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Electric and Gas
Company

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NOV 19 1992

NLR-N92153

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

EMERGENCY DIESEL GENERATOR FUEL OIL
STORAGE TANKS AND DAY TANKS
HOPE CREEK GENERATING STATION
DOCKET NO. 50-354

Public Service Electric and Gas (PSE&G) is revising our response to Notice of Deviations 50-354/92-80-05 and 50-354/92-80-06, involving the emergency diesel generator fuel oil storage tank capacity and fuel oil transfer pump start level, transmitted as Appendix A of the "Electrical Distribution System Functional Inspection of Hope Creek Generating Station," (Inspection Report No. 50-354/92-80). As discussed with Mr. J. Stone of NRR and Mr. L. Cheung of Region I, PSE&G has further evaluated our response to the above deviations and believes that revising our commitments as described in the following attachment will provide a greater margin of safety than complying with our initial response transmitted in our letter dated July 10, 1992 (NLR-N92094). In order to revise our response to these deviations, PSE&G is requesting relief from the requirements of Standard Review Plan Section 9.5.4 paragraph I.1.d and Regulatory Guide 1.137 Revision 1 (ANSI N195-1975 Section 6.1) as committed to in the Hope Creek Updated Final Safety Analysis Report. PSE&G has completed a no significant hazards consideration evaluation in accordance with 10 CFR 50.92 for these commitment changes.

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

Sincerely,



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Attachment (1)

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ATTACHMENT

NLR-N92153
Hope Creek Generating Station
Docket No. 50-354

On May 28, 1992, the NRC issued Inspection Report No. 50-354/92-80, "Electrical Distribution System Functional Inspection of Hope Creek Generating Station." Appendix A of this report transmitted, in part, the following Notice of Deviations as stated below:

Deviation 1

"Hope Creek UFSAR, paragraphs 9.5.4.2 and 1.8.1.137 indicate that the Emergency Diesel Generator (EDG) fuel oil storage system is sized in accordance with the requirements of Regulatory Guide 1.137, Revision 1, which in turn refers to ANSI Standard N195-1976. This standard requires the day tank capacity for each EDG to be sufficient to maintain at least 60 minutes of EDG operation at the level where fuel oil is automatically added. This capacity is to be based on the fuel consumption at a load of 100% of the continuous rating of the diesel plus a minimum margin of 10%.

Contrary to the above, on February 14, 1992, there was no evidence that the EDG day tank capacities meet the above commitment. The license estimated the day tank capacities to be about 47 minutes."

Deviation 2

"Hope Creek UFSAR, paragraph 9.5.4, states that each set of storage tanks can store a quantity of diesel fuel oil that is sufficient for 7 days of continuous operation of one EDG unit under rated full operating loads as described in EDG loading tables 8.3-2 through 8.3-6.

Contrary to the above, calculation JE-0014 dated January 27, 1992, indicates insufficient fuel oil reserves for 7 days (a combined shortage of 5579 gallons) of continuous worst case EDG loading based on the basis of segregated channel storage."

On July 10, 1992, PSE&G responded to these above deviations as follows:

Deviation 1

PSE&G will revise the start setpoint of the EDG fuel oil transfer pumps to meet the requirement of ANSI N195-1976

section 6.1. This setpoint change will be implemented via a design change package no later than the end of the fourth refueling outage. PSE&G will also submit a change to the Technical Specifications to revise the minimum EDG fuel oil day tank level to correspond with the revised setpoint.

Deviation 2

PSE&G is currently reviewing the load tables (8.3-2 to 8.3-6) in the Hope Creek UFSAR against Emergency Operating Procedures to determine the actual loads required in the one hour to seven day time period following a design basis accident. Upon completion of this review, the load tables in the UFSAR will be revised and the required diesel fuel oil storage capacity will be recalculated using the new load tables. Revision of the UFSAR load tables will be completed by October 1, 1992. PSE&G believes that recalculating the required fuel oil storage capacity based on the revised load tables should demonstrate that there is sufficient fuel oil to power engineered safety feature loads for seven days following a loss of offsite power concurrent with a design basis accident.

PSE&G proposes the following corrective actions in lieu of our previous response:

Deviation 1

The Hope Creek Generating Station (HCGS) EDG fuel oil storage and transfer system is designed as Class 1E and seismic category I. HCGS has 4 EDGs with two separate fuel oil storage tanks supplying fuel oil for each individual EDG. There are two fuel oil transfer pumps to supply the single day tank for each EDG. The fuel oil transfer pump logic is designed to alternate the starting of the transfer pumps when filling the EDG day tanks. This logic also provides a start signal to the alternate transfer pump upon receipt of the EDG day tank low level alarm in the event that the designated transfer pump fails to start.

The Hope Creek UFSAR states that HCGS complies with Regulatory Guide 1.137, Rev. 1. Regulatory Position C.1 of Regulatory Guide 1.137, Rev. 1, endorses ANSI N195-1976 as "an acceptable method for complying with the pertinent requirements of General Design Criteria 17 of Appendix A to 10 CFR 50...". ANSI Standard N195-1976, Section 6.1 states that, "each diesel shall be equipped with day or integral tank or tanks whose capacity is sufficient to maintain at least 60 minutes of operation at the level where oil is automatically added to the day or integral tank...".

The Hope Creek EDG fuel oil day tanks have a total capacity of 550 gallons. In order to meet the requirements of ANSI Standard N195-1976, section 6.1, the transfer pump start level would have to be raised from its current level of 248 gallons to a new level of 422 gallons. Increasing the transfer pump start level to this point would increase the cycling of the pump by over seven times and increase the probability of pump motor failure.

PSE&G believes that the increased cycling of the pump would significantly increase the component degradation of the switches and cabling (i.e., increased maintenance, early component replacement) beyond the benefit gained from raising the transfer pump start level. Instead of raising the fuel oil transfer pump start level to this 422 gallon level, PSE&G proposes to revise the HCGS UFSAR to take exception to Regulatory Guide 1.137, Rev. 1 as follows:

Administrative controls will be established to ensure that the EDG day tanks are filled to at least 422 gallons of fuel oil following operation of an EDG. This level of fuel oil will be reverified during daily operator rounds.

PSE&G has, pursuant to 10 CFR 50.92, reviewed the proposed licensing commitment changes to determine whether our request involves a significant hazards consideration. We have determined that operation of the Hope Creek Generating Station in accordance with the proposed changes:

1. Will not involve a significant increase in the probability or consequences of an accident previously evaluated.

Having the fuel oil transfer pump start level set below 66 minutes does not increase the probability of an accident since the fuel oil transfer pumps have the ability to increase the day tank level while the EDGs are running. Loss of a EDG fuel oil day tank or loss of inventory in the day tank is bounded by the analysis for the loss of an EDG during a design basis accident. PSE&G has demonstrated that the Hope Creek Generating Station has the ability to shut the plant down and maintain the plant in safe shutdown in the event of a Loss of Offsite Power concurrent with a design base accident with the loss of one EDG (refer to UFSAR Section 8.3.1.1.3).

2. Will not create the possibility of a new or different kind of accident from any accident previously evaluated.

Loss of level in the EDG fuel oil day tank is bounded by a loss of the EDG. PSE&G has previously demonstrated that the Hope Creek Generating Station has the ability to shut the plant down and maintain the plant in safe shutdown in the event of a Loss of Offsite Power concurrent with a design basis accident with the loss of one EDG (refer to UFSAR Section 8.3.1.1.3).

3. Will not involve a significant reduction in a margin of safety.

Having the EDG fuel oil transfer pump start level set below the ANSI N195-1976 level of 66 minutes will not reduce the margin of safety since the fuel oil transfer pumps have the ability to increase the EDG day tank level while the EDG is running.

The EDG fuel oil transfer pump logic is designed to start the alternate transfer pump upon receipt of a low level alarm in the day tank if the designated transfer pump does not start. This design precludes the loss of one transfer pump from causing the loss of fuel oil inventory to the EDG.

PSE&G has also demonstrated the ability to shutdown and maintain HCGS in safe shutdown with the loss of one EDG during a design basis accident concurrent with a loss of offsite power (refer to UFSAR Section 8.3.1.1.3). Loss of a EDG bounds the complete loss of fuel oil inventory in the EDG day tanks.

PSE&G believes that these administrative controls meet the intent of Regulatory Guide 1.137, Revision 1 and therefore Hope Creek Generating Station complies with 10 CFR 50 Appendix A General Design Criteria 17.

Deviation 2

PSE&G committed in the Hope Creek UFSAR to size the EDG fuel oil storage system in accordance with the Standard Review Plan (SRP) section 9.5.4, and Regulatory Guide 1.137. The SRP states that "a minimum of seven days' supply of fuel oil, for each redundant diesel generator system, has been provided onsite to meet the engineered safety feature load requirements following a loss of offsite power and a design basis accident." Regulatory Guide 1.137 states that "the design of fuel-oil systems for diesel generators that provide standby electrical power for a nuclear power plant that are included in ANSI N195-1976 provide a method acceptable to the NRC staff for complying with the pertinent

requirements of General Design Criterion 17 of Appendix A to 10 CFR Part 50." ANSI N195-1976 section 5.2 states, "the on-site oil storage shall be sufficient to operate the minimum number of diesel-generators following the limiting design basis accident (DBA) for either seven days, or the time required to replenish the oil from sources outside the plant site following any limiting design-basis event without interrupting the operation of the diesel, whichever is longer."

Calculation JE-0015 was performed by PSE&G to determine the fuel oil storage capacity for the Hope Creek EDGs. This calculation was based on the time dependent loads listed in Tables 8.3-2 to 8.3-6 of the Hope Creek UFSAR. It was determined that the worst case consumption of fuel oil would occur in the case of a loss of offsite power with a DBA and the loss of the D EDG. PSE&G calculated the onsite storage capacity would be capable of providing 6 days 16.6 hours of operation, including the 10% margin required by the ANSI standard, if no credit is taken for the fuel oil of the idle diesel generator. If credit is taken for transferring fuel oil from the idle EDG, PSE&G has calculated that there is sufficient fuel oil on-site for 7 days.

PSE&G committed to review the EDG load tables in the Hope Creek UFSAR against the Emergency Operating Procedures (EOPs) to determine the actual loads on the EDGs for the 60 minute to 7 day time period. In the process of reviewing the EOPs, PSE&G has determined that there are more safety benefits for leaving the operations personnel with the ability to load non-safety related loads on the EDGs in accordance with the current EOPs than to limit the operators' flexibility.

In order to provide the operators the flexibility to load non-class 1E loads during post accident conditions, PSE&G requests that the NRC provide relief from the following HCGS UFSAR commitment.

HCGS UFSAR Section 9.5.4.2 states that the "SDG fuel oil storage system is sized in accordance with the requirements of Standard Review Plan Section 9.5.4....".

PSE&G proposes to revise the HCGS UFSAR to state that the fuel oil storage system is designed in accordance with regulatory Guide 1.137, Revision 1 which refers to ANSI N195-1976. Procedures will be revised to initiate actions necessary to transfer fuel oil from the idle EDG storage tanks to the operating EDGs to ensure for a continuous 7-day supply in the event of an extended loss of offsite power event.

PSE&G has, pursuant to 10 CFR 50.92, reviewed the proposed licensing commitment changes to determine whether our request involves a significant hazards consideration. We have determined that operation of the Hope Creek Generating Station in accordance with the proposed changes:

1. Will not involve a significant increase in the probability or consequences of an accident previously evaluated.

Since the EDGs are used to mitigate the consequences of an accident, transferring fuel oil from one tank to another will not increase the probability of an accident. With the ability to transfer fuel oil from the idle EDG, Hope Creek Generating Station has sufficient EDG fuel oil capacity in seismic category I tanks to operate the EDGs for seven days in the event of a DBA concurrent with the loss of offsite power in accordance with Regulatory Guide 1.137, Revision 1.

2. Will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The transfer of EDG fuel oil from one tank to another will only occur during long term accident mitigation and therefore does not create the possibility of a new or different kind of accident.

3. Will not involve a significant reduction in a margin of safety.

The EDG onsite fuel oil storage tanks are seismic category I. The eight EDG fuel oil storage tanks at HCGS hold a supply of fuel oil that is sufficient to supply the EDGs for 7 days of operation following a loss of offsite power event concurrent with a design basis accident. In response to NRC PSAR Question 430.88, PSE&G evaluated the ability to refuel the EDG fuel oil storage tanks within the seven day time period under severe weather conditions. This evaluation states that while extremely adverse wind, weather and tidal conditions at the Hope Creek Site could interfere with diesel oil delivery for approximately 24-36 hours, it would be a very improbable situation that would preclude delivery by truck or barge for as long as 60 hours. During normal weather conditions the delivery of fuel oil takes approximately 1 - 2 days from placing an

order to receiving the oil onsite. Since Hope Creek has the ability to refuel the EDG within the seven day fuel supply, there is no reduction in the margin of safety.

With the ability to transfer fuel oil from one seismic category I EDG fuel oil storage tank to another, PSE&G has sufficient capacity onsite to provide for seven days of continuous operation of the EDGs during the worst case design basis accident concurrent with a loss of offsite power. Having seven days of fuel oil onsite meets the requirements of Regulatory Guide 1.137, Revision 1, and therefore Hope Creek Generating Station complies with 10 CFR 50 Appendix A, General Design Criteria 17.