

UNION ELECTRIC COMPANY

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December 9, 1983

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Mr. J. F. Streeter, Chief
Engineering Branch 1
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

ULNRC-699

Dear Mr. Streeter:

INSPECTION REPORT NO. 50-483/83-17

This reply is in response to your letter of November 10, 1983, which transmitted the report of the inspection conducted at Callaway Plant, Unit 1, during the period of August 2-4 and 8-11, August 29 through September 1, September 20-23, October 3-6, 11-14, and 17-21, 1983. Our responses to the items of noncompliance are presented below (in the order listed within the Appendix of Inspection Report No. 50-483/83-17).

None of the material in the inspection report or in this response is considered proprietary by Union Electric Company.

(50-483/83-17-01) SEVERITY LEVEL IV VIOLATION

10 CFR 50, Appendix B, Criterion XI states: "A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is...performed..." Pursuant to this requirement, SNUPPS FSAR, Appendix 3A, indicates compliance with Regulatory Guide 1.68, Revision 2, "Initial Test Programs for Water-Cooled Nuclear Power Plants," and, SNUPPS-C FSAR, Appendix 3A, indicates compliance with Regulatory Guide 1.30 which endorses ANSI N45.2.4-1972, "Installation, Inspection, and Testing Requirements for Instrumentation and Electric Equipment During the Construction of Nuclear Power Generating Stations."

Regulatory Guide 1.68, Revision 2, Appendix A, Item 1 states: "Following plant construction, testing should be accomplished to demonstrate the proper performance of structures, systems, components, and design features in the assembled plant," and "Preoperational tests should demonstrate that structures, systems and components will operate in accordance with design in all operating modes and throughout the full design operating range."

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Item 1.g., Electrical Systems, states: "Appropriate system and component tests should be conducted to verify, to the extent practical, that these systems will operate in accordance with design." Both Items 1.g.(1), Normal AC Power Distribution System, and 1.g.(2), Emergency AC Power Distribution System, state: "This testing should simulate, as closely as practical, actual service conditions, e.g., fully loading motor control centers and operation of supplied loads at rated conditions, etc."

ANSI N45.2.4-1972 states (in subsection 6.2.1): "Tests shall be performed to verify that the quality of installed equipment has not deteriorated during the construction phase," and "Tests shall be made to determine that proper response is obtained over the operating range of the device."

Contrary to the above, preoperational test procedures CS-03NN01, R0, "Instrument AC Systems (Class 1E) Preoperational Test," and CS-03NK01, R0, "125V (Class 1E) DC System Preoperational Test," have been written and approved without including testing to adequately meet these requirements. Specific examples include:

- a. Vital inverter design load testing is not included in the program.
- b. Verification of other vital inverter design features are not verified, such as voltage and frequency regulation and transient limits.
- c. The ability of the backup transformers to supply design instrument loads is not verified.
- d. The battery chargers provide the normal function of a regulated, filtered, DC power supply for the DC electrical bus. Design features related to this function are not verified, such as regulation and filtration.

Response

This is an interim response as Union Electric is continuing to review the details involving the licensing commitments and preoperational test requirements associated with the Class 1E systems. A definitive response to this item addressing all the concerns will be transmitted to Region III by January 9, 1984.

50-483/83-17-02) SEVERITY LEVEL IV VIOLATION

10 CFR 50, Appendix B, Criterion V states, in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

SNUPPS Quality Assurance Programs for Design and Construction, Section 17.1.5 states: "The program established by the SNUPPS utilities to control activities affecting quality provides for:

(a, the preparation of procedures, instructions, drawings or checklists of a type appropriate to the activity and its importance to safety."

Plant procedure APA-ZZ-00101 states that a Qualified Reviewer (as assigned by the responsible Department Head) in part, is responsible to make "a determination of whether or not the procedure (revisions) is technically correct, ... and adequate for performing the task involved."

Startup Administrative Instruction SAI-5, "Preoperational Test Procedure Development, Test Conduct and Results Approval, "(1) states that the System Startup Engineer "Ensures that Preoperational Test sections and steps are performed in numerical sequence unless otherwise stated in the procedure," (2) limits minor changes (such as a change in test sequence) to the extent that they will "not affect the Acceptance Criteria or test objectives of the procedure," and (3) requires that a Minor Change Notice (MCN) be entered in the "Official Test" copy and that the MCN number be entered in the margin next to the test change.

Startup Administrative Instruction SAI-23, "Test Program Surveillance," states that the Test Program Surveillance Group (TPSG) purpose is to verify that Startup Program activities are performed in accordance with established requirements.

Contrary to the above:

- a. The test procedure (CS-03BB05, Rev. 0) for hot functional testing was approved and issued with provisions for the collection of baseline data on five systems related to reactor operation. There were no instructions included for four of these systems to control the collection of the data.
- b. A normal operating procedure, OTN-BB-0001, was approved and issued without adequate review of the procedure as evidenced by the omission of a number of valves from the valve lineup that are important to the procedure.
- c. Test conduct requirements have been violated in that test sequences were changed and a test jumper added to a procedure (CS-03BG01, Rev. 0) without initiating the required MCNs.
- d. The TPSG failed to note the sequence changes and jumper addition described in c. above and, in fact, witnessed the addition and removal of the test jumper in the test log without realizing an MCN and annotation in the test procedure was needed.

ResponseCorrective Action Taken And The Results Achieved:

- a. The intent of CS-03BB05 Appendix F is to allow the Shift Test Director to collect data during Hot Functional Testing. The note in the procedure allowing this Data Collection has been revised to clarify that this data is for information.
- b. The identified valves have been incorporated into the appropriate procedures.
- c.&d. These items were identified and discussed in a June 1, 1983, Joint Test Group (JTG) meeting (M-75B), with the startup engineers involved. The change to the procedure and use of a test jumper was evaluated by the JTG, and it was concluded that there was no impact on the validity of the results. Members of the TPSG were subsequently given a refresher course on startup administrative controls, emphasizing controls on changes to procedures.

Corrective Action Taken To Avoid Further Noncompliance:

- a. No additional action was taken for this item. As stated in the note allowing for the accumulation of additional data, the data does not pertain to acceptance criteria, therefore, the term "baseline" was considered to be "information".
- b. In accordance with FSAR 14.2.2.1.4.2, the plant operating procedures are being used to demonstrate their correctness and effectiveness. As problems are identified in operating procedures during preoperational testing, the procedures are revised accordingly.
- c.&d. The procedure results review and approval cycle identifies these types of problems. As evidenced by the identification of this item in the Joint Test Group meeting minutes, these types of problems are being identified and corrective action taken as necessary. As indicated above, the involved personnel were made aware of the conditions and the proper actions to be taken.

Date When Full Compliance Will Be Achieved:

The above stated items were all corrected by November 14, 1983.

(50-483/83-17-03) SEVERITY LEVEL IV VIOLATION

10 CFR 50, Appendix B, Criterion XIV states, in part, "Measures shall be established for indicating the operating status...such as by tagging valves and switches, to prevent inadvertent operations." Criterion XI states, in part, "Test procedures shall include provisions for assuring that all prerequisites for the given test have been met."

Startup Administrative Instruction SAI-12, Rev. 6, requires tagging a nonconforming component if "operation or testing of the item, component or piece of equipment: is hazardous or potentially hazardous to personnel, could damage or further damage the item, component, or piece of equipment, or could damage associated or adjacent items."

Startup Administrative Instruction SAI-5, Rev. 6, requires that the System Startup Engineer "Review all unresolved or open Startup Field Reports (SFRs)...which are applicable to the system and evaluate their possible impact on the test."

Contrary to the above, nonconforming potential transformer NB-PT109/F, which was terminated incorrectly during construction, was not tagged and the review of the related SFR (SFR-NB-081A) prior to testing was inadequate. These shortcomings resulted in the "A" emergency diesel generator being connected to the offsite power grid 120 degrees out of phase, a condition potentially hazardous to personnel and equipment.

Corrective Action Taken And The Results Achieved:

The improperly terminated transformer leads were disconnected and tagged to prevent the use of the transformer. Subsequently the transformer leads were properly terminated.

Corrective Action Taken To Avoid Further Noncompliance:

This occurrence has been reviewed and discussed with Startup Supervisors to reiterate tagging requirements. Items are tagged to provide formal notification to other Startup personnel, therefore, had this condition been tagged, the involved personnel would have been aware of the condition because of the tag rather than review of the SFR.

Date When Full Compliance Will Be Achieved:

The above stated actions were completed on November 9, 1983.

(50-483/83-17-04) SEVERITY LEVEL IV VIOLATION

10 CFR 50, Appendix B, Criterion XIII states, in part, "Measures shall be established to control the handling, storage, shipping, cleaning, and preservation of material and equipment...to prevent damage or deterioration."

SNUPPS Standard Quality Assurance Manual, Section 6.2.6.2 states in part, "Each utilities QA organization shall audit the measure applied...to verify that controls for installed material are adequate."

SNUPPS-C FSAR, Appendix 3A, indicates compliance with Regulatory Guide 1.38, Revision 2, which endorses American National Standards Institute N45.2.3-1973. Section 3.4 of ANSI N45.2.3-1973 states, "The use, location, and deployment of construction tools, supplies and equipment shall be regulated to keep access and work areas clear and prevent conditions that will adversely affect quality."

Contrary to the above, controls over plant material conditions were not effective during the inspection period in that:

- a. Operationally tested and accepted safety-related equipment, such as the 4.16KV, Class 1E electrical switchgear, was being unacceptably exposed to hazards of ongoing construction activity. Some breakers were found withdrawn and unprotected while others had missing vent filters while exposed to construction dust that was being blown toward the breakers by HVAC operation.
- b. Construction activity was ongoing in the main steam isolation valve area at the same time testing was scheduled for the affected equipment. Inadequate equipment protection was evident from visual observation of welding leads, clothing, tools and air hoses in the testing area and from equipment problems experienced during preparation for preoperational testing.
- c. Equipment degradation was observed in terms of cleanliness, such as unclean conditions inside electrical breaker cabinets, and damage to flexible electrical conduit connections was noted.

As requested in the transmittal letter for Inspection Report No. 50-483/83-17, the UE response addresses the following specific examples documented in Paragraph 11 in the body of the inspection report.

- a. Class 1E 4.16KV circuit breakers were found withdrawn from their cubicles and placed in a construction area without any protection. Additionally, no status or disposition was attached.

- b. A five gallon can containing an apparently flammable liquid was found stored under the coupling of the charging system positive displacement pump.
- c. A stainless steel pipe with a flange bearing a tag marked "RHR suction sample" was found lying on the floor in the dirt outside an RHR/CS pump room. Both ends were open, the inside was dirt-filled, and the outside was crusted with dirt.
- d. The flexible portion had become disengaged from the rigid portion of conduits 4U2060 and 1U2057 exposing the cables for reactor head vent valves. The cables are supporting the flexible conduit and are susceptible to damage.
- e. Instruments were used as storage places for drop cords, air hoses, welding leads, clothing, and tools. The practice was common and the following is a small sample: BB52(Q)FT30, BB17(Q)LT554, BB19F1S437, and BG15FT159.
- f. Temporary filters were found missing from the backs of several Class 1E, 4.16KV, NB02 circuit breakers while debris on the floor, due to fireproofing work nearby, was being blown toward the breakers from operation of the emergency diesel HVAC equipment.
- g. Temporary lighting cords, an eight foot step ladder, and miscellaneous construction material was found strung around, laying against, or otherwise jeopardizing the operability of the main steam isolation valves and main steam isolation bypass valves during the same week this equipment was scheduled for component and preoperational testing.

Response

Corrective Action Taken And The Results Achieved:

- a. The Class 1E 4160-V circuit breakers were returned to their cubicles.
- b. The 5 gallon can was removed.
- c. The stainless steel pipe was a temporary pipe used during the system flushing and has been removed.
- d. The flexible conduits were supported and will be corrected after Hot Functional Testing but are presently controlled via SWR-BB-428.
- e. The drop cords, air hoses, welding leads, clothing and tools were removed from the instruments.
- f. Temporary filters were reinstalled and the area cleaned.

- g. The temporary lighting cords, step ladder and miscellaneous construction material were removed prior to equipment testing. The operability of the Main Steam Isolation Valves and Main Steam Isolation Bypass Valves was not jeopardized because the equipment had not been placed in service.

Corrective Action Taken To Avoid Further Noncompliance:

Union Electric has issued a directive which defines specific housekeeping responsibilities of Daniel Construction, Startup and Operations. A reporting process for general housekeeping has been established which requires tracking and closeout to achieve an adequate cleanliness level of the plant.

Prior to commencement of Hot Functional Testing, Union Electric management personnel toured plant electrical equipment and concluded adequate cleanliness levels had been achieved.

Date When Full Compliance Will Be Achieved:

The housekeeping program was implemented on November 25 of this year, and it is anticipated that the program, indicated above, will maintain Plant housekeeping at an acceptable level for preoperational testing.

If you have any questions regarding this response or if additional information is required, please let me know.

Very truly yours,



Donald F. Schnell

RWD/lw

cc: J. E. Konklin, Region III
NRC Resident Inspectors, Callaway Plant (2)
Missouri Public Service Commission