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Our reference: GQ-15-50  
Date: July 16, 2015

Your Reference: Westinghouse Electric Company Response to the U.S. Nuclear Regulatory Commission  
Inspection Report No. 99900404/2015-202 Notice of Noncompliances

Subject: Reply to Request for Additional Information in Regard to NRC Inspection Report No.  
99900404/2015-202 Dated June 17, 2015

Westinghouse acknowledges receipt of the Request for Additional Information, NRC Inspection Report Number 99900404/2015-202 dated June 17, 2015. Westinghouse takes any Notice of Nonconformance received from the NRC seriously, is taking appropriate actions to resolve these issues, and is committed to comply with the provisions of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocess Plants," to Title 10 of the Code of Federal Regulations 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities" and 10 CFR Part 21, "Reporting of Defects and Noncompliance."

As requested, additional information associated with these nonconformance issues are described in the attachment to this letter.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Steve Hamilton', written over a horizontal line.

Steve Hamilton, Senior Vice President  
Quality, Environment, Health & Safety &  
Chief Quality Officer

IE09  
NR0

cc:	Edward Roach	US NRC
	Jonathan Ortega-Luciano	US NRC
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	Duane Olcsvary	Westinghouse
	Kevin Brode	Westinghouse
	Michele Gutman	Westinghouse

**RAI-1**

Your response to NON 99900404/2015-202-01 discusses several completed and planned corrective actions but does not address the apparent Westinghouse Electric Company (Westinghouse) failures related to:

1) inadequate oversight of suppliers and proper use of the qualified supplier list (QSL), and 2) verification that its' suppliers had measures in place to assure that purchased material, equipment and services conformed to procurement documents. Please describe your actions taken to confirm the adequacy of the QSL, and justification for the issuance of previously fabricated safety related products manufactured by unqualified suppliers dating back to 2010.

**Response:**

Presently, Westinghouse has three (3) audits out of twenty-two (22) audits to complete to close out the actions where re-auditing the supplier was identified. All other actions are complete. These audits are scheduled and will be complete by September 30, 2015. The actions taken so far have ensured that the safety related suppliers listed on the QSL have been properly qualified; have scope identified to perform work consistent with the audits performed and the purchase orders in place; and, in conjunction with the actions taken to strengthen the procurement process, will preclude recurrence of similar situations in the future. Details regarding the adequacy of the Westinghouse QSL are included later in RAI-3.

**Justification Of Past Product Produced By Unqualified Suppliers**

With respect to justification for past product delivered from unqualified suppliers, to date only two (2) instances have been identified where an unqualified supplier was awarded safety related work. These instances are related to L&S Machine and Peerless Manufacturing Company (PMC) identified in the NRC Inspection Report from the January 2015 inspection (ML15070A213). To ensure no other instances exist comparable to L&S Machine and PMC, Westinghouse initiated reviews of safety related and non-safety related Purchase Orders (both open and closed) issued over the past five (5) years. Information specific to L&S Machine and PMC, and the overall project to investigate and discover if there are other examples, are provided below.

1. Westinghouse Engineering performed an evaluation of the product related to PMC and determined it was acceptable. Although the evaluation of the initial delivery was performed as a verification and validation activity, Engineering is now performing their evaluation under the Westinghouse commercial grade dedication program through commercial dedication instruction CDI- BWR-ENG-15-001.
2. Westinghouse Engineering evaluated product related to L&S Machine and determined that the fuel nozzle escape was an isolated incident. The L&S Machine root cause analysis (RCA) for this incident identified that L&S Machine improperly implement programming changes to a CNC/CMM machine, and failed to properly maintain control of nonconforming product in accordance with their procedures. L&S Machine identified the nonconforming nozzle, but did not properly segregate it and it was shipped. The Westinghouse oversight consisted of a sampling of finished product prior to shipment, and this unit was not part of the lot selected for evaluation.
3. Discussion of the actions taken in the Stop Work Order (SWO) is detailed in RAI-2.
4. A cross-functional team consisting of Supply Chain, Quality, and Engineering personnel conducted a review of a sample of the past five years of safety related orders following Westinghouse 10.3, "Sampling Plans." A total of 5,802 purchase orders were in the lot, and a sample of 200 purchase orders were reviewed by the team. There were no additional unqualified suppliers identified.

5. During the extent of condition evaluation of PMC purchase orders, it was discovered that other orders with PMC were executed as safety related. Westinghouse initiated CAPAL issue 100312448 in our corrective action program to evaluate the PMC safety related purchase orders issued in the past five years. This evaluation will be completed by September 11, 2015.
6. The same cross-functional team is now reviewing non-safety related purchase orders from the past 5 years to ensure that no safety related product or services were improperly procured as non-safety related. There are 275,528 purchase orders in the lot, and a sample size of 800 purchase orders are being evaluated during this review. This evaluation will be completed by August 28, 2015.
7. As part of CAPAL issue 100000472, a 3-Phase project is underway with actions taken and planned to correct problems identified in the Westinghouse Procurement Process.
  - a. Phase 1: As of April 2014, safety related purchase orders and change notices are being reviewed by a cross-functional team consisting of Supply Chain, Engineering, and Quality personnel to ensure technical and quality requirements are accurate prior to release to the supplier. Discrepancies are identified in the corrective action program, and the purchase order returned to the requisitioner for correction. As of July 1, 2015, 3,829 purchase orders had been reviewed, and 63 were identified as having errors. These were documented in the corrective action program and rejected back to the originators for correction. This process will remain in place until the Effectiveness Review for CAPAL issue 100000472 is completed and determined that the corrective actions have been effective.
  - b. Phase 2: System controls are being established in SAP to prevent purchase orders from being issued to non-QSL suppliers when the safety class of orders requires that QSL suppliers be used. Phase 2 will be completed by July 31, 2015.
  - c. Phase 3: Multiple process improvements will be implemented:
    - System controls will be established in SAP that prevent editing of technical and quality requirement fields once a requisition is converted to a purchase order.
    - The supplier must be selected for the order before the technical and quality requirements review is conducted, and if the supplier is changed post review, the system will force the requisition back through the review process.
    - Additional prompts will be added into the SAP workflow that remind the individuals of the actions they are accountable to complete before moving the requisition on to the next activity.
    - A communication protocol will be established to provide daily reports to buyers identifying any changes in QSL ratings associated with related requisitions or purchase orders.Phase 3 will be completed by October 31, 2015.
  - d. Across all phases of the project, applicable procedures are being updated to reflect changes in the processes, roles, and responsibilities. Training requirements will also be updated, and personnel will be requalified to perform work in accordance with the new requirements. Personnel who fail to requalify or maintain qualification will be locked out of the system until they are requalified. This will be completed by October 31, 2015.

In summary, for the two instances identified in the NRC inspection report, actions were taken to ensure quality requirements have been met, and that the products delivered are safe for use for their intended purpose. The review of the remaining safety related and non-safety related purchase orders will be

completed, and instances where an unqualified supplier was used will be documented in the corrective action program.

## **RAI-2**

Your response to NON 99900404/2015-202-02 discusses several completed and planned corrective actions, for four different issues, but does not clearly describe the reasons for noncompliance and corrective actions taken for the nonconforming fuel nozzle issue identified in CAPs 12-045-CO37. Please describe the specific reasons for noncompliance and why a stop work order was not initiated for the nonconforming fuel nozzles. Please describe the extent-of-condition review for past Westinghouse audits where inadequate audit performance may have failed to identify areas of regulatory noncompliance. Further, please describe the relationship between CAPAL issue 100016265 and CAPAL issue 100052988.

## **Response:**

### **Nonconforming Fuel Nozzle**

The nonconforming fuel nozzle was identified at the customer site on January 18, 2012, and the root cause analysis (RCA) for CAPs issue 12-045-CO37 specifically identified the root cause for the nonconforming fuel nozzle as follows: "Management failed to reinforce established standards which resulted in an incomplete audit checklist, acceptance of SCAR responses without objective evidence and not issuing a Stop Work Order (SWO) in compliance with Westinghouse 15.5." In this context, the reference to not issuing a SWO is specific to Westinghouse failing to do so after finding programmatic weaknesses during an audit conducted October 17 through October 19, 2011, and for SCARs that were issued before the nonconforming nozzle escaped. Since then, Westinghouse has implemented a more robust oversight process and a supplier accountability model; as a result, SWOs are issued in a more conservative manner.

Westinghouse did, in fact, initiate a Limited SWO after the discovery of the nonconforming fuel nozzle. Limited SWO APP-GW-GAR-006 was issued by Westinghouse to L&S Machine on April 18, 2012 with the following provisions:

- L&S Machine was to cease all procurement of safety related materials and services
- L&S Machine was to cease all independent inspection activities without Westinghouse oversight; no product was to be delivered to Westinghouse without prior authorization
- L&S Machine was to cease all Westinghouse manufacturing operations at the Indiana, PA facility

Immediate compensatory actions included purchase order change notices issued to L&S Machine that required: 1) Westinghouse to perform all safety related procurement activities for Westinghouse materials and services; and 2) Westinghouse to witness all final inspection activities.

The Limited SWO was partially released on April 26, 2012 following completion of a Westinghouse audit of the L&S Machine Indiana, PA facility with satisfactory results. The Limited SWO was fully released on April 30, 2012 following completion of corrective actions by L&S Machine in a manner that satisfied the SWO restart criteria.

The Westinghouse RCA resulted in three (3) corrective actions to prevent recurrence (CAPRs), five (5) compensatory actions, and 24 supporting actions. The corrective actions included (but were not limited to):

- Immediate remedial actions were taken to rework the nonconforming fuel nozzle at the Westinghouse Columbia Fuel Fabrication Facility; it was reshipped and accepted by the customer at Indian Point 2.
- The audit frequency for L&S Machine audits was changed from triennial to annual, and Westinghouse implemented a proactive surveillance process at nuclear fuel-related suppliers.
- Westinghouse issued Level 3 procedure QA-7.16, "Supplier Assessment Peer Review," which defines the responsibilities and requirements for conducting peer reviews of supplier assessments to ensure that documents are complete and accurate in accordance with applicable procedures. The procedure also includes provisions for verifying that a decision or plan of action is appropriate prior to proceeding and for validating that supplier audit checklists are complete.
- Westinghouse reviewed and accepted the L&S Machine procedure for validation and software revision control.
- L&S Machine developed a first piece inspection process for Westinghouse products that was validated by Westinghouse prior to implementation.
- Westinghouse issued Level 3 procedure QA-16.6, "Potential Product Impact Evaluations," that includes the requirements for evaluating SWO applicability, including product impact assessments, during the post-audit process.

L&S Machine also conducted an RCA of the event (as required by Westinghouse), which identified that: 1) the CNC/CMM machine was improperly programmed; and 2) the nonconforming nozzle was identified, but not properly controlled in a manner that precluded it from being shipped.

All of the corrective actions for CAPs issue 12-045-C037 were completed, but the effectiveness review subsequently conducted in September 2014 determined that the corrective actions did not fully address the root cause. However, there were additional actions taken to address the root cause, as follows:

- Regarding management not reinforcing established standards: The new Quality SVP and Chief Quality Officer clearly communicated his expectations to the organization through employee meetings; individual conversations; implementation of a Supplier Accountability Model; and changes in the leadership positions within the Quality organization.
- Regarding acceptance of SCAR responses without objective evidence: The RCA for CAPAL issue 100026711 ("Missed Defects in RCP Casings for AP1000 Project") identified a CAPR to revise procedure QA-16.1, "Supplier Corrective Action Request," to clarify the requirements for SCAR closure. It identified another CAPR to update the Westinghouse SCAR letter communicated to suppliers to clarify the requirements for providing objective evidence. Both of these actions were completed earlier this year, and the effectiveness review for CAPAL issue 100026711 will be initiated by July 31, 2015.

### **Internal Audit Performance**

The extent of condition review for past Westinghouse audits where adequate audit performance may have failed to identify areas of regulatory noncompliance was performed as part of the Limited Cause Analysis (LCA) conducted for CAPAL issue 100075362. The extent of condition included 23 completed internal quality audits for FY14 (April 1, 2014 through March 31, 2015). For eight (8) of the audits reviewed, there were discrepancies in the checklists that deviated from the planned audit scope. However, it was

determined that there were no instances of regulatory noncompliance, as the overall audit program provided sufficient coverage of the regulatory requirements (10 CFR 50 Appendix B). The Westinghouse internal audit program is being updated to include requirements for follow-up audits (WEC 18.1 revision completed by July 31, 2015), and our recent internal audit of Mangiarotti (April/May 2015) included a follow-up audit, as it was determined that some areas were not adequately assessed during the initial audit.

The chronological relationship between CAPAL issues 100016265 and 100052988, which both raised concerns with the internal audit program, is as follows:

- February 2014 – An acting Quality Programs Manager was appointed with responsibility for the internal audit program. He initiated CAPAL issue 100016265 to self-identify weaknesses in the internal audit program, including audit scopes; incomplete checklist sections; inadequate objective evidence; lack of a peer review process; inadequate team member proficiency; and lack of a comprehensive audit schedule. This issue also identified the need for an independent audit of the internal audit program.
- May 2014 through July 2014 – The number of internal audits conducted was reduced due primarily to the concerns identified in CAPAL issue 100016265. During this time, actions were initiated to address these concerns, including scheduling of an independent NIEP-style audit by external consultants. Internal audits conducted during this time proceeded under an additional management review of audit plans and team composition.
- August 2014 – The NIEP-style independent assessment of the internal audit program was conducted and identified concerns similar to those documented in CAPAL issue 100016265. The formal report was received in September 2014.
- August 2014 – A new Quality Programs Manager was appointed who has experience with the Westinghouse internal audit program and was familiar with the previously identified concerns. Internal audits resumed with increased oversight and immediate actions were implemented to improve execution of the program.
- October 2014 – CAPAL issue 100052988 was entered to document the weaknesses identified by the NIEP-style independent assessment; this issue was assigned a Level 3 significance, which required that an LCA be conducted. After careful consideration and a determination that all concerns would be addressed, CAPAL issue 100016265 was closed to CAPAL issue 100052988, which is allowed by Westinghouse corrective action program requirements since CAPAL issue 100052988 was a higher significance level.
- November 2014 – An LCA conducted to determine the causes for the deficiencies documented in CAPAL issue 100052988 resulted in corrective actions that drove many improvements in the Westinghouse internal audit program, including: 1) development and implementation of more robust Audit Team Member training; 2) updated audit checklists based on NUPIC checklists; 3) and implementation of tools such as a pre-job brief template and a peer review checklist. The lone outstanding corrective action for CAPAL Issue 100052988 is to revise and issue Westinghouse 18.1, Revision 4.0, "Internal Audits," which will be completed by July 31, 2015.

**RAI-3**

Your response to NON 99900404/2015-202-03 discusses several completed and planned corrective actions but did not describe the bases for keeping the L&S Machine on the QSL as a safety related supplier. Please describe your basis for accepting the L&S Machine as a safety related supplier and clarify the acceptable scope of work. Also, please describe how Peerless, a commercial grade supplier, was accepted to perform safety related work. Please also describe the extent of condition review conducted to verify that all suppliers providing safety related items were properly qualified and performed work within their approved scope of work.

**Response:****L&S Machine**

The basis for accepting L&S Machine as a safety related supplier is through direct, onsite evaluation of L&S Machine's technical and quality capability to meet the requirements defined within the Westinghouse procurement documents, and assessing the overall implementation of L&S Machine's quality assurance program. L&S Machine's qualification was maintained on the Westinghouse Qualified Suppliers List (QSL) by audit WES-2013-065 to the applicable requirements of 10 CFR 50, Appendix B, ASME NQA-1 1994, NRC Regulatory Guide 1.28, and 10 CFR 21.

Westinghouse acknowledges the objective evidence to support the qualification basis of L&S Machine was unclearly documented within the assessment checklist, however subsequent review of the assessment package and procurement documents issued to L&S Machine concluded that the issue was with the Westinghouse procurement documents.

Review of the supplier audit WES-2013-065 indicated a lack of objective evidence, or a need for clarification, to support L&S Machine performing special processes, such as welding, and commercial grade dedication activities. Westinghouse has investigated these areas and provides the following information to support the resolution of these concerns:

The objective evidence documented in audit checklist question 6.4 states in part "Limited welding activities are performed at L&S Machine in accordance with WPSs <Welding Procedure Specifications> and PQRs <Procedure Qualification Records>. All welding performed outside of the facility is performed by qualified vendors...No welding activities were evaluated during this audit because no welding activities were being performed." Discussions with the Westinghouse audit team determined the intent of the statements was not clearly conveyed. The intent of this statement was to explain the welding performed by L&S Machine is limited to performing nonstructural welding and does not include welding of ASME Section III pressure boundary components. However, these discussions with the audit team concluded the audit team was not able to physically observe in-process welding activities during the execution of the audit, but the applicable Welding Procedure Specifications (WPSs), Procedure Qualifications Records (PQRs), and past production welding data was reviewed by the audit team to verify compliance to ASME Section IX, which was documented in Table 1-E-2 and Question 6.4 of the audit checklist.

In response to the issues identified within Notice of Nonconformance 99900404/2015-202-03, Westinghouse performed a limited-scope audit June 3-4, 2015 to validate the adequacy and effectiveness of the quality controls implemented by L&S Machine for Westinghouse procurements. The concerns identified within the NRC Inspection report were investigated by the audit team to validate adequate controls were and are in place effectively implementing their quality assurance program including control of special processes and control of suppliers, and product being released from L&S Machine is not in an indeterminate status.



**Clarification of L&S Machine's commercial dedication program:**

1. L&S Machine does not act as a third-party dedicating entity; rather, their dedication activities are limited to dedicating commercial services to support the fabrication processes such as water jet cutting and calibration services.
2. Dedication plans are developed by personnel who have extensive knowledge and experience in the services being dedicated. The technical evaluation and identification of critical characteristics are initially performed by L&S Machine utilizing the specific technical requirements defined within Westinghouse purchase orders. The drafted dedication plan is then submitted to Westinghouse Engineering for review and approval prior to implementation.

**Clarification of L&S Machine's control of special processes:**

1. Review of the manufacturing and quality plans (MAQPs) developed for Westinghouse product confirmed that welding and machining were the only scope of activities required to be performed by L&S Machine.
2. Welding activities were physically observed during the execution of the limited scope audit (WES-2015-112) conducted June 3-4, 2015 and deemed to be adequately controlled. L&S Machine does not perform ASME Code welding or structural welding. All WPSs and PQRs are prepared by L&S Machine's welding department in accordance with requirements established in ASME Section IX. WPSs and PQRs are submitted to Westinghouse for review and approval prior to production welding. Welders are qualified through functional demonstration and all test coupons are independently tested by a laboratory on the Westinghouse QSL. Welder qualifications are maintained through consistent surveillance by L&S Machine's Quality Assurance Manager to ensure welders maintain proficiency.
3. Nondestructive examination (NDE) is limited to radiographic testing (RT) for spiders. NDE is performed by a Westinghouse qualified supplier, who is contracted to perform the service through a Westinghouse purchase order.
4. Heat treatment is limited to stress relieving for Top and Bottom Nozzles. This operation is performed by Westinghouse CFFF, and then parts are shipped backed to L&S Machine and receipt inspected.

A summary and chain of custody is detailed below to provide assurance the additional processes and requirements were controlled by Westinghouse and product being released from L&S Machine is not in an indeterminate status:

<b>Nuclear Fuel</b>				
<b>Part Number</b>		<b>Description:</b>		
10008E61H09 - H16		17 XL Top Nozzle Leaf Spring		
<b>Process Step</b>	<b>Responsibility</b>	<b>Westinghouse PO Number</b>	<b>Qualification Basis</b>	<b>Notes</b>
Raw material - Inconel plate	Westinghouse Supplier	5500002662	Audit WES-2013-212	Supplier provides 39" x 86" plate to plate slitting supplier.
Plate slitting	Westinghouse Supplier	5500002808	Westinghouse performs Commercial Dedication - Methods 1&3 (CDI# MFRD-14-87)	Supplier slits the plate into 6.75" x 86" strips and ships to L&S Machine.
Machining	L&S Machine	5500002889	Audit WES-2013-065	Assessment verified controls for machining.
Certification	L&S Machine	5500002889	Audit WES-2013-065	Assessment verified controls for issuance of conformance certificates.
Heat treat, Shot peen, Bead blast	Westinghouse	All operations are performed internally at Westinghouse CFFF		

Nuclear Fuel				
Part Number		Description:		
10008E62G03		17XL Top Nozzle		
Process Step	Responsibility	Westinghouse PO Number	Qualification Basis	Notes
Raw material - SS Plate	Westinghouse Supplier	5500002474	Audit WES-2014-154	Supplier drop ships 011Q073H01 - 0.6825x1.775x8.5625 SS plate to L&S Machine.
Raw material - SS Plate	Westinghouse Supplier	5500002475	Audit WES-2014-154	Supplier drop ships 011Q093H01 - 1.9075 x 109 x 1.8830 SS plate to L&S Machine.
Raw material - SS Plate	Westinghouse Supplier	5500002476	Audit WES-2014-154	Supplier drop ships 011Q092H01 - 8.8125 x 8.8125 x 1.215 SS plate to L&S Machine.
Raw material - SS Plate	Westinghouse Supplier	5500002477	Audit WES-2014-154	Supplier drop ships 011Q090H01 - 8.8125x8.8125x.8750 SS plate to L&S Machine.
Machining	L&S Machine	5500002907	Audit WES-2013-065	Assessment verified controls for machining.
Weld	L&S Machine	5500002907	Audit WES-2013-065	Westinghouse approved L&S Machine's welding process qualification, WPSs and PQRs.
Heat treat	Westinghouse	Welded nozzle are sent to Westinghouse CFFF and heat treatment is performed internally at CFFF		
Finish machining	L&S Machine	5500002907	Audit WES-2013-065	Assessment verified controls for machining.
Certification	L&S Machine	5500002907	Audit WES-2013-065	Assessment verified controls for issuance of conformance certificates.

<b>Nuclear Fuel</b>				
<b>Part Number:</b>		<b>Description:</b>		
10037E88H01		17 NG RCCA Spider (Two piece machining)		
<b>Process Step</b>	<b>Responsibility</b>	<b>Westinghouse PO Number</b>	<b>Qualification Basis</b>	<b>Notes</b>
Raw material - SS Bar	Westinghouse Supplier	4500410141	Audit WES-2013-067	9" and 2" stainless bar drop shipped to L&S Machine.
Machining	L&S Machine	5500002386	Audit WES-2013-065	Assessment verified controls for machining.
Welding	L&S Machine	5500002386	Audit WES-2013-065	Westinghouse approved L&S Machine's welding process qualification, WPSs and PQRs
Radiography of weld	Westinghouse Supplier	4500658517	Audit WES-2013-065	L&S Machine sends welded spiders to Westinghouse supplier for NDE (x-ray).
Finish machining	L&S Machine	5500002386	Audit WES-2013-065	Assessment verified controls for machining.
Certification	L&S Machine	5500002386	Audit WES-2013-065	Assessment verified controls for issuance of conformance certificates.

<b>Newington</b>				
<b>Material Number:</b>		<b>Description:</b>		
V6-434-1 & V6-434-2		UGT Enclosure Pin		
<b>Process Step</b>	<b>Responsibility</b>	<b>Westinghouse PO Number</b>	<b>Qualification Basis</b>	<b>Notes</b>
Material Supply	Westinghouse	4500449276	Westinghouse provided material V6-434-1 & V6-434-2 to L&S Machine for machining operations.	
Machining	L&S Machine	4500449276	Audit WES-2012-106	Audit verified controls for machining.  Additionally source surveillance was performed by a Westinghouse Level II, Mechanical Inspector for a sample sized lot of V6-434-2.

Waltz Mill				
Part Number:		Description:		
10062E36 Group 01 Rev. 1		17x17 Guide Tube Special Guide Plate		
Process Step	Responsibility	Westinghouse PO Number	Qualification Basis	Notes
Material Supply	Westinghouse Supplier	4500467713	Audit WES-2006-083 NIAC #12013 Audit WES 2012-073	ASME Code Material for Plate released per QR-13-1572 and received at L&S Machine.
Material Supply	Westinghouse Supplier	4500265225	Audit WES 2006-083 NIAC #12013 Audit WES 2012-073	ASME Code Material for Lock cups released per QR-09-35 and received at L&S Machine.
Machining / Preliminary Rough	L&S Machine	4500601734, Item 1	Audit WES 2013-065	Audit verified controls for machining.
Machining	L&S Machine	4500601734, Item 2	Audit WES 2013-065	Audit verified controls for machining.
Heat Treat / Stress Relief	Westinghouse Supplier	4500601734 Item 1	Audit WES-2012-150	Plate - flow down to supplier and Westinghouse dedication per CDI-3007.
Heat Treat / Bright Annealing	Westinghouse Supplier	4500601734 Item 2	Audit WES-2012-150	Plate - flow down to supplier and Westinghouse dedication per CDI-3007.
Machining / Finish	L&S Machine	4500601734	Audit WES-2013-065	Audit verified controls for machining.
Inspection / Visual	L&S Machine	4500601734	Audit WES-2013-065	Special Guide Plates and Lock Cups released to Westinghouse supplier per QR-13-2810.
Weld and Assembly	Westinghouse Supplier	4500613528	Audit WES-2013-141 NIAC #18134	Audit verified controls for welding.
NDE / Visual exam of lock cup welds	Westinghouse Supplier	4500613528	Audit WES-2013-141 NIAC #18134	Special Guide Plates and Lock Cups released from Westinghouse supplier per QR-13-3391 Rev. 1

At the time of the NRC Inspection, the scope of supply on the Westinghouse QSL was not accurately represented and Westinghouse has taken action to clarify the scope of supply based on the objective evidence reviewed and verified during the limited scope audit WES-2015-112. Westinghouse's Supplier Quality Assurance Requirements document SQAR-1030 has been revised to accurately reflect the fabrication services provided by L&S Machine and the references to additional requirements not required to be performed or controlled by L&S Machine have been removed.

Westinghouse acknowledges that purchase orders were issued to L&S Machine that imposed additional technical and quality requirements for which the supplier was not responsible. The reason for this nonconformance is due to a lack of compliance with Westinghouse 7.5. Westinghouse failed to insert the requisition information that only applied to the scope of supply being provided by L&S Machine.

Corrective actions associated with the Westinghouse procurement process are documented within CAPAL issue 100000472.

### **Peerless Manufacturing Company**

Peerless Manufacturing Company (PMC) was never accepted or qualified as a safety related supplier; however, Westinghouse acknowledges that the QSL did not specifically state "non-safety related." PMC was originally qualified to perform non- safety related work in accordance with a quality assurance program meeting the intent of 10 CFR 50 Appendix B as documented in audit WES-2008-024 conducted in March 2008. The triennial requalification audit WES-2011-012 of PMC in 2011 initially identified 10 CFR 50 Appendix B, 10 CFR 21 and ASME NQA-1-1994 as applicable to the audit scope. However, through the course of auditing, the audit team determined PMC's quality program lacked the necessary controls and processes to effectively implement a quality assurance program fully compliant with 10 CFR 50 Appendix B and 10 CFR 21. As a result, reference to 10 CFR 50 Appendix B was removed from the QSL on March 12, 2012 and replaced with the statement "Applicable portions of 10 CFR 50 Appendix B per Westinghouse procurement documents" as documented in Supplier Audit Evaluation Summary (SAES) No. 17296. Therefore, PMC was maintained on the QSL as a non-safety related supplier.

On March 13, 2012, purchase requisition 1000425637 was initiated for safety related design services under the assumption that PMC was qualified as a safety related supplier. Prior to the approval of purchase requisition 1000425637 on March 15, 2012 and issuance of PO 4500429292 on March 16, 2012, Westinghouse failed to verify the qualification basis of PMC on the QSL. This resulted in the release of safety related design work. This deficient condition was self-identified in CAPAL issue 100000446 on May 30, 2013. Additionally, during the recent extent of condition evaluation of PMC, Westinghouse identified past procurement activity which imposed safety related requirements. This discrepancy was self-identified into the corrective action program database on July 9, 2015 (i.e., CAPAL issue 100312448).

A timeline of events is listed below:

- January 2011 - Westinghouse performed triennial audit WES-2011-012 and confirmed that PMC was not capable of providing safety related engineering services. PMC's quality program was verified to meet the intent of applicable portions of 10 CFR 50 Appendix B as documented in SAES No. 17296. However, the PMC QSL listing did not clearly convey that PMC was being maintained as a commercial supplier on the QSL.
- September 2011 - An update to the QSL was performed incorrectly, identifying 10 CFR 50 Appendix B as an applicable quality program requirement to PMC's scope of supply which was not consistent with audit WES-2011-012
- March 12, 2012 - The QSL listing for PMC was corrected to reflect the results of WES-2011-012, and identify PMC as a non-safety related supplier. There were no new safety related purchase orders issued between September 2011 and March 2012.
- March 16, 2012 - Purchase order 4500429292 was issued as safety related to PMC without adequate verification of PMC's qualification basis and QSL listing.
- August 6, 2012 - PMC report C2623-PB-02, "Computation Fluid Dynamic <CFD> Analysis of Peach Bottom Atomic Power Station," was submitted to Westinghouse as a safety related product from purchase order 4500429292.
- September 12, 2012 - Calculation Note CN-BWR-ENG-12-009 was completed utilizing PMC report C2623-PB-02 and used as an input Peach Bottom Units 2 and 3 ASME Code stress report, WCAP-17649-P.

- September 25, 2012 - Peach Bottom Units 2 and 3 ASME Code stress report, WCAP-17649-P was delivered to the customer.
- May 30, 2013 - CAPAL issue 100000446 was generated when it was discovered that PMC did not have the appropriate quality program to supply report C2623-PB-02 as safety related.
- November 2013 - Westinghouse developed and completed verification plan LTR-US-BWR-13-20 for PMC CFD analysis reports C2623-PB-02 and 210229-C2623-PB-01 to verify the results of the analysis.
- March 2014 - Change notice 24 for purchase order 4500429292 was issued to indicate the hardware (vane panels) required to be supplied was non-safety related.
- June 2-3 2014 - Commercial grade survey WES-2014-117 was performed in accordance with CDI-BWR-ENG-14-001, Rev 1. As a result, PMC's listing on the Westinghouse QSL was changed to reflect the commercial grade survey.
- June 6, 2014 - CDI-BWR-ENG-14-001-R1-ASMT-1 was completed for 210229-C2623-PB-MELLLA+ design analysis and was delivered to the customer.
- June 30, 2015 - Report C2623-PB-02 from PMC was found to have not been commercially dedicated in accordance with Westinghouse 7.2, "Dedication of Commercial Grade Items." Commercial dedication of report 210229-C2623-PB-01 Revision 1 is being tracked under CAPAL issue 100308417. The commercial dedication is to be completed by August 28, 2015.
- July 1, 2015 - CDI-BWR-ENG-15-001 was developed to address the verification of critical characteristics related to the CFD analysis report 210229-C2623-PB-01 Revision1 that PMC performed for Peach Bottom Units 2 and 3.
- July 8, 2015 - Westinghouse identified that incorrect inputs were utilized in CN-BWR-ENG-12-009, Revision 0. CAPAL issue 100312407 was entered to document the need to rerun the analysis.

Westinghouse has developed an action plan to commercially dedicate the design analysis work provided by PMC. This dedication process is currently underway and pending completion once all critical characteristics have been verified. While the completion of the formal dedication process is pending, Westinghouse is subsequently performing a 10 CFR 21 evaluation to validate an indeterminate status does not exist.

The second analysis provided by PMC, 210229-C2623-PB-MELLLA+, was commercially dedicated by Westinghouse. Westinghouse realized that after PMC was no longer on the QSL as a safety related supplier, commercial dedication would be necessary to accept product from PMC intended to be supplied as safety related to our customers. CDI-BWR-ENG-14-001, Rev 1, was developed and required multiple types of acceptance activities. Completion of these acceptance activities were documented within CDI-BWR-ENG-14-001-R1-ASMT-1.

#### **Adequacy of the QSL**

CAPs issue 12-010-M010 included an action to risk-rank suppliers based on criteria outlined in internal letter SQA-12-0201. This letter documents that in October of 2011, an evaluation was performed of 80 10 CFR 50 Appendix B safety related suppliers on the Westinghouse QSL. These 80 suppliers were a statistically significant sample of the ~350 qualified suppliers at that time.

On December 21, 2011 a "Supplier Quality Alert" was sent to 10 CFR 50 Appendix B / Part 21 / NQA-1 suppliers to alert them of lessons learned, and request specific confirmation from the suppliers of program compliance. Checklists were provided to the suppliers and they were requested to document their

findings in their corrective action programs, implement recovery plans, and inform Westinghouse of the results.

In March 2012, Westinghouse increased the extent of condition from the statistically significant sample to include a systematic evaluation of existing safety related suppliers. From this evaluation, Westinghouse determined if and where potential latent legacy issues might have existed. The review consisted of a supplier quality improvement plan that established a risk-based prioritized list of suppliers; identified interim corrective measures; and development and implementation of on-site supplier training to be conducted at Westinghouse. Based upon the suppliers' feedback relative to the supplied checklist, Westinghouse assigned a risk rating to each supplier based upon established criteria, the impact of the discrepancies identified, and available objective evidence.

Previous audit packages of "High Risk" and "Medium Risk" suppliers (130 total suppliers) were reviewed and adjustments were made based upon the evidence available; the final rankings were established and documented in CAPs issue 12-010-M010. A list of interim compensatory measures (ICMs) was developed to address the identified gaps, including: 1) accelerated re-audits; 2) additional restrictions on the supplier; and 3) increasing the frequency of surveillance. Additionally, supplier corrective actions were issued where programmatic gaps were identified.

Westinghouse initiated specific corrective actions based on the final risk ranking. The breakdown, actions, and conclusions are as follows:

**High - Accelerated re-audit of key high-priority suppliers**

- 50 suppliers were identified to be evaluated (audited, surveyed, etc.)
  - 13/50 Stop Work Orders (SWOs) were issued
  - 8/50 suppliers were reclassified as commercial
  - 7/50 Suppliers removed due to a lack of need
  - 22/50 suppliers audited and ICMs put in place

**Medium - Training of medium-priority, safety related suppliers**

- 80 suppliers were scheduled for training

**Low - Monitor low-priority suppliers through surveillance activities**

- 53 suppliers identified from the risk analysis for this category

The evaluation of the Westinghouse supply base was executed between March 2012 and September 2013 when all actions were complete.

In May 2014, Westinghouse recognized areas of concern with suppliers not yielding the desired improvements from the 2012 – 2013 activities, and issues identified with the procurement process as documented in CAPAL issue 100000472. The following issues were identified:

**1. Purchase orders and flow down of requirements**

- On multiple occasions, purchase orders with errors or incorrect information were issued. This includes purchase orders to suppliers not on the QSL; issued without invoking or adhering to specified QSL restrictions; issued with unclear or inadequately specified technical and quality requirements; and issued without correctly capturing customer contract requirements.
- In addition, some legacy procurement quality requirements used for safety related procurement did not fully comply with 10 CFR 50 Appendix B.



2. Qualification of first tier suppliers on the QSL and the correctness of the QSL
  - Westinghouse identified several suppliers on the QSL, that although historically qualified by Westinghouse, audits revealed issues with the supplier's quality program and their status on the QSL.
  - In some cases, assessments were done to the legacy procurement quality requirements or to 10 CFR 50 Appendix B and without assessing fully to NQA-1.
3. Instances where a supplier had not audited, nor flowed down, the requirements as imposed by our purchase order to their sub-tier suppliers
4. Instances where re-audits or surveillances revealed program gaps at suppliers had persisted since the last audit without adequate follow-up actions by Westinghouse

Westinghouse initiated actions to address the issues identified in CAPAL issue 100000472 as described in RAI-1.

Westinghouse took immediate action by implementing a two phase plan to address the deficiencies. A review (Phase 1) of suppliers scheduled to be audited throughout 2014 and evaluated potential Quality Program concerns utilizing the following criteria:

- Re-audits or surveillances of suppliers not meeting expectations since the last audit, or the detection of repeat findings
- Previous audit report not able to fully demonstrate qualification to applicable portions of NQA-1, or other specified requirements and standards, such as NCA 3800
- Obsolete requirements as basis still included in SAES or audit report
- SCARs from previous audits still open at commencement of next audit

The first assessment phase led to the identification of 39 suppliers that were suspended on May 9, 2014 as a precautionary measure to mitigate any potential risk. In this suspension state, Westinghouse updated the suppliers' restrictions to ensure no new purchase orders could be issued to the suppliers, and that product could not be shipped from the suppliers' facilities. During this time, Westinghouse contracted six (6) nuclear industry consultants with experience in supplier oversight to provide guidance and assistance in improving the established supplier quality processes. A cross-functional core team, supplemented with nuclear industry consultants, was created to develop action plans for addressing qualification gaps, control risk, and where appropriate, allow for continued work, purchase order's/change notices's and releases. The team considered alternatives such as:

- Gap assessments
- Re-audits
- Surveillances
- Restrictions (requirement or oversight activity to compensate for a deficiency in the supplier quality program)
- Alternate suppliers
- Commercial grade dedication (interim or long term)

All action plans for Phase 1 were developed and implemented by September 2014 and resulted in:

- Twenty-five (25) suppliers being reinstated to the QSL with restrictions after onsite evaluations was performed.

- Three (3) suppliers being converted to commercial grade.
- Eleven (11) suppliers being removed due to no business activities or lack of need.

Phase 2 of the evaluation began in July 2014 while actions remaining from Phase 1 were finalized. The evaluation method utilized for the remaining QSL suppliers encompassed taking a real time snapshot of the QSL data from three different sources, which were compared and validated to ensure accuracy. After the QSL data was validated, the supplier information was separated into three categories based on the qualification status:

<b>Total Number of Suppliers Pulled for Evaluation: 730</b>	
<b>Qualification Status</b>	<b>Number of Suppliers</b>
Qualified	567*
Suspended	83
Deleted	80

**\* 567 suppliers were qualified on the QSL based on the data obtained on June 17, 2014.**

The "Qualified" subset of suppliers was further categorized based on the evaluation methods used to place the suppliers on the QSL:

1. Audited: onsite audit performed to verify quality program and implementation
2. Surveyed: commercial grade survey performed on site
3. Desk Top Assessment : review of supplier quality assurance manual and certificates

<b>Audited</b>	<b>Surveyed</b>	<b>Desk Top Assessment</b>
312	87	168

Primary focus was on the "Audited" category due to the highest probability of these suppliers providing safety related product to Westinghouse. The "Surveyed" and "Desk Top Assessment" subsets were evaluated by reviewing the supplier qualification data included on the SAESs for indications of inadequate qualification such as:

- Scope of work not consistent with qualification basis
- Class D & E suppliers listed with safety related standards
- Commercial suppliers without dedication instruction identified
- No quality requirements listed
- Non-U.S. suppliers providing safety related products or services
- Distributors / sales office

Suppliers with discrepancies between their qualification bases and scopes of supply were incorporated into the "Audited" subset for evaluation. Westinghouse then vetted the total list of suppliers and validated the suppliers' SAP Vendor ID numbers; past, current, and future procurement activities; and whether the procurement activities were safety related or non-safety related. A total of 147 suppliers were identified due to potential discrepancies with SAES information or unclear bases for qualification. The qualification data, purchase orders, and audit packages were reviewed for the 147 suppliers and broken out into the following categories:

Category	Number of Suppliers
No Action Required	35
Action Required	61
Further Evaluation	51

For the suppliers segregated into the "Further Evaluation" category, further investigation was performed to develop clear action plans. The following table details the overall summary of the actions taken to mitigate risks:

Action Taken	Number of Suppliers
No action required	35
Remove from QSL due to lack of need	26
Revise SAES	52
Procurement restriction	8
ICMs in place and schedule re-audit / survey	22
Suspended & re-evaluated	4

Presently, Westinghouse has three (3) audits to complete to close out the actions where re-auditing the supplier was identified. All other actions are complete. These audits are scheduled and will be complete by September 30, 2015. The actions taken so far have ensured that the safety related suppliers listed on the QSL have been properly qualified; have scope identified to perform work consistent with the audits performed and the purchase orders in place; and, in conjunction with the actions taken to strengthen the procurement process, will preclude recurrence of similar situations in the future.