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REPLY TO A NOTICE OF NONCONFORMANCE

September 20, 2013

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Reply to Notice of Nonconformance
NRC Inspection Report No. 99901431/2013-201
Nonconformances 99901431/2013-201-01 through 99901431/2013-201-06

Dear Sir:

Pursuant to the instructions in the Notice of Nonconformance, our response is herein provided.

Nonconformance 99901431/2013-201-01

Nonconformance 99901431/2013-201-01 is the failure of Pentair to ensure that its test program used to verify the ability of the AP1000 PV-16 auxiliary relief valves and PV-62 pressurizer safety valves to perform their intended safety functions included suitable qualification testing of a prototype unit under the most adverse design conditions.

Specifically, Pentair failed to provide assurance of the adequacy of its performance of static side load testing to demonstrate the seismic qualification of the AP1000 PV-16 auxiliary relief valves and PV-62 pressurizer safety valves as follows:

- Pentair Valve Qualification Test Procedures VQT-38188 and VQT-38173 for the AP1000 PV-16 auxiliary relief valves and PV-62 pressurizer safety valves specify static side load testing requirements for QME-1 seismic qualification with the load "applied to the least rigid axis." Pentair failed to adequately evaluate the results of the natural frequency testing reports prepared by National Technical Systems and Wyle laboratories (Pentair's contractors) to determine the proper setup of the QME-1 seismic qualification tests for the PV-16 auxiliary relief valves and PV-62 pressurizer safety valves, respectively. Specifically, the QME-1 qualification testing for a PV-16 valve observed by the NRC inspection team, as well as for a PV-62 valve based on review of the test results and photographs, did not apply the static load to the least rigid axis as required by the test procedures.

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- Pentair Valve Qualification Test Procedure VQT-38173 does not specify that a static side load be applied during the QME-1 seismic qualification testing of the AP1000 PV-62 pressurizer safety valves at the design pressure set point of 2485 psig. Specifically, the Pentair QME-1 seismic qualification test of the PV-62 pressurizer safety valve failed to verify the proper lift of the safety valve at the design pressure set point under seismic conditions as required by the WEC design specification associated with this valve.

Reason for the noncompliance

There is no linking process between the results of the natural frequency test and the selection of the weakest (least rigid) axis for the seismic load test. There was no identification of the limitations of the current test facilities that would preclude a full flow test at full pressure, and there was no provision for notification that the test was performed at the lower pressure.

Corrective steps that have been taken and the results achieved

For PV-16, Pentair Valve Qualification Test Procedure VQT-38188 has been modified to include the following text: "Engineering must verify the direction of the least rigid axis against the results of the natural frequency test for each valve assembly and advise the test engineer regarding the direction in which the seismic load is to be applied. A photograph of the test set-up is required." PV-16 has been retested to correct for the least rigid axis. The test results show that the valve satisfied applicable seismic qualification requirements.

For PV-62, Pentair Valve Qualification Test Procedure VQT-38173 has been modified to include justification for performing the full flow test at the prorated spring pressure, as well as a requirement for notification that the test was performed at the lower pressure.

Corrective steps that will be taken to avoid further noncompliance

PV-62 will be returned to the Mansfield facility and retested to correct for the least rigid axis.

Date when full compliance will be achieved

October 31, 2013

Nonconformance 99901431/2013-201-02

Nonconformance 99901431/2013-201-02 is the failure of Pentair to establish a test program that ensures the testing required to demonstrate that structures, systems, and components will perform satisfactorily in service was performed in accordance with written test procedures. Specifically,

- During testing of the PV-62 pressurizer safety valves, Pentair failed to evaluate the validity of the test, which was performed at a temperature 25°F higher than the allowable ambient test temperatures, to ensure compliance with the Pentair T-161093 procedural requirements.
- During testing of the PV-16 auxiliary relief valve, Pentair failed to install a device to ensure that the tested valve satisfies the leakage acceptance criteria in Pentair procedure VQT-38188.

Reason for the noncompliance

No linking process between the recorded parameters of the test and the test procedure requirements; inadequate training and understanding of the specific requirements for QME-1 testing. The technician did not properly set up the test.

Corrective steps that have been taken and the results achieved

During the NRC inspection, the NRC inspector made a comment that no device was installed. The technician then installed the measuring device. Had the technician not installed the device, he would not have been able to complete the test since the test procedure has a requirement to record the leakage measured. Therefore, this would have been self-correcting.

Corrective steps that will be taken to avoid further noncompliance

The test procedure will be modified to include justification for performing the full flow test at the elevated temperature, as well as a requirement for notification that the test was performed at the higher temperature. Test personnel will be instructed on the specific test procedure requirements.

Date when full compliance will be achieved

October 31, 2013

Nonconformance 99901431/2013-201-03

Nonconformance 99901431/2013-201-03 is the failure of Pentair to establish adequate measures for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety functions of certain structures, systems, and components. Specifically:

- For the 18 Dedication Procedures reviewed, Pentair did not provide objective evidence that technical evaluations had been performed to justify that the critical characteristics and associated acceptance methods selected for various valve parts and components would provide reasonable assurance that the valves would perform their intended safety functions.
- For the measuring and test equipment (M&TE) calibration services procured from Essco Calibration Laboratories under the International Laboratory Accreditation Cooperation (ILAC)

process, Pentair did not conduct a technical evaluation to identify additional technical requirements to be included in the purchase order for the specific M&TE being calibrated.

Reason for the noncompliance

There was no documented process for defining the technical evaluation of the critical characteristics of dedicated commercial components.

Corrective steps that have been taken and the results achieved

A new form has been developed to document the technical evaluation of critical characteristics for dedicated commercial components/services.

Corrective steps that will be taken to avoid further noncompliance

Phase 1: A new process utilizing the newly developed form will be implemented for new dedicated commercial components/services that will include a documented technical evaluation of critical characteristics.

Phase 2: As dedicated commercial components/services are processed, the new form will be completed.

Date when full compliance will be achieved

Phase 1: September 30, 2013

Phase 2: This will be an ongoing process which will be reviewed for effectiveness by March 31, 2014

Nonconformance 99901431/2013-201-04

Nonconformance 99901431/2013-201-04 is the failure of Pentair to establish proper measures to identify requirements necessary to assure the selection, purchase, use, and review for suitability of application of the lubrication material Neolube.

Specifically, Pentair failed to have adequate controls or documentation in place to select and verify that the appropriate type of Neolube was purchased and used to lubricate various valve types during and after testing activities in accordance with the application and design specifications for the valves. Exceeding a temperature of 400°F while using Neolube 1 causes a chemical breakdown of the product, which could lead to binding of lubricated areas, such as the valve stem. This binding would prevent the valves from accomplishing their intended safety functions.

Reason for the noncompliance

Anderson Greenwood Crosby (AG Crosby) uses Never-Seez Nuclear Grade as a lubricant unless a customer specification requires a specific lubricant to be used. The use of Never-Seez has been

reviewed for use by AG Crosby and found to be acceptable. No Neolube 1 was found in the nuclear component assembly area of the shop. AG Crosby also manufactures components for the U.S. Navy which requires the use of Neolube 1. Neolube 1 was only found in the Navy component assembly/test area, clean room and storage cabinet.

Corrective steps that have been taken and the results achieved

All Neolube 1 bottles were located (all were found in the Navy assembly/test area, clean room and storage cabinet) and labeled with a tag stating "For Navy Use Only". Verified there were no Neolube 1 bottles in the nuclear assembly/test area. All assembly personnel have been trained regarding the use of Neolube 1 (only to be used for assembly of Navy components). In addition, the Manufacturing Supervisor has been trained to monitor and label all new incoming shipments of Neolube 1 prior to disbursement into the shop. These actions were completed on September 17, 2013.

Corrective steps that will be taken to avoid further noncompliance

All new incoming shipments of Neolube 1 will be monitored and labeled "For Navy Use Only".

Date when full compliance will be achieved

This will be an ongoing process.

Nonconformance 99901431/2013-201-05

Nonconformance 99901431/2013-201-05 is the failure of Pentair to establish appropriate measures to assure that material, equipment, and services purchased through a subcontractor were adequately evaluated via a source evaluation to allow for objective evidence of quality to be furnished by the subcontractor. Specifically,

Pentair failed to adequately verify that commercial items received from its suppliers conformed to the applicable specification requirements and failed to validate required critical characteristics during commercial grade dedication receipt inspection and testing for three U-cup O-rings that were being commercially dedicated using a sampling process. Instead, Pentair relied on a commercial supplier-issued certified material test report (CMTR) as the sole method to verify critical characteristics for the entire batch of U-cup O-rings without conducting a commercial-grade survey, source verification, or other surveillance of the supplier to verify that the supplier's quality program was capable of appropriate control of the required critical characteristics, including material traceability and adequacy of any certificates of conformance or CMTRs. This issue is common for procurement and dedication of all elastomeric parts.

Reason for the noncompliance

AG Crosby commercially dedicates elastomeric parts using Method 1 of EPRI NP-5652 using inspections and sampling plans for special tests as the sole method. Additional requirements were to use reputable domestic suppliers. Additional acceptance methods were not felt to be necessary.

Corrective steps that have been taken and the results achieved

None.

Corrective steps that will be taken to avoid further noncompliance

Source verification (Method 3 of EPRI NP-5652) will be used to verify the supplier's capability to control material traceability to a heat number, production lot number or batch number.

Date when full compliance will be achieved

March 31, 2014

Nonconformance 99901431/2013-201-06:

Nonconformance 99901431/2013-201-06 is the failure of Pentair to Pentair failed to establish measures to assure that special processes are controlled and accomplished in accordance with applicable codes, standards, specifications, criteria, and other special requirements.

Specifically, Pentair's weld rod ovens failed to have controls in place for the temperature read out display and humidity indication to provide assurance that the weld rods were adequately maintained in accordance with the applicable sections of the ASME Code.

Reason for the noncompliance

Pentair relied on the thermostat setting on the weld rod oven and quarterly monitoring of the oven in accordance with the AG Crosby calibration procedure CPIE-0240.

Corrective steps that have been taken and the results achieved

A calibrated temperature gage has been purchased and installed on the weld rod oven.

Corrective steps that will be taken to avoid further noncompliance

No further action is required.

Date when full compliance will be achieved

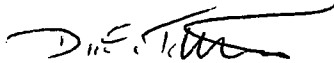
Compliance has been achieved.

In addition to the responses provided above for each identified nonconformance, in response to your request, the following information is provided regarding the steps we are taking to provide assurance that the identified weaknesses in our QA program do not have an adverse impact on other customers, including the fleet of power reactors. Specifically, in response to your request to evaluate our method for QME-1 seismic qualification of valves using static side load testing being performed by us and our contractors (Wyle and NTS) against the accepted ASME guidance for seismic side load test qualification, we will:

1. Investigate and identify any and all valves that were involved with QME-1 seismic qualification side load tests; planned completion date: December 31, 2013.
2. Identify any valve for which the seismic qualification may be in question; planned completion date: January 31, 2014.
3. Establish a plan to address any deficiencies found; planned completion date: March 31, 2014.

The investigation will include an extent of condition review of QME-1 seismic qualification of AP1000 valves that have been completed or are currently in progress, as well as any other types of valves that may have been tested in a similar manner.

Sincerely,



David E. Tuttle
Quality Assurance Manager

cc: Edwin H. Roach, Chief
Mechanical Vendor Branch
Division of Construction Inspection
and Operational Programs
Office of New Reactors