Public Service
Electric and Gas
Company

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LR-N96008
LCR H96-02

United States Nuclear Regulatory Commission
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Washington, DC 20555

Gentlemen:

LICENSE AMENDMENT APPLICATION
REVISION OF DIESEL FUEL OIL STORAGE AND TRANSFER REQUIREMENTS
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354

In accordance with 10CFR50.90, Public Service Electric and Gas Company (PSE&G) hereby submits an application for amendment to Appendix A of Facility Operating License NPF-57 for the Hope Creek Generating Station. Pursuant to the requirements of 10CFR50.91(b)(1), a copy of this request for amendment has been sent to the State of New Jersey.

The proposed Technical Specification (TS) change contained herein represents a change to the minimum available fuel oil in the Emergency Diesel Generator Fuel Oil Storage Tanks and adds specific operability conditions on the fuel oil transfer pumps.

The Electric Distribution System Function Inspection (EDSFI) performed at Hope Creek identified a concern with the 7 day supply requirement of fuel oil storage capacity for the worst case loaded Diesel Generator. Amendment 59 (issued by the NRC on November 22, 1993) credited the ability to transfer diesel fuel oil between storage tanks in order to demonstrate compliance with the 7 day on site stored fuel oil supply specified in Regulatory Guide 1.137. However, Amendment 59 did not address the small volume of fuel available between the tank maximum level and the TS minimum value.

Currently, the volume difference between the fuel oil storage tank high and low level alarm setpoints, including switch resets, is approximately 1600 gallons. The low level alarm setpoint is above the TS minimum value due to uncertainties in the analog instrument. The change to the storage tank minimum level is necessitated since the small volume available between the

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high and low alarms, considering all instrument uncertainties, requires frequent refilling of the storage tank. The need to ensure complete sampling results are obtained before refilling a storage tank in conjunction with the frequent refillings places a burden on plant personnel and unnecessarily diverts resources.

The addition of operability conditions for the fuel oil transfer pumps is necessary to address the unique redundancy provided by the Hope Creek Fuel Oil Transfer System.

The proposed change has been evaluated in accordance with 10CFR50.91(a)(1), using the criteria in 10CFR50.92(c), and it has been determined that this request involves no significant hazards considerations.

A description of the requested amendment, supporting information and analyses for the change, and the basis for a no significant hazards consideration determination are provided in Attachment 1. The Technical Specification page affected by the proposed change is provided in Attachment 2 with pen and ink changes. Supporting figures are provided in Attachment 3.

PSE&G requests that the amendment be made effective on the date of issuance by the NRC, but allow implementation to be delayed up to 90 days to enable the alarm setpoint Design Change Package, as well as other administrative functions to be completed.

Should you have any questions regarding this request, we will be pleased to discuss them with you.

Sincerely,

Affidavit
Attachments (3)

C Mr. T. T. Martin, Administrator - Region I
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STATE OF NEW JERSEY)
) SS.
COUNTY OF SALEM)

L. F. Storz, being duly sworn according to law deposes and says:

I am Senior Vice President - Nuclear Operations of Public Service Electric and Gas Company, and as such, I find the matters set forth in the above referenced letter, concerning the Hope Creek Generating Station, are true to the best of my knowledge, information and belief.

Louis F. Storz

Subscribed and Sworn to before me
this 6th day of March, 1996

Kimberly Jo Brown
Notary Public of New Jersey

KIMBERLY JO BROWN
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires April 21, 1998

My Commission expires on _____

ATTACHMENT 1
PROPOSED TECHNICAL SPECIFICATION CHANGES

LICENSE AMENDMENT APPLICATION
REVISION OF DIESEL FUEL OIL STORAGE
AND TRANSFER REQUIREMENTS
HOPE CREEK GENERATING STATION **LR-N96008**
FACILITY OPERATING LICENSE NO. NPF-57 **LCR H96-02**
DOCKET NO. 50-354

BASIS FOR CHANGE REQUEST

Background

TANK LEVEL

The Electric Distribution System Function Inspection (EDSFI) performed at Hope Creek identified a concern with the 7 day supply requirement of fuel oil storage capacity for the worst case loaded Diesel Generator. Amendment 59 (issued by the NRC on November 22, 1993) credited the ability to transfer diesel fuel oil between storage tanks in order to demonstrate compliance with the 7 day on site stored fuel oil supply specified in Regulatory Guide 1.137. By using this transfer strategy, the fuel oil in the storage tanks of an inoperable EDG could be used to augment the supply to the other EDGs. Since this could be done without any off-site fuel oil supply, the intent of Regulatory Guide 1.137 is met.

Currently, the volume difference between the fuel oil storage tank high and low level alarm setpoints, including switch resets, is approximately 1600 gallons. The low alarm setpoint is above the TS minimum value due to uncertainties in the analog instrument. With one transfer pump inoperable, working (available) volume of 1600 gallons provides as little as 4 hours of EDG run time. Good operating practice requires refilling the tank prior to receipt of the low level alarm. Due to this practice, the available run time is usually less than 4 hours. The small volume above the low level alarm requires refilling the storage tank virtually every other time the EDG is run for surveillance testing.

Although the small upper tank band (TS minimum level to tank overflow) in the storage tank had been an operating nuisance for several years, Amendment 59 did not address the small available volume issue. Compounding the chronic small available volume issue is a more stringent fuel oil sampling program and a

recently applied conservatism in the low level alarm setpoint that accounts for uncertainties in the storage tank level instrumentation. Replacement of the level instrumentation is not considered cost effective.

In order to ensure that replenishment to above the existing minimum level can be effected within 48 hours (as provided in footnote ** of TS 3.8.1.1.b.2) with fuel meeting the EDG specifications, a fuel oil tanker truck is maintained on site at all times. This incurs a significant monthly charge for the tanker as well as requiring the use of several Operations personnel to manually transfer fuel from the tanker to the affected storage tank(s).

The proposed, lower, minimum value will permit normal replenishment of the storage tanks approximately once per quarter. By eliminating the semi-permanent tanker truck and frequent fuel oil transfers, resources can be applied to more critical issues.

TRANSFER PUMP ACTION STATEMENT

The existing EDG TS were developed from Standard Technical Specifications for Boiling Water Reactors, GE-STS (BWR/4). The STS was developed assuming each plant had a "typical" fuel oil storage system with only one transfer pump per EDG and did not address the unique Hope Creek configuration utilizing two 100% capacity transfer pumps for each EDG. As such, the STS provided no compensatory action if a transfer pump is inoperable. For the "typical" STS design with a single transfer pump inoperable, the EDG is declared inoperable. This was carried forward in the original Hope Creek TS.

Existing TSs do not recognize the plant unique redundancy provided by the Hope Creek Fuel Oil Transfer System and do not provide specific action in the EDG LCOs if one of the two 100% capacity pumps is inoperable. The TS requires declaring the EDG inoperable when either one of the two 100% capacity pumps is inoperable. The exclusion of Hope Creek's redundant design in the LCO creates unnecessary entrance to existing EDG LCO action statements and results in unnecessary and excessive running of the operable EDGs.

Requested Change

The proposed change ensures the required quantity of stored diesel fuel oil provides a minimum of 7 days on site supply without the necessity of replenishment from outside sources as specified in Regulatory Guide 1.137. This has not changed from the current condition. The new volume specified for each diesel generator includes an allowance to transfer from fuel oil storage tank(s) with excess storage capacity as provided in Amendment 59.

Hope Creek Technical Specifications (TS) 3.8.1.1.b.2 and 3.8.1.2.b.2 are to be revised to change 48,800 gallons of stored fuel oil per diesel generator to 44,800 gallons. In addition, footnote ** is deleted from TS 3.8.1.1.b.2.

The proposed change also takes appropriate credit for the redundancy in the fuel oil transfer system and provides applicable action without having to immediately declare the EDG inoperable, should a redundant transfer pump be inoperable.

The following ACTION statement is added to TS 3.8.1.1 and 3.8.1.2:

With one fuel oil transfer pump inoperable, realign the flowpath of the affected tank to the tank with the remaining operable fuel oil transfer pump within 48 hours and restore the inoperable transfer pump to operable status within 14 days, otherwise declare the affected emergency diesel generator inoperable. This variance may be applied to only one EDG at a time.

Basis

TANK LEVEL

The proposed change utilizes the transfer approach approved in Amendment 59 to ensure the seven day fuel oil supply for all operable EDGs is maintained while a lower TS value for individual EDG tank storage is specified.

The fuel oil storage consists of four pairs of seismically qualified storage tanks; one pair for each EDG. Each pair of tanks was intended to provide a seven day supply of fuel oil for the associated EDG.

The requirement that this seven day supply be available on site is to preclude interruption of fuel oil to the running EDGs in the event that access to the site is restricted. This requirement for a seven day supply is contained in Regulatory Guide 1.137 and committed to in Hope Creek UFSAR Section 1.8.1.137.

Fuel consumption calculations have been performed to establish worst case volume requirements for a given Diesel Generator for seven days. No credit is taken for the 360 gallons of fuel oil in each of the 4 day tanks. In reviewing the fuel consumption requirements, two cases were considered: (1) Four EDGs operating for seven days, and (2) Three EDGs running for seven days (single failure).

Case 1: Four EDGs operating for seven days

Updated fuel oil consumption calculations demonstrate that a maximum of 161,514 gallons (including 10% additional margin as recommended by ANSI N195-1976) is required to fuel the four diesel generators for seven days. Utilizing transfer between tanks, with four EDGs available, the aggregate power requirements can be met with a minimum average of 40,379 gallons in each pair of fuel oil storage tanks. The worst case (most heavily loaded) EDG requires 49,148 gallons to operate for seven days. The remaining EDGs are more lightly loaded and require significantly less fuel oil. With a proposed minimum capacity of 44,800 gallons in each pair of tanks, transfer to the most heavily loaded EDG would be required in 6 days, 9 hours. With 4 EDGs running, this transfer can be performed with permanently installed electrical equipment using normal operating procedures. Temporary hoses may be required if the non-seismic interconnecting piping were to, simultaneously, fail from a seismic event. Crediting the use of temporary jumpers to effect the transfer was deemed acceptable per Amendment 59.

Case 2: Three EDGs running for seven days (single failure)

Based on a single EDG inoperable and uneven loading on the three remaining EDGs, the seven day fuel requirement must be met for the worst case EDG. This worst case requirement is 52,097 gallons for a single pair of fuel oil storage tanks. With credit for transfer between the pair of storage tanks on the inoperable EDG and the storage tanks of the operable diesel generators, the

aggregate power requirements can be met with a minimum average of 38,520 gallons in each pair of tanks. In this instance, temporary electrical and mechanical jumpers may be required to effect the transfer.

With a minimum of 44,800 gallons in each pair of tanks, there is a minimum (worst case; one EDG inoperable) supply to provide six days and 0.5 hours uninterrupted diesel generator service for the three operable EDGs even without utilizing the transfer option. One of the three operable EDGs would run for at least seven days with no transfer.

In response to NRC FSAR Question 430.88, PSE&G evaluated the ability to refuel the EDG storage tanks under severe weather conditions. It was deemed a very improbable situation that would preclude delivery by truck or barge for as long as 60 hours. During the recovery from the severe weather necessary fuel oil quality verification could be expedited to allow refilling the EDG storage tanks within a few hours from arrival of the truck or barge.

There is approximately 250,000 gallons of #2 heating fuel oil normally available on site in the heating boiler bulk storage tank. The stored fuel oil is compatible with EDG fuel oil, although this tank is not normally used for EDG use. Although this tank is not seismically qualified it could be expected to be available as a source, using temporary transfer piping and pumps, for non-seismic events. No credit is taken for this tank in the basis for the proposed change.

Since the proposed capacity provides adequate working volume to allow less frequent replenishment, the existing ** footnote providing a temporary variance below 48,800 gallons is deleted.

TRANSFER PUMP ACTION STATEMENT

In accordance with ANSI N195-1976 the Hope Creek fuel oil system is designed such that "a single failure will not result in the loss of minimum diesel generator capacity" even with one pump on each diesel generator inoperable. The proposed change will allow restoration of an inoperable fuel oil transfer pump in a reasonable time frame without declaring the affected EDG inoperable. The proposed action of valving in the other fuel oil storage tank will ensure a 7 day fuel oil supply is available to the remaining operable transfer pump of the affected EDG.

The fuel oil transfer system at Hope Creek consists of two dedicated fuel oil storage tanks for each EDG. Each storage tank is provided with a dedicated 100% capacity transfer pump. Both transfer pumps discharge, via separate headers, to the EDG day tank. The storage tanks can be cross-connected via installed, seismically qualified piping through normally closed valves (see Figure 1, Attachment 3).

This configuration provides redundancy of transfer pumps not described in the "typical" system addressed in ANSI N195-1976 "Fuel Oil Systems for Standby Diesel-Generators" (see Figure 2, Attachment 3).

With one transfer pump inoperable, the only affect on operability of the affected EDG is a long-term issue of satisfying a seven day fuel oil supply to the affected EDG. In this instance, the two tanks must be cross connected to ensure the remaining transfer pump has the necessary seven day fuel oil supply available. With a minimum of a three day supply in each tank, operator action is not required for three days. The proposed action is to cross-connect the two tanks within 48 hours, well within the time available from one tank's supply. The 14 day allowed outage time for a single transfer pump is consistent with other support-type systems/components and is shown to be acceptable in a probabilistic safety assessment.

With one transfer pump inoperable, and considering an additional failure of the remaining pump, there is still adequate EDG capacity (three remaining EDGs) to ensure safe shutdown capability without further operator action. In addition, the discharge of the transfer pumps on the unaffected EDGs can be manually cross-connected to the affected EDG's day tank via normally closed valves. This would provide adequate transfer capability to maintain four EDGs available with two inoperable transfer pumps on a single EDG. Since the day tank provides approximately one hour supply at full load, operator action to maintain four EDGs available with two inoperable transfer pumps on the affected EDG is not required for at least one hour. If necessary, transfer of fuel oil from the storage tanks with inoperable fuel oil transfer pumps to the other EDGs' storage tanks can still be effected using temporary hoses as discussed in Amendment 59.

Conclusion

TANK LEVEL

The proposed reduction of TS 3.8.1.1.b.2 from 48,800 to 44,800 gallons will still provide a seven day supply for required uninterrupted EDG operation. In the worst case, with one EDG inoperable, credit is taken for transferring a minimum of 7,297 gallons from available excess storage tank capacity to the most heavily loaded diesel generator storage tank within six days and 0.5 hours.

TRANSFER PUMP ACTION STATEMENT

The proposed action statement for the fuel oil transfer pumps provides action in the event a single fuel oil transfer pump is inoperable to ensure the affected EDG remains fully capable of functioning as assumed in the safety analyses. Even with no operator action, and considering an additional failure of the remaining transfer pump, available EDG fuel oil capacity is assured to provide for safe shutdown.

SIGNIFICANT HAZARDS CONSIDERATION

Public Service Electric & Gas has, pursuant to 10CFR50.92, reviewed the proposed changes to determine whether this change involves a significant hazards consideration. PSE&G has determined that operation of Hope Creek in accordance with the proposed change:

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

TANK LEVEL

Amendment 59 provides an allowance for transferring fuel oil from a pair of storage tanks associated with an inoperable EDG to another pair of storage tanks in order to demonstrate compliance with PSE&G's commitment to Regulatory Guide 1.137. The proposed change is consistent with that transfer strategy and extends this allowance to include using fuel oil in operable EDG storage tanks in order to reduce the amount of stored fuel oil. Transfer from operable EDG storage tanks is, actually, less complex than transferring from an inoperable EDG storage tank since power to the transfer pumps would be available.

The low level alarm setpoint is the only physical change to be made. No change is being made to the EDGs, to the fuel oil storage tanks, or to the fuel oil transfer system and since EDG fuel oil supply is associated with mitigating the consequences of an accident, there is no change in the probability of any accident analyzed in the UFSAR.

Since the proposed change still ensures the minimum fuel oil storage capacity meets the existing licensing basis and since off-site replacement oil is expected to be available within 60 hours there is no change in the consequences of an accident previously evaluated.

TRANSFER PUMP ACTION STATEMENT

Since no change is being made to the EDGs, to the fuel oil storage tanks or to the fuel oil transfer system, and since EDG fuel oil supply is associated with mitigating the consequences of an accident, there is no change in the probability of any accident analyzed in the UFSAR.

The proposed change provides compensatory action in the event a single fuel oil transfer pump is inoperable without having to immediately declare the EDG inoperable. The change ensures the affected EDG remains fully capable of functioning as assumed in the safety analyses, therefore, there is no significant impact on the consequences of an accident previously evaluated.

Therefore, the proposed changes will not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

TANK LEVEL and TRANSFER PUMP ACTION STATEMENT

The proposed changes will result in a setpoint change to the low level alarm. No other physical changes to the EDGs, to the fuel oil storage tanks, or to the fuel oil transfer system will result from the proposed changes. Operation including the proposed changes will not impair the diesel generators from performing as provided in the design basis. In addition, EDG fuel oil supply is associated with mitigating accident consequences, not accident

prevention. Therefore, the proposed change will not create the possibility of a new or different kind of accident from any previously evaluated.

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

TANK LEVEL

The margin of safety is provided by the on-site storage of an adequate supply of diesel fuel oil to ensure uninterrupted EDG operation for seven days. Although the proposed change may result in a reduction of stored fuel oil, the new minimum continues to provide for an on-site seven day supply of diesel fuel oil.

TRANSFER PUMP ACTION STATEMENT

The margin of safety is provided by the ability of the fuel oil transfer pumps to supply an adequate flow of the stored fuel to each EDG day tank. The proposed change continues to provide 100% capacity to the EDG day tank for a minimum of three days with no operator action. With the proposed action, adequate transfer capability is provided for a minimum of seven days fuel oil supply at which time refilling of the tanks would provide an indefinite supply. With both transfer pumps on a single EDG inoperable, the remaining three EDGs would provide adequate power for safe shutdown. Transfer of fuel oil from the storage tanks with inoperable transfer pumps can still be effected using temporary hoses.

Since the proposed changes do not involve the addition of plant equipment, are consistent with the intent of the existing Technical Specifications, are consistent with allowances for fuel oil transfers approved in Amendment 59, meets the intent of Regulatory Guide 1.137, and are consistent with the design basis of the diesel generators and the accident analysis, no action proposed by this request will occur that will involve a significant reduction in a margin of safety.

4. <u>Conclusion</u>

Based upon the above, PSE&G has determined that the proposed change to the Technical Specifications does not involve a Significant Hazards Consideration.