.1.3.3 Test Method

- a. The response of the UHS cooling tower fans to ESW pump operating signals is verified.

14.2.12.1.3.4 Acceptance Criteria

- a. The UHS cooling tower fans respond to ESW pump operating signals in accordance with design.

14.2.12.2.1 Service Water System

14.2.12.2.1.1 Objectives

To demonstrate the capability of the service water system to provide specified cooling water flow to its load during normal and normal shutdown modes of operation.

14.2.12.2.1.2 Prerequisites

- a. Required component testing, instrument calibration and system cleaning/flushing procedures have been performed.
- b. Required electrical power supplies and control circuits are operational.
- c. There is sufficient water in the cooling tower basin to provide adequate submergence to the service water pumps.

14.2.12.2.1.3 Test Method

- a. Verify automatic starting of the standby service water pump upon tripping of one of the operating service water pumps.
- b. Check for correct operation of instruments, alarms and interlocks.
- c. Confirm that the pump discharge valves respond correctly to actuation signals.
- d. Verify correct system flow balancing.
- e. Verify pump hydraulic performance.
- f. Verify correct operation of the lubricating water systems for the service and circulating water pumps.

14.2.12.2.1.4 Acceptance Criteria

The service water pumps meet or exceed the flow and heat requirements and supply flow to components in the system as required by system design. The lubricating water system operates in accordance with design. Instrumentation, controls, annunciators and interlocks respond to simulated or normal input signals in accordance with system design.

14.2.12.2.2 Fire Protection System

14.2.12.2.2.1 Objectives

To demonstrate the operability of the fire protection system (FPS) including its fire detection and fire suppression functions in accordance with design requirements.

14.2.12.2.2.2 Prerequisites

- a. The FPS component testing, instrument calibration and system cleaning/flushing procedures have been performed.
- b. Required electrical power supplies and control circuits are operational.
- c. Both fire water storage tanks are full and Freeze protection system operates.

14.2.12.2.2.3 Test Method

- a. Verify the proper functioning of the fire detection devices to activate the automatic fire protection system, alert the control room operators, and initiate fire alarms.
- b. Verify correct operation of the fire suppression systems used for smoke and heat control, and fire containment, including the automatic closing of fire dampers as required.
- c. Demonstrate the automatic start feature of the fire pumps.
- d. Verify the fire pump hydraulic performance.
- e. Demonstrate correct operation of systems instrumentation, alarms and interlocks.

14.2.12.2.2.4 Acceptance Criteria

The fire detection portion of the FPS, in response to simulated input signals, provides indication, annunciation and/or fire suppression activation outputs in accordance with system design. The fire pumps meet or exceed flow and head requirements and supply flow to the water fire suppression system in accordance with design. The Halon fire suppression system interlocks, controls, annunciators, instrumentation and active fire isolation devices function in accordance with design.

14.2.12.2.3 Circulating Water System

14.2.12.2.3.1 Objectives

To demonstrate the capability of the circulating water system to provide specified cooling water flow to the main condensers during normal and cooling tower bypass operation.

14.2.12.2.3.2 Prerequisites

- a. Required component testing, instrument calibration and system cleaning/flushing procedures have been performed.
- b. Required electrical power supplies and control circuits are operational.
- c. The Service Water System is operational to supply lubricating water.
- d. There is sufficient water in the cooling tower basin to provide adequate submergence to the circulating water pumps when the circulating water system is completely filled with water, and cooling tower is complete, and ready to receive water.

14.2.12.2.3.3 Test Method

- a. Circulating water flows are verified in the normal and bypass modes of operation.
- b. Check for correct operation of instruments, alarms and interlocks.
- c. Confirm that the isolation valving systems respond correctly to an isolation signal.
- d. Verify correct system flow balancing.
- e. Verify pump hydraulic performance.

14.2.12.2.3.4 Acceptance Criteria

The circulating water pumps meet or exceed the flow and head requirements and supply flow to the main condensers in accordance with design. Instrumentation, controls, annunciators and interlocks respond to simulated or normal input signals in accordance with system design.

SNPPS-C

ITEM 640.5C Describe the status of the power supplies between Unit 1 and Unit 2 to ensure independence during power distribution testing. The descriptions should address both normal and emergency A.C. and D.C. power distribution systems. Provide assurance that cross-ties will not exist which could cause loss of emergency bus power to one unit due to testing of the other unit.

Response: Callaway Units 1 and 2 have no shared power distribution within the power block.

SNUPPS--C

ITEM 640.6C If Callaway's electrical distribution system has the capability of using one unit's startup transformer as an emergency source of power to another unit, verify by testing or analytical extrapolation of normal loads that each startup transformer can supply emergency loads on one unit while supplying a maximum load of plant auxiliaries on the remaining unit.

Response: Callaway's electrical distribution system is not designed to utilize one unit's Startup transformer as an emergency source of power to the other unit.

SNUPPS-C

ITEM 640.7C Verify that the ultimate heat sink retention pond pumps (Subsection 9.2.5) are tested to demonstrate adequate NPSH and the absence of vortexing over range of basin level from maximum to the minimum calculated 30 days following LOCA.

Response: The pump manufacturer performed a full range performance test at the minimum submergence of 6 feet and demonstrated no vortexing or cavitation during the test.

The installed configuration of the ultimate heat sink retention pond pumps and the pump basin are such that the pump suction is submerged more than the 8 foot test depth and the basin's flat bottom is similar to the test chamber used by the manufacturer during the pump test.

SNUPPS-C

ITEM 640.8C Table 14.2-1 (Sheet 4) of SNUPPS lists S-X3GD01 (Essential Service Water Pump House HVAC) as one of the test abstracts that will be included in the site addendum. Include S-U3GD01 as a safety-related preoperational test procedure in SNUPPS-C, or provide an explanation for the deletion of that test.

Response: S-U3GD01 Essential Service Water Pump House HVAC will be included in the next revision to the FSAR Site Addendum.