SOR

14685 W. 105th Street • Lenexa, Kansas 66215-5964 USA
Tel. 913.888.2630 • Fax 913.888.0767

ISO 9001 REGISTERED

August 24, 1994

Mr. Steve Alexander
Chief Vendor Inspection Branch
Division of Reactor Inspection and Licensee Performance
Office of Nuclear Reactor Regulation
Mail Stop OWFN-9D4
US Nuclear Regulatory Commission
Washington, DC 20555

Subject: NRC Open Item 93-01-06

Dear Mr. Alexander:

As we discussed on the phone, SOR would like to address Open Item 93-01-06 from the NRC's audit of NTS in July of 1993. Inspection Report 99900912/93-01, Page 12 identified two anomalies for which there were no conclusions provided in NTS Test Report 60162-93N. These anomalies are addressed in SOR Test Report 9058-102, Rev. 1, (copy enclosed).

The first anomaly that was questioned pertained to SOR Model 4RT-YY4-U8-C1A-JJTTNQ, Serial Number 92-6-7018. This switch did not operate properly and failed the hydrostatic test after the second HELB test. This failure is addressed in SOR Test Report 9058-102, Section 23, Paragraph 4.0. This switch was returned to SOR by NTS. Upon examination, it was determined that there was a leak in the instrument enclosure where the microswitch bracket is attached to the floor of the housing. This leakage allowed the accident pressure (47 PSI) to enter the housing during the second HELB and cause excessive stress on the back side of the stainless steel diaphragm of the welded sensor, resulting in diaphragm failure. The leakage was caused by failure of the anaerobic thread sealant on the microswitch bracket screws. It should be noted that this type of failure only occurred on a model with a stainless steel housing and did not occur on any of the models in the test program with an iron housing. This is attributed to the fact that the iron housings provide an active surface to aid in the cure of the thread sealant, whereas stainless steel does not. In addition to this, the stainless steel housing design is different from the iron housing design in that, sometimes, it is necessary to re-adjust the microswitch bracket mounting screws in the stainless steel housings during factory calibration. Corrective action has been implemented whereby a primer is now used on the microswitch bracket screws of all stainless steel housings, and assembly instructions now require that the screws be resealed in the event that they have to be re-adjusted.

The second anomaly pertained to SOR Model 9RT-B45-U8-C2A-JJTTNQ, Serial Number 92-6-7041, which experienced 2 milliamps current leakage at 900 VAC during dielectric testing after the second HELB. This is addressed in SOR Test Report 9058-102, Rev. 1, Section 23, Paragraph 3.4. NTS has informed us that the dielectric test is ramped up from 0 VAC to the target voltage (1500 VAC) in 3 to 5 seconds. If breakdown occurs, the test is repeated at a slower ramp rate at least once and sometimes twice to determine the breakdown voltage accurately. The ramp rate during these subsequent tests is 50 to 100 VAC per 5 to 10 seconds. 1500 VAC is not an acceptance criteria but, rather a goal. Current leakage at 900 VAC was not considered a failure because it is 3 1/2 times greater than the rated voltage of 250 VAC. As noted in Section 1 of the test report, this is a generic qualification program and much of the data was gathered for information only. We require that our customers review and approve our test report for their specific application.

It should be noted that NTS Test Report 60162-93N addresses only the seismic, LOCA, and HELB portions of our qualification program, and this report is an Appendix to our test report. SOR takes responsibility for the entire qualification program, and all anomalies are addressed in our Test Report 9058-102, Rev. 1. We hope that we have provided you with adequate information to close out Open Item 93-01-06. Please contact me if you require further information or if you would like to discuss this in more detail.

Regards,

Joseph G. Modig
Project Engineer

08229402.JGM/cb
cc: Jane Peternel
Sherry Burns
David R. McLachlan
Document Control Desk, USNRC