



Public Service Electric and Gas Company P.O. Box 236 Hancocks Bridge, New Jersey 08038

Nuclear Department

FEB 24 1992

NLR-N92022

United States Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406
Attention: Wayne Hodges

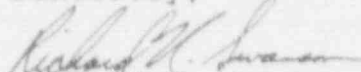
Dear Mr. Hodges:

RESPONSE TO ISSUES IDENTIFIED DURING THE ELECTRICAL
DISTRIBUTION SYSTEM FUNCTIONAL INSPECTION
HOPE CREEK GENERATING STATION
OPERATING LICENSE NO. NPF-57

The Nuclear Regulatory Commission conducted an inspection of the electrical distribution system at the Hope Creek Generating Station from January 13 to February 14, 1992. During this inspection the NRC raised several unresolved items that were identified to Public Service Electric and Gas (PSE&G) at the February 14, 1992 exit meeting. Per Mr. L. Cheung's request, PSE&G is providing the attached additional information in regard to these unresolved items and potential violations.

If you have any questions regarding this information, please contact us.

Sincerely,


Richard N. Swanson
General Manager -
Engineering and
Plant Betterment

Attachment

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The Energy People

C Mr. T. Martin, Administrator - Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
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Mr. S. Dembek, Licensing Project Manager - Hope Creek
U. S. Nuclear Regulatory Commission
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Mr. T. Johnson (S09)
Senior Resident Inspector

Mr. L. Cheung, Region I, EDSFI Team Leader
U. S. Nuclear Regulatory Commission
475 Allendale Road
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Mr. Kent Tosch, Chief
New Jersey Department of Environmental Protection
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Attachment to NLR-N92022

This attachment provides additional information in regards to items identified during the Hope Creek Electrical Distribution System Functional Inspection (EDSFI).

POTENTIAL VIOLATION 1

NRC:

The acceptance criteria for the 125 VDC and 250 VDC Class 1E Batteries 18-month surveillance test allows for the acceptance of voltages down to 105 VDC and 210 VDC. These acceptance levels may not be sufficient to provide the loads with the necessary voltage levels needed for operation.

PSE&G:

Surveillance test results indicate that voltage levels at the battery terminals are above the values currently used in the voltage drop calculation. PSE&G will review the existing voltage drop calculation and the minimum acceptable voltage to components. The intention of this review will be to demonstrate that existing battery test acceptance criteria do in fact meet the voltage requirements of the associated components. PSE&G will notify the NRC by March 13, 1992 with the results of this review.

POTENTIAL VIOLATION 2

NRC:

During pre-surveillance maintenance of the Emergency Diesel Generators (EDG), the EDGs do not appear capable of responding to an automatic start signal. During this period of time the EDG should be declared inoperable and an LCO should be entered. Hope Creek does not declare the EDGs inoperable.

PSE&G:

Hope Creek personnel have contacted eleven plants to ascertain their practice concerning LCO entry for EDG pre-surveillance maintenance and other similar testing. Of these eleven plants, ten employed the same practice as Hope Creek for these cases. PSE&G believes that our practice of not declaring the EDGs inoperable while performing the required testing, with operators attending the equipment, is

consistent with normal industry practices. The following information provides a summary of the actions taken to address this concern.

In accordance with vendor recommended practices, Hope Creek performs pre-surveillance maintenance (i.e., barring over of the engine with air to remove accumulated moisture from the cylinders prior to running the diesel). Hope Creek considers that performance of the pre-surveillance maintenance is important since it minimizes the potential for severely damaging an EDG prior to all planned runs.

Hope Creek will enhance our procedures and training to highlight the importance of expediting the pre-surveillance maintenance of the EDG. Specifically, the intent of following steps will be added as a requirement for the pre-surveillance maintenance.

1. Before proceeding with the pre-surveillance maintenance notify the SNSS/NSS/NCO that these steps will prevent the EDG from starting.
2. The NCO shall record the start time and completion time of these steps in the NCO Narrative Log.
3. While performing these steps, at least one qualified operator shall remain in the room on elevation 102 with the affected EDG prepared to restore the original configuration if called upon by the control room operators.
4. These steps should be performed as expeditiously as possible. The objective is to perform these steps within approximately 15 minutes.
5. If a delay is encountered while performing these steps, the SNSS/NSS/NCO shall be advised so they can direct the restoration of the original configuration until the reason for the delay is resolved.

This will be covered in our operator requalification training for both our licensed operators (RO and SRO) and non-licensed operators (Equipment Operators).

In addition to the above, PSE&G does control the scheduling of work activities, such as surveillance testing of EDGs, to minimize instances when a surveillance test is performed on

an EDG while redundant safety equipment in other channels are inoperable. Specifically, paragraph 5.5.1.a of NC.NA-AP.ZZ-0009(Q), "Work Control Process" states:

"Maintenance shall be scheduled so as not to jeopardize the safety of the reactor. Scheduling section personnel shall consider the possible safety consequences of concurrent or sequential maintenance testing or operations activities."

This practice will be emphasized with the Hope Creek scheduling section with regards to the EDG pre-surveillance maintenance.

PSE&G considers that the procedures presently in place, the procedure enhancements discussed above, and its resultant training adequately addresses this concern. PSE&G is also evaluating the need for a technical specification change in regard to diesel generator testing.

POTENTIAL DEVIATION 1

NRC:

Emergency Diesel Generator (EDG) Day Tank Pump start level: Section 9.5.4.2.1 of the Hope Creek Generating Station (HCGS) Updated Final Safety Analysis Report (UFSAR) states that the fuel oil storage system is sized in accordance with the requirements of Regulatory Guide (RG) 1.137. RG 1.137 references ANSI Standard 195 - 1976 which effectively requires 66 minutes of fuel supply from the transfer pump start level. The current transfer pump start level provides for 47 minutes of operation.

PSE&G:

PSE&G Engineering will recalculate the transfer pump start setpoint to meet the ANSI requirement for 66 minutes of operation from transfer pump start. These changes will be implemented via a design change package no later than the end of the fourth refueling outage which is currently scheduled for September of 1992.

POTENTIAL DEVIATION 2

NRC:

Emergency Diesel Generator Load Sequencer Testing: Section 1.8.1.9 of the Hope Creek Generating Station (HCGS) Updated Final Safety Analysis Report (UFSAR) states that HCGS complies with Regulatory Guide 1.9 and IEEE 387-1977. Paragraph 6.6 of IEEE 387 states that verification of continued capability of the EDG should be demonstrated. The 18-month surveillance test procedure does not demonstrate the sequence of loads initiated by the load sequencer.

PSE&G:

HCGS will revise procedures HC.OP-ST.KJ-005, 6, 7, 8: "Integrated Emergency Diesel Generator 1/ABCD/-G-400 Test". This revision will provide the steps necessary to demonstrate that dynamic loading complies with UFSAR section 1.8.1.9. This will be completed before the next scheduled 18-month surveillance test.

UNRESOLVED ISSUE 1

NRC:

During the slow transfer scheme the possibility exists that a "flip-flop" condition may occur when loading the 4.16 KV buses with Loss of Coolant Accident (LOCA) loads. The voltage level of the bus could dip below the setpoint of the undervoltage relay and could only recover to 1% above the pick up point of the relay before a transfer of the bus would be initiated.

PSE&G:

The original degraded grid/load flow computer study was performed using Bechtel proprietary software no longer available to PSE&G. PSE&G will remodel the existing degraded grid/load flow computer study to more precisely ascertain recovery voltages for starting transients. A review of our infeed breaker, emergency diesel generator breaker, diesel start, and emergency load sequencer logic will be performed to determine if the postulated "flip-flop" scenario is valid. The completion date of these activities is currently scheduled for May 29, 1992. At this time a determination will be made if any corrective actions are warranted and/or if the compensatory measures taken to date

may be removed. These compensatory measures (closure of the auto close block push button for the closed breaker and night orders to clarify operator actions) were previously discussed with the NRC inspection team and agreed upon during a February 13, 1992 meeting.

UNRESOLVED ISSUE 2

NRC:

The cable leads from emergency diesel generators (EDG) "A", "B", and "C" appear to exhibit some deformation. The lead for "B" EDG has been determined to have the greatest potential deformation by visual inspection.

PSE&G:

PSE&G Engineering has issued an evaluation concluding that based on the components involved, there is very little chance that the leads are deformed. The cable lead of the "B" EDG will be inspected during the March 1992 outage. Acceptance criteria to evaluate the integrity of the cable insulation will be developed prior to the inspection. Based upon the findings of the "B" EDG cable inspection, the need for an action plan and schedule will be assessed for "A" and "C" EDGs.

UNRESOLVED ISSUE 3

NRC:

Testing of the Emergency Diesel Generators (EDG) does not include KVAR loading.

PSE&G:

PSE&G will start loading the EDGs to a power factor of 0.85 at full load (i.e. include KVAR loading) during the surveillance testing starting April 1992. The existing diesel generator load calculation will be revised to add exact VAR loading requirements. Since it is expected that the calculation will result in a power factor in the 0.85 to 0.90 range, use of a 0.85 power factor in the surveillance testing is conservative. Revision of the diesel generator load calculation will be complete by July 30, 1992. Based upon the results of the load calculation revision, the surveillance test may be revised to reflect actual KVAR loading.

UNRESOLVED ISSUE 4

NRC:

Addition of new emergency diesel generator (EDG) fuel oil to the EDG fuel oil storage tanks before all Technical Specification test results are available and reviewed.

PSE&G:

Hope Creek Technical Specification 4.8.1.1.2.f.2 & 3 allows for one and two weeks, respectively to obtain results of fuel oil analysis testing. Hope Creek intends to add the fuel oil to our EDG fuel oil storage tanks after we have the results of these tests showing that the oil meets the specifications. PSE&G is currently in the process of evaluating the best method to implement this requirement. After this evaluation is complete, the process will be administratively controlled via procedures.

UNRESOLVED ISSUE 5

NRC:

During the 1986 Preoperational Testing for the Emergency Diesel Generator (EDG), PTP-BB-3(Part A), several acceptance criteria were not met and no documentation could be provided to determine if this situation had been corrected.

PSE&G:

Hope Creek will evaluate the 22 exceptions listed in the EDG preoperational test and take appropriate corrective actions. PSE&G will complete this evaluation by September 30, 1992, at which time, the evaluation results will be available for NRC review.

UNRESOLVED ISSUE 6

NRC:

Perform testing to demonstrate acceptability of computer analysis for the fast bus transfer scheme.

PSE&G:

PSE&G Engineering is developing a data gathering test to be implemented at Hope Creek's next refueling outage for the purpose of verifying the results of our computer model with actual test data. This test will include voltages, phase

angle, and time during transfers along with a determination of the exact loading of the electrical distribution system prior to the transfer. This data will be collated and fed back through the existing computer model to verify similar results to those obtained by the test in order to confirm the validity of the model. This comparison will be complete within 2 months of the completion of the refueling outage.

UNRESOLVED ISSUE 7

NRC:

Several undervoltage relays on the 125 VDC system are not being adequately tested or maintained.

PSE&G:

These relays are identified on current vendor drawings. An evaluation will be performed to determine if current maintenance performed (i.e., cleaning and inspecting) should be enhanced or if the identified relays should be removed. If it is determined that increased maintenance of these relays is warranted, this increased maintenance will be initiated by the end of 1992. If it is determined that these relays are to be removed, a design change will be initiated by June of 1992. The design change will then be evaluated in accordance with Nuclear Department procedures to determine the safety and operability significance of this change and will be appropriately scheduled for implementation.

UNRESOLVED ISSUE 8

NRC:

No evidence exists that EDG maintenance matches (Colt Industries) SIL C.4 for shaft currents in accordance with the manufacturers recommendations

PSE&G:

PSE&G is presently revising procedure HC.MD.KJ-005 to incorporate Colt Industries SIL C.4. The testing of the shaft/bearing insulation will be fully implemented by the end of the fourth refueling outage beginning in September of 1992.

UNRESOLVED ISSUE 9

NRC:

The emergency diesel generator (EDG) exhaust piping from the crankcase to the atmosphere is not seismically qualified.

PSE&G:

PSE&G is currently evaluating the specific issues that need to be addressed to resolve this concern. A schedule for completion of activities necessary to resolve this concern will be developed by March 31, 1992.

UNRESOLVED ISSUE 10

NRC:

Revise the Degraded Grid Voltage Study, Calculation E15.1 to ensure proper voltage levels are available at the 480 V buses.

PSE&G:

PSE&G will revise the degraded grid study by May 29, 1992 as indicated in response to unresolved issue 1. Based upon the results of the revision to degraded grid study, other calculations may require reconfirmation or revision. If it is determined that these calculations do in fact need to be reconfirmed or revised, PSE&G will establish by June 30, 1992, a schedule for completion of this activity .