



**Flow Control Operations**

Anchor/Darling Valves  
BW/IP Valves  
Edward Valves  
Valtek Control Products  
Worcester Valves

December 13, 2017

U.S Nuclear Regulatory Commission

Attention: Document Control Desk, Washington, DC 20555-0001

Subject: Reply to a notice of non-conformance on inspection report 99901356/2017-201 dated August 22<sup>nd</sup> 2017 and letter dated October 16<sup>th</sup> 2017.

**Subject: Flowserve Corporation – Raleigh NC – Reply to Notice of Nonconformance #99901356/2017-201-01, 99901356/2017-201-02, 99901356/2017-201-03, and 99901356/2017-201-04.**

Dear Mr. Burke,

I am writing you in response to the notice of Nonconformance #99901356/2017-201-01, 99901356/2017-201-02, 99901356/2017-201-03, and 99901356/2017-201-04, addressed in the NRC Inspection Report No. 99901356/2017-201.

With regards to Notice of Nonconformance 99901356/2017-201-01 and 99901356/2017-201-02:

1. Flowserve Corrective Action # 1684.

The main issue after that review was Flowserve Raleigh did not reference in the audit reports that the suppliers were qualified as a material organization under the rules of NCA 3842.2. The suppliers were in fact audited to meet these requirements, but the objective evidence wasn't sufficient. There is no impact on material supplied to our customers.

2. Flowserve Raleigh has performed a full review of our Approved Vendor List (AVL). Raleigh has reviewed all the audits that were on file and active, 193 total. Raleigh has determined that after the review of the audits and surveys to determine objective to support acceptance of NCA3850, there were 33 suppliers that Raleigh has requested additional information. This additional information included verification of 10CFR50 Appendix B program and 10CFR Part 21. During the review of the requested additional objective evidence we confirmed that 27 suppliers had a program in place and would stay at the current scheduled triannual audit. We still are awaiting additional information from 6 suppliers. If the additional information supplied cannot confirm their program the next available audit will be scheduled.

For example: Aruna was found during the audit that Flowserve Raleigh failed to adequately qualify them as a material organization. After Flowserve Raleigh's request Aruna provided an updated QA Manual and supporting documentation for NCA 3842.2 in Subsection NCA of Section III of the ASME B&PV Code, 10CFR50

IED9  
NRD

Appendix B and 10CFR Part 21. Flowserve Raleigh reviewed the documentation and found it to be in compliance. No additional audit outside of the schedule triannual audit has been scheduled.

For example: Pradeep was found during the audit that Flowserve Raleigh failed to adequately qualify them as a material organization. After Flowserve Raleigh's request Pradeep could not provide supporting documentation for NCA 3842.2 in Subsection NCA of Section III of the ASME B&PV Code, 10CFR50 Appendix B and 10CFR Part 21. An audit was scheduled and completed in November 2017.

3. To prevent any reoccurrence on Nonconformance #99901356/2017-201-01, the multiple checklists that Raleigh is currently using will no longer be available. Flowserve Raleigh will only be utilizing two checklists (1 for Audits and 1 for Survey's). Flowserve Raleigh will update the auditing procedure to be more specific on what checklist is to be used based on the AVL scope and supplier requirements. Further, all lead auditors will be trained on the requirements of the procedure, ASME Codes and regulations. - Proposed Completion Date: March 30, 2018.

To prevent any reoccurrence on Nonconformance #99901356/2017-201-02, the procedure and checklist going forward will be very clear in the requirements as to what to validate within a supplier's quality program and process. Additional training on this procedure and the requirements of 10CFR50 Appendix B and 10CFR Part 21 will be performed with all lead auditors. - Proposed Completion Date: March 30, 2018.

With regards to Notice of Nonconformance 99901356/2017-201-03:

1. Flowserve Corrective Action # 1680 Revision 2  
Flowserve Raleigh has performed a full review of the nonconformance identified above and have determined that the individuals in the welding control areas were not identified to be designees to the Supervisor of Welding, the welding oven for returned weld rods were not being used correctly per procedure 36-40-14 and Raleigh's Quality Program.
2. The immediate and long term corrective action was to lock the cages with only the Supervisor and designees having access to the weld material storage areas, this is in place. Raleigh management trained all personnel in the welding departments on procedure 36-40-14 and the QA Manual. The weld control ovens were clearly identified for the return of coated weld materials for all shifts and the Supervisor and designees were instructed on the usage of the heated cabinets in accordance with Raleigh's QA program and procedure 36-40-14.

Raleigh's Manager of Metallurgical Process Control / Welding Engineering has reviewed the weld material exposure time and has determined after investigation and review of Section IX and our manufacturers recommended storage time that the immediate re-issue of the coated electrodes resulting in additional exposure time would not degrade the electrode and would not result in a Hydrogen embrittlement risk. The manufacturers

recommended total exposure time prior to re-bake is 48 hours. The immediate re-issue resulting in a total exposure of 6 hours is not detrimental to the performance and function of the coated electrodes. There is not impact on any material supplied to our customers.

3. To prevent reoccurrence, the return ovens will be relocated to provide complete separation from the storage ovens to prevent a coated electrode that has been removed for 3 hours or less being introduced into the incorrect oven.

The procedures and quality program will be reviewed for potential process changes to provide clearer directions and allow for better process and weld controls. All welding personnel will be trained on this updated procedure and quality program. Proposed completion date: December 15, 2017.

With regards to Notice of Nonconformance 99901356/2017-201-04:

1. Flowserve Corrective Action # 1686  
Contrary to the requirements of WEC Specification APP-GW-Z0-602 along with our Flowserve bulletin, a welder was witnessed using a carbon steel wire brush to clean a stainless steel weld.
2. Raleigh's Manufacturing Manager and Engineering Manager performed a thorough review of our internal processes and cleaning procedures as part of this corrective action approach. The brush that was used was not identified as a carbon brush and was used on a stainless valve during prep/clean in the welding department. This has been determined to be an individual occurrence by a single employee.
3. The immediate action was to remove all carbon steel brushes from the tool crib and throughout the facility. After a full review of our procedures and method specifications we have determined that we meet the requirements of the Westinghouse (WEC) procedure and our quality program. The WEC design specification requirement 7.3.3 and cleaning specification 2.2.3.2 are being fully satisfied in our internal documents here in Raleigh. For example: 1) Cleaning procedure 8260NW Revision 4 is located on the Route Cards in multiple steps in regards to welding and cleaning 2) Quality Assurance plans in multiple sections 3) welding procedures P8-123N, P8-323N, P8-123NW and P8-323NW. These all list the requirement to only use stainless material during processing but will be updated to meet the WEC specification verbatim.

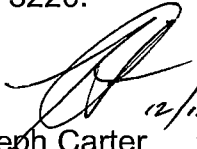
Code requirement: ASME Section IX "Qualification Standard for Welding, Brazing, and Fusing Procedures; Brazers; and Welding, Brazing, and Fusing Operators of the ASME B&PV Code Non-Essential Variable QW- 410.5 States "A change in the method of initial and interpass cleaning (brushing, grinding, etc)" specifies NO Content Requirement.

The Code requirement is only that the topic be addressed and a revision to the WPS be issued when there is a change to the method. The WPS as currently written does not violate the requirement of the QW-410.5 variable as there has been no change to the stated method of cleaning from wire brushes and wheels to any other form of cleaning.

As stated previously The WPS's applicable to the WEC Sales Orders, and currently approved by WEC in the present content, will be revised to insert the following statement to replace the current notes as presently worded in the current WEC approved WPS revision levels. "Only stainless steel brushes and wheels shall be used when removing scale or rust from the surfaces to be welded. Only equipment previously used strictly for stainless steel may be used."

The single occurrence identified was due to the fact that an employee failed to adhere to their procedures and processes. Additional issues were identified by the QA Manager and the welder was immediately given a stop work notice and their qualifications were removed after Material Review Board was performed. In closing we have the requirement built into our program and processes and the individual that was identified will not be performing welding or cleaning activities. We are evaluating changes and planning on purchasing and identifying the tools in a manner that will prevent the recurrence of this issue (i.e labeling and/or color coding). Flowserve Raleigh will continue to enhance our program and continue to strengthen our controls and procedures. There is no impact on the products Flowserve has supplied; as all material is cleaned and processed correctly per the requirements of the code and customer specification. Proposed completion date: December 20, 2017.

Questions or comments please contact me directly: [jocarter@flowserve.com](mailto:jocarter@flowserve.com) or 919-831-3220.

  
12/15/2017  
Joseph Carter

Quality Assurance Manager, Raleigh NC

Copy:

John P. Burke - Chief Quality Assurance Vendor Inspection Branch-2 Division of Construction Inspection and Operational Programs Office of New Reactors.

Robert Sherman – Director/ General Manager – GG&C Business Flowserve Corporation of Raleigh NC