



South Carolina Electric & Gas Company
P.O. Box 88
Jenkinsville, SC 29065
(803) 345-4040

John L. Skolds
Vice President
Nuclear Operations

March 28, 1994
Refer to: RC-94-0092

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Gentlemen:

Subject: VIRGIL C. SUMMER NUCLEAR STATION
DOCKET NO. 50/395
OPERATING LICENSE NO. NPF-12
ASME SECTION XI RELIEF REQUESTS (NRR 940001)

South Carolina Electric & Gas Company (SCE&G) hereby requests relief from the ASME Section XI requirements for class 1, 2, and 3 components. This includes code class 2 and 3 pumps that require flow and pressure testing. Also included are class 1 and 2 components where weld repairs and replacements currently require system hydrostatic pressure tests. A relief request for class 1, 2, and 3 bolted connections, which requires a VT-2 visual inspection during the performance of system pressure testing where bolted connection leakage occurs, is also included.

Attachments I through IV contain the detailed identification, code requirements, proposed alternative testing, and basis for each relief request. SCE&G contends that the proposed alternative tests provide the equivalent, acceptable level of quality and safety as that provided by the Code.

Attachment I identifies an IST Pump Test relief request that is similar to one that had been granted during the first ISI interval which ended December 31, 1993. This is specifically for the Emergency Diesel Generator's fuel oil transfer pumps (XPP0004a, XPP0004b, XPP0141a, XPP0141b - DG).

SCE&G has determined that the identified requirements for these fuel oil transfer pumps are clearly impractical, and per the guidance in Draft NUREG-1482 Section 2.5 intends to implement the alternate testing while the NRC is reviewing the Relief Request.

Attachment II identifies an IST Pump Test relief request to allow an optional method of testing all code class 2 and 3 pumps that require pressure and flow testing. Similar relief requests had been granted during the first ISI interval for the Service Water (SW) and (B3 & G1) Chilled Water (VU) systems. This request combines these two approved relief requests and expands the scope to include all ASME code class 2 and 3 pumps.

010016

9404010179 940328
PDR ADOCK 05000395
P PDR

ACT 7/11

SCE&G intends to continue using the approved relief requests for the S V and VU systems. Once this relief request is granted, the scope will be expanded to include all class 2 and 3 pumps in the IST program.

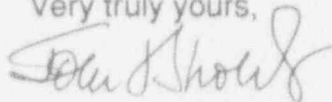
Attachments III and IV identify new relief requests concerning post repair/replacement hydrostatic pressure testing and visual (VT-3) inspections of leaking bolted connections.

SCE&G desires relief from the above code requirements so as to not create an undue hardship without a compensating increase in quality or safety.

SCE&G requests that the NRC review and approve these relief requests as soon as possible, but no later than July 31, 1994 in order to support the upcoming refueling outage which is scheduled to start in September, 1994.

Should you have any questions, please call Mr. Philip Rose at (803) 345-4052 at your convenience.

Very truly yours,



John L. Skolds

PAR/JLS/nkk
Attachments

c: O. W. Dixon
R. R. Mahan (w/o Attachment)
R. J. White
G. F. Wunder
General Managers
NRC Resident Inspector
J. B. Knotts Jr.
J. W. Flitter
NSRC
Central File System
RTS (NRR 940001)
File (810.19-2)

IST PUMP TEST RELIEF REQUEST

System: Diesel Generators (DG)

Pumps: XPP-4A, XPP-4B, XPP-141A, and XPP-141B

Class: 3

Function: To transfer diesel fuel oil from the storage tank to the day tank.

Test Requirement: *

- 1) Pressure (discharge) shall be determined and compared with corresponding reference values. (OM-6, 5.2 (d) and Table 2)
- 2) After pump conditions are as stable as the system permits, each pump shall be run at least 2 minutes prior to measuring required test parameters. (OM-6, 5.6)

Alternate Test: As an option to be used in lieu of performing the above test requirements, SCE&G proposes the following: The flow rate will be determined by measuring the rate of level increase in the fuel oil day tank using appropriate level instrumentation. This rate of level increase shall then be converted to flow rate via calculations. The level instrument and calculation accuracy shall meet the requirements of Table IWP-4110-1 ($\pm 2\%$). This, in conjunction with vibration measurement, shall be performed at least once every 92 days prior to or subsequent to engine operation. The data will be taken independent of the two minute hold time.

Basis for Relief: Flowmeters are not provided within the pump test circuits. The modifications required to install flowmeters would be very costly and would not provide a significant enhancement of the monitoring capability for pump degradation over the monitoring capability provided by measuring the level change in the tank per unit time. The hardship of the calculation or the installation of instruments would not be offset by a compensating increase in safety.

These positive displacement pumps discharge into a vented tank with no means provided to vary discharge pressure. The discharge pressure of a positive displacement pump is directly proportional to the pressure of the system into which it is pumping. The system pressure in this instance is provided by the head of the oil above the tank inlet. Therefore, the pump discharge pressure is low and virtually constant during pump operation and, in this case, is not a significant performance indicator.

The amount of space available in each D. G. Day Tank is limited which, in turn, limits the amount of time these pumps can be run without overflowing the tank. Also, since the flow rate is

determined by measuring the level change in the tank per unit time and rotary screw positive displacement pumps are not subject to the same flow oscillations as centrifugal pumps, observing the two minute hold time prior to taking pump data would not provide any benefit and would actually decrease the accuracy of the flowrate determination by limiting the sampling time for the data.

* References to OM-6 correspond to ASME/ANSI OM-1988a, Part 6.

IST PUMP TEST RELIEF REQUEST

System: All Code Class Systems

Pumps: All IST Pumps

Class: 2 & 3

Function: N/A

Test

Requirement: * The resistance of the system shall be varied until the flow rate equals the reference value. The pressure shall then be determined and compared to its reference value. Alternatively, the flow rate can be varied until the pressure equals the reference value and the flow rate shall be determined and compared to the reference flow rate value. (OM-6, 5.2(b))

Alternate Test: As an option to be used in lieu of performing the above test requirements, SCE&G proposes the following: Manufacturer's curves will be validated or an insitu curve will be developed while the pump is known to be operating acceptably. The validation or development of the curves will be based on a sufficient number of measurement points to encompass the expected operational performance in this range, and will adequately model pump performance in this range. The flow rate will be recorded and the ΔP will be verified to be within the minimum and maximum ΔP Alert and Required Action Ranges for that flow rate.

A correlation between flow & vibration will be developed for each pump. Pump vibration will be evaluated using the Alert and Required Action Ranges specified in OM-6, Table 3a.

Basis for Relief: Adjusting either the resistance of the system or the flow rate to achieve a single point reference value necessitates changing normal system configurations to achieve arbitrary test conditions which may not reflect actual normal operating conditions and may be impractical to perform during operations. The use of individual pump curves will allow testing to occur at the point where the pump normally operates, also reducing the number of perturbations on the system.

* References to OM-6 correspond to ASME/ANSI OM-1988a, Part 6.

IST RELIEF REQUEST

- Subject: Pressure test requirements for welded repairs or installation of replacement items by welding.
- Component Identification: All Class 1 and 2 components which receive welded repairs or are installed by welding as replacements.
- Code Requirements: After repairs by welding on the pressure retaining boundary, a System Hydrostatic Test shall be performed in accordance with IWA-5000.
- Alternative Testing: As an option to be used in lieu of performing a Hydrostatic Pressure Test as required by IWA-4700(a) for welded repairs or for replacement items installed by welding, a System Pressure Test (Inservice or Functional) shall be performed in addition to the following requirements.
- 1) NDE shall be performed in accordance with the methods and acceptance criteria of the applicable subsection of the 1992 Edition of Section III.
 - 2) Prior to or immediately upon return to service, a VT-2 Visual Examination shall be performed in conjunction with a System Leakage Test using the 1992 Edition of Section XI, in accordance with IWA-5000, at nominal operating pressure and temperature.
 - 3) Use of this relief request shall be documented on an NIS-2 Form.
- Basis for Relief: Class 1 and 2 pressure boundary replacements requiring installation by welding are normally constructed and supplied in accordance with the requirements of Section III which requires hydrostatic testing by the manufacturer. Subsequent to installation, hydrostatic pressure testing is a means of proving weld integrity. Performing NDE and invoking acceptance criteria in accordance with 1992 ASME Section III requirements in addition to a System Pressure Test provides reasonable assurance that weld integrity is maintained at an acceptable level of quality. It is the position of SCE&G that the performance of hydrostatic testing subsequent to repair welding and the installation of welded replacements is an impractical requirement which could not only expose a component to unnecessary stress but, also increases the time the system is out of service, and increases exposure to the workers performing the set up and restoration of the system. The requirement for a system hydrostatic test per IWA-5000 provides little enhancement to the level of quality or safety. The proposed alternative testing provides an equivalent level of quality and safety as that provided by the Code.

IST RELIEF REQUEST

- Subject: Bolting examination (VT-3) following bolted connection leakage occurring during a System Pressure Test.
- Component Identification: All bolting associated with Class 1, 2, and 3 connections which receive VT-2 Visual Examination during the performance of System Pressure Testing.
- Code Requirements: If leakage occurs at a bolted connection, the bolting shall be removed, VT-3 visually examined for corrosion, and evaluated in accordance with IWA-3100. (IWA-5250(a)(2) Corrective Measures)
- Alternative Testing: As an option to be used in lieu of the above required testing, SCE&G proposes the following: If leakage occurs at a bolted connection, during the performance of a System Pressure Test, an evaluation shall be performed to determine if the associated bolting is susceptible to corrosion resulting in further degradation and increased leakage. This evaluation shall address at a minimum:
- Type and location of the leakage.
 - Historical leakage.
 - Bolting material and its resistance to corrosion by the leaking fluid.
 - Visual evidence of leakage.
 - History of bolting material degradation due to corrosion in a similar environment.
- If the evaluation indicates that the bolting is not susceptible to corrosion, then bolt removal for associated examination and further evaluation is not required. However, termination of leakage shall be addressed at the next available opportunity. If the evaluation indicates a need for examination, one bolt closest to the source of leakage shall be removed, VT-1 visually examined per IWA-2211(a), and evaluated in accordance with IWA-3100(a). If the examination is required, based on the initial evaluation, and the leakage is identified when the bolted connection is in service, justification for continued operation may be provided by the information contained in the evaluation. Deferral of the bolt removal for VT-1 examination and evaluation may be acceptable until the next time that portion of the system is out of service, but no later than the next Refueling Outage. When the removed bolt has evidence of degradation, all remaining bolting shall be removed, VT-1 examined, and evaluated in accordance with IWA-3100(a). All evaluations shall be traceable to the VT-2 examination.

Basis for Relief:

Current Code requirement specifies that all bolting must be removed in the event of a bolted connection leak for the purpose of VT-3 examination and evaluation. This would require placing the associated component or portion of piping out of service possibly resulting in a plant shutdown, delaying plant startup, or placing the plant in an unsafe condition for continued operation, as all VT-2 examinations are preferably performed at nominal operating pressure. Additionally, removal of all bolting is unnecessary if there is reasonable assurance that bolting material is of a specification which is not susceptible to corrosion when in contact with the leaking fluid. It is the position of SCE&G that the proposed alternate testing provides an acceptable level of quality and safety as that provided by the Code.