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Nuclear Business Unit

MAR 16 2000

LR-N000080

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

Gentlemen:

**RESPONSE TO SER FOR HOPE CREEK SECOND TEN-YEAR IST PROGRAM
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354**

This letter responds to the request in the NRC safety evaluation report (SER) for the Hope Creek Second Ten-Year Inservice Test (IST) Program that was dated March 18, 1999. Specifically, Public Service Electric and Gas Company was requested to respond within one year of the date of the SER describing actions taken, actions in progress, or actions to be taken to address each of the items listed in Section 6.0 of the Brookhaven National Laboratory Technical Evaluation Report. Each of the items in Section 6.0 of the Technical Evaluation Report (TER) is addressed in the attachment to this letter.

Should you have any questions regarding this request, please contact Mr. C. E. Manges, Jr. at 856-339-3234.

Sincerely,

A handwritten signature in black ink, appearing to read "G. Salamon for GS".

G. Salamon
Manager – Licensing

Attachment

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-2-

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Attachment to LR-N000080

Response to Safety Evaluation Report on Hope Creek Second Interval IST Program

A response is provided below describing actions taken, actions in progress, or actions to be taken to address each of the items in Section 6.0 of the Brookhaven National Laboratory (BNL) Technical Evaluation Report (TER). Many of the items (Item Numbers 6.3, 6.4, 6.5, 6.6, 6.7, 6.9, 6.10, 6.12, 6.16, 6.20 and 6.21) refer to errors, inconsistencies, or omissions in the program document. These items are addressed as a group while each of the other items is addressed individually.

TER Items Involving Errors, Inconsistencies, or Omissions in the Program Document (Items 6.3, 6.4, 6.5, 6.6, 6.7, 6.9, 6.10, 6.12, 6.16, 6.20 and 6.21)

- "6.3 The supporting table in Relief Request P-02 incorrectly identifies the Code allowable instrument tolerance as ± 336 gpm. Based on 2% of the Code allowable range (i.e., 1800 gpm), the value should be +36 gpm. Additionally, the request is identified as P-01 on page A4-5 of 6 of the IST Program."
- "6.4 The valve P&ID coordinates in Table 3 of the IST Program are often incorrect, as are the referenced drawings. Additionally, Table 1 of the IST Program, "System and P&ID Listing," does not contain all the pertinent drawings (e.g., M-51-1, sheet 1 or M-10-1, Sheets 1 and 2)."
- "6.5 Per RJ-2, the subject valves will be full stroke exercised to the closed position on a refueling outage frequency. Per Table 3, the valves are exercised open and closed on a refueling outage frequency. The licensee should review the function and testing of the valves and revise the justification or Table accordingly."
- "6.6 The licensee indicated in RJ-5 that exercising the excess flow valves requires isolation of their associated safety-related instrumentation, which could disable safety initiation logic or unnecessarily challenge safety systems. While these are acceptable reasons for deferring quarterly at-power testing, it has been observed (based on testing conducted at other BWRs prior to refueling outages while the reactors were still at power) that the testing of some excess flow check valves at power may be practical. The licensee should review each valve and ensure that excess flow check valves are tested quarterly at power where practicable.

Additionally, the Code allows deferral of testing to cold shutdowns or refueling outages based on impracticality. The licensee has proposed testing the valves once every 18 months in RJ-5, without regard to the plant's operating mode. Testing at a frequency other than at cold shutdowns or refueling requires a relief request. The licensee should revise the justification accordingly or submit a relief request."

- “6.7 Per RJ-6, 7 and 12, the subject valves will be exercised on a cold shutdown frequency. The Valve Test Table and Justification, however, support testing at refueling outages. The refueling outage justification alternate testing section should be revised to agree with the Valve Test Table and justification. Additionally, RJ-6 incorrectly identifies 1BBV-044, the correct valve number is 1BBV-047.”
- “6.9 The alternate testing section of the CS-7 indicates that all the valves will be stroke timed closed only. The function section of the justification, however, indicates an open and closed safety function for all the valves. Additionally, per the Table valves 1BCHV-F017C&D and 1BEHV- F005A&B are only stroke exercised open, and 1BCHV-F022 and 23 are only exercised closed. The licensee should review the function and testing of these valves and revise the program accordingly.”
- “6.10 No exercise closed test is specified in Table 3 for the CS-8 subject valves. However, these valves are PIVs and have a safety function to close per the justification. The licensee should evaluate the practicality of testing the valves in the closed direction and revise the table and justification accordingly.”
- “6.12 The IST Program Valve Test Table, Table 3, only includes a safety function to close for the RCIC pump discharge check valve, 1BDV-010. This valve also has a safety function to open, and the table includes an exercise open. The licensee should correct the safety position entry.”
- “6.16 There are numerous instances of normally open valves in the RCIC system where Table 3 of the IST Program includes both an open and closed safety function, but the valves are only required to be exercised closed (e.g., 1FCHV-F059, F007, F008, F062, F084, 4282, and 1FCXV-4150B). The licensee should review the functions of these valves, and revise the IST Program accordingly. Per the Code, valves are required to be exercised to the positions required for the valves to fulfill their safety functions. The licensee is referred to the IST Workshop Minutes (Ref. 14), Question 2.1.9, for additional guidance.”
- “6.20 Technical Position TP-1, Section III(b) states that following maintenance, deviations between the previous and new reference values will be identified, and analyzed to determine whether the change is consistent with the maintenance performed. If it is consistent, the new reference value will be used. If the change is inconsistent with the maintenance, the IST Program Manager may elect to perform further evaluations and determine if the previous value should remain as the reference value. The NRC in Ref. 14, Question 1.5.3 has provided some guidance on this issue. The response to the question states that the Code requires new reference values to be determined or the previous reference value to reconfirmed. There are no provisions for a tolerance around the previous values or an evaluation. This issue has been brought to the ASME's attention and the Code Committee is pursuing resolution. Until such time as the ASME provides clarification through an interpretation or a code change, the licensee must comply with the Code, or submit a relief request.”

"6.21 Technical Position TP-2, which discusses the allowable variance from pump reference points, states that "To meet the requirements of NUREG-1482, the sum of the specified tolerance (rounded to the nearest readable increment) and the indicated accuracy must be less than or equal to 2 percent of full scale." If this is met, the TP-2 states that no relief, NRC approval, or further evaluation is required. NUREG-1482, Section 5.3, however, states that "A total tolerance of ± 2 percent of the reference value, not full scale, is allowed without approval from the NRC. The licensee should revise the position and the implementing procedures to comply with the guidance in the NUREG. Additional guidance from the NRC is provided in Ref 14, Question 3.1.1 and 3.2.2."

PSE&G Response to Items 6.3, 6.4, 6.5, 6.6, 6.7, 6.9, 6.10, 6.12, 6.16, 6.20 and 6.21

The above errors, inconsistencies, or omissions will be addressed in the next revision of the Program Manual, which is scheduled to be completed during the third quarter of 2000.

Item 6.1

"It is recommended that the use of existing flow instrumentation for the HPCI and RCIC pumps be authorized (Relief Requests P-01 and P-02). However, if at a later date, the licensee replaces the HPSI or RCIC flow instruments, the Code accuracy and range requirements must be met."

PSE&G Response to Item 6.1

PSE&G will meet the Code accuracy and range requirements if the flow instruments are replaced.

Item 6.2

"The licensee should review the guidance provided in TER Section 2.3, regarding the use of analysis in lieu of pump corrective actions.

PSE&G Response to Item 6.2

PSE&G has reviewed the guidance provided in TER Section 2.3, regarding the use of analysis in lieu of pump corrective actions, understands its content, and intends to use caution in employing analysis.

Item 6.8

“The deferral of testing in RJ-8 does not comply with the Code, however, the proposed alternate was evaluated in Table 4.1 and it is recommended that relief be granted in accordance with 10CFR50.55a(f)(6)(i). The licensee should submit this information in the form of a relief request in future program revisions.”

PSE&G Response to Item 6.8

PSE&G will submit this information in the form of a relief request in future program revisions.

Item 6.11:

“The downstream condensate storage tank supply to RHR loop (i.e., 1APV-043, 46, 55, and 58) and RCIC (i.e., 1APV-051) check valves are included in the IST Program with a safety function to close. These simple check valves do not have position indication and there are no test connections between these valves and the upstream valves. It is not apparent how these in series check valves are verified closed. The licensee is referred to NUREG-1482, Section 4.1.1 for guidance regarding closure verification for series check valves without intermediate test connections. Additionally, the upstream valves (i.e., 1APV-042, 45, 50, 54, and 57), which provide the safety related boundary, are not included in the IST program. The licensee should review the function of these valves, and revise the program, as necessary.

PSE&G Response to Item 6.11

The downstream valves are testable check valves in which lift off torque measurements are tracked and trended. The external test handle is used to verify that the valve is closed. The valves in question are part of a keep-fill system. As defined in NUREG-1482, Section 4.1.1, these valves are redundant valves in a redundant system in which only one valve in the series is necessary to perform a system’s intended function. Since one of the valves is tested, and the other is redundant, the redundant valve is not included in the IST Program.

Item 6.13:

“The IST Program Valve Test Table, Table 3, includes safety functions in the open and closed direction for the RCIC pump CST suction check valve (1BDV-002). It is unclear how this valve is verified to close quarterly since there is no position indication and during the quarterly RCIC pump test the RCIC system takes suction from the CST and not the suppression chamber. The licensee should review the testing performed for this valve, and revise the program accordingly.”

PSE&G Response to Item 6.13

The valve in question is a testable check valve. Lift off torque is measured, tracked and trended for the open stroke. The external test handle is used to verify that the valve is closed.

Item 6.14:

“The IST Program Valve Test Table, Table 3, does not include any testing for the RCIC pump suppression chamber suction check valve, 1BDV-004, although an active safety function to open is indicated. The licensee should review the testing performed for this valve, and revise the program accordingly.”

PSE&G Response to Item 6.14

The valve is tested in the open direction. The computer program used to generate the table erred in the generation of testing data for this valve. This was found to be an isolated case. This error will be addressed in the next revision of the Program Manual, which is scheduled to be completed during the third quarter of 2000.”

Item 6.15:

“The RCIC turbine exhaust and vacuum pump discharge check valves, 1FCV-003 and 1FCV-010, are exercised closed per the IST Program Valve Test Table, Table 3. There is no position indication and it is not apparent how these valves are verified closed quarterly. The licensee should review the testing performed for these valves, and revise the program accordingly.”

PSE&G Response to Item 6.15

The 1FCV-003 is a testable check valve. Lift off torque is measured, tracked and trended for the open stroke. The external test handle is used to verify that the valve is closed. 1FCV-010 is a simple check and is verified closed quarterly by connecting a demineralized water supply downstream of the check valve and observing little or no level increase in the RCIC gland seal condenser level sight glass on the upstream side of the valve.

Item 6.17:

“The RCIC vacuum tank condensate pump discharge check valves, 1FCV-030 and 1BDV-023 have a safety function to open per Table 3 of the IST Program. The pump itself, however, is not included in the IST Program. The licensee should review the function of this pump and the associated valves and revise the program accordingly. The licensee is also referred to TER Section 6.23 on skid-mounted equipment.”

PSE&G Response to Item 6.17

The pump is not in the program because the vacuum tank is not required for operability of the RCIC turbine. The combination of the pump and valves could be considered skid-mounted. The Program Manual will be revised in the next revision, which is scheduled to be completed during the third quarter of 2000.

Item 6.18

“Table 3 of the IST Program includes only an open safety function for the service water to fuel pool cooling makeup check valves (1BCV-423 and 1EAV-557). The license should review the function of the valves to ensure that they do not have a safety function to close to prevent the fuel pool to drain to the open service water system. The three other motor-operated valves in each of these lines also only have a safety function to open.”

PSE&G Response to Item 6.18

PSE&G review indicates that the valves are redundant backups to the motor-operated isolation valves upstream of the check valves. Although the closed test is not listed in the program for the reason stated above, the valves do receive a close verification in the IST procedure when the valves are tested in the required open direction. PSE&G will review the matter further and, if required, make the appropriate changes to the program.

Item 6.19

“It appears that the 26" manual butterfly valves at the inlet of the SACS heat exchangers have position indication, and as such, are required by the Code to have their position indication verified once every 2 years. The licensee should review these valves and revise the program, as necessary.”

PSE&G Response to Item 6.19

The inlet isolation valves were installed for maintenance isolation and are exempt from the OM Code requirements per OM-10, Paragraph 1.2.

Item 6.22:

“Technical Position TP-3 discusses check valve sample disassembly. OMa-1988, Part 10 now includes check valve disassembly as a means to verify valve obturator position. The Code requires each valve to be disassembled and inspected each refueling outage. If a sample program is proposed, a relief request is necessary, which includes a discussion of the burden of disassembling each valve each refueling outage. Additionally, if the licensee is proposing to disassemble and inspect valves at a refueling frequency, even if a sample program is not proposed, a refueling outage justification is required. The licensee has not included any relief requests for sample disassembly and inspection or proposed disassembly and inspection in any of the refueling outage justifications.”

PSE&G Response to Item 6.22

The Technical Position for sample disassembly and inspection was generated to be consistent with the same position used in the Salem IST Program. There are no Hope Creek relief requests because there are currently no valves in the Hope Creek Program that are disassembled and inspected to fulfill their IST requirements. If the need should arise, a relief request would be submitted for approval.

Item 6.23

“Technical Position TP-4 discusses skid-mounted components and states that “The individual components will not be specifically listed in the IST Program and will not be individually tested.” As discussed in Ref. 14, Question 1.6.3, there is no requirement for the format of information presented in the IST Program. The licensee should, however, document in the IST Program or basis document individual components that are considered skid-mounted and that their operational readiness is verified during the test of the major component. This documentation, either in the IST Program or basis document, may be subject to NRC inspector review.”

PSE&G Response to Item 6.23

PSE&G will ensure that the IST Program or basis document contains individual components that are considered skid-mounted and that their operational readiness is verified during the test of the major component. If necessary, this issue will be addressed in the next revision of the Program Manual, which is scheduled to be completed during the third quarter of 2000.