June 24, 2013

Ms. Kim White, Quality Assurance Manager
Westinghouse Ogden
10,000W 900S
Ogden, UT 84404

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION REPORT
NO. 99901426/2013-201, NOTICE OF VIOLATION

Dear Ms.White:

The U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at Westinghouse Western Zirconium facility in Ogden, Utah, from May 7 - 8, 2013. The enclosed inspection report documents the inspection results, which were discussed with you and other members of your staff on May 8, 2013. On May 28, 2013, a final exit meeting was held by teleconference where the inspectors presented the final results to you and other staff menbers.

The purpose of this limited-scope inspection assessed Westinghouse Western Zirconium's compliance with provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, "Reporting of Defects and Noncompliance," and selected portions of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." This technically-focused inspection evaluated the implementation of Western Zirconium's quality assurance activities associated with the manufacturing and testing of Zirconium products for U.S. nuclear power plants. The enclosed report presents the results of this inspection, which resulted in the issuance of one Notice of Violation (NOV) with two examples. These examples indicate that Western Zirconium has not adequately established and implemented controls to consistently implement its 10 CFR Part 21 program. This NRC inspection report does not constitute the NRC's endorsement of Western Zirconium's overall quality assurance or 10 CFR Part 21 programs.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. The NRC evaluated the violation in accordance with the agency's Enforcement Policy, which is available on the NRC's Web site at: http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html.

The enclosed notice of violation (NOV) cites the violation, and the subject inspection report details the circumstances surrounding it. The NOV cites the violation because Western Zirconium failed to adopt appropriate procedures to evaluate deviations and failures to comply associated with substantial safety hazards as required by 10 CFR Part 21.

You are required to respond to this letter and to follow the instructions specified in the enclosed NOV when preparing your response. If you have additional information that you believe the

NRC should consider, you may provide it in your response to the NOV. The NRC's review of your response to the NOV also will determine if further enforcement action is necessary to ensure compliance with regulatory requirements. In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," the NRC will make available electronically for public inspection a copy of this letter, its enclosure, and your response through the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System, which is accessible at http://www.nrc.gov/reading-rm/adams.html. To the extent possible (and if applicable), your response should not include any personal privacy, proprietary, or Safeguards Information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Sincerely,

/RA/

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

Docket No.: 99901426

Enclosures:
1. Notice of Violation
2. Inspection Report No. 99901426/2013-201
and Attachment

NRC should consider, you may provide it in your response to the NOV. The NRC's review of your response to the NOV also will determine if further enforcement action is necessary to ensure compliance with regulatory requirements. In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," the NRC will make available electronically for public inspection a copy of this letter, its enclosure, and your response through the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System, which is accessible at http://www.nrc.gov/reading-rm/adams.html. To the extent possible (and if applicable), your response should not include any personal privacy, proprietary, or Safeguards Information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Sincerely,

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Edward H. Roach, Chief
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DATE	06/19/2013	06/19/2013	06/19/2013	06/21/2013	06/24/2013

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NOTICE OF VIOLATION

Westinghouse Ogden . Docket No. 99901426
10,000W 900S Report No. 2013-201
Ogden, UT 84404

During a U.S. Nuclear Regulatory Commission (NRC) inspection conducted at the Westinghouse Western Zirconium facility in Ogden, Utah from May 7, 2013, through May 8, 2013, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

A. Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, Section 21.21(a)(1), "Notification of failure to comply or existence of a defect and its evaluation," states, in part, "Each individual, corporation, partnership, dedicating entity, or other entity subject to the regulations in this part shall adopt appropriate procedures to evaluate deviations and failures to comply to identify defects and failures to comply associated with substantial safety hazards as soon as practicable, and, except as provided in paragraph (a)(2) of this section, in all cases within 60 days of discovery, in order to identify a reportable defect or failure to comply that could create a substantial safety hazard, were it to remain uncorrected."

Contrary to the above, as of May 8, 2013, Western Zirconium failed to adopt appropriate procedures to evaluate deviations and failures to comply associated with substantial safety hazards as soon as practicable and, except as provided in paragraph (a)(2) of this section, in all cases within 60 days of discovery. Specifically:

1. Westinghouse Policy/Procedure WEC 21.0, "Identification and Reporting of Conditions Adverse to Safety," Revision 4.1, dated October 21, 2008, was not an appropriate procedure to ensure evaluation of deviations and failures to comply associated with substantial safety hazards within 60 days of discovery. As a result, Westinghouse failed to perform timely evaluation for Issue Report Corrective Action Plan (CAP) #08-231-M033. CAP #08-231-M033 was initiated on August 18, 2008, for four lots of Global Nuclear Fuel (GNF) Zr2 bar that failed grain size test and metallography test for atypical grains. Westinghouse Issue Review Committee evaluated CAP #08-231-M033 and concluded that the issue potentially represents a significant defect or noncompliance adverse to safety on August 20, 2008, which first identified the existence of a deviation. Westinghouse completed its evaluation of this deviation in a letter to file (LTR-RCPL-08-220) on December 10, 2008, which was 112 days after the date of discovery.

2. Western Zirconium's Procedure WZ-LINE STOP, "Western Zirconium LINE STOP PROCEDURE," Revision 4, dated July 20, 2012, lacks adequate manager guidance on how to determine when to enter a Line Stop into the CAPS to ensure evaluation of deviations and failures to comply associated with substantial safety hazards within 60 days of discovery. As a result, Western Zirconium failed to generate a CAP and evaluate for Part 21 in accordance with WZP21-CATS, "Western Zirconium Policy for Reporting of Significant Defects and Nonconformances (10 CFR Part 21)," Revision 4, dated October 21, 2012, for Line Stop 8100, "Procedure does not exist and/or

does not reflect best practice for the use of the Chevalier grinder, Bryant grinder and machining of dies via the Bridgeport mill," dated April 24, 2013.

These issues have been identified as Violation 99901426-2013-201-01.

This is a Severity Level IV violation (Section 6.9.d of the NRC Enforcement Policy).

Under the provisions of 10 CFR 2.201, "Notice of Violation," Westinghouse Western Zirconium is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Chief, Construction Mechanical Vendor Branch, Division of Construction Inspection and Operational Programs, Office of New Reactors, within 30 days of the date of the letter transmitting this notice of violation. This reply should be clearly marked as a "Reply to a Notice of Violation" and should include (1) the reason for the violation or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence if the correspondence adequately addresses the required response. Where good cause is shown, the NRC will consider extending the response time.

If you contest this enforcement action, provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System, which is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html, to the extent possible it should not include any personal privacy, proprietary, or Safeguards Information (SGI) so that the agency can make it available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If SGI is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements"

Dated this 24th day June 2013.

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NEW REACTORS
DIVISION OF CONSTRUCTION INSPECTION AND OPERATIONAL PROGRAMS
VENDOR INSPECTION REPORT

Docket No.:	99901426
Report No.:	99901426/2013-201
Vendor:	Westinghouse Ogden 10,000W 900S Ogden, UT 84404
Vendor Contact:	Ms. Kim White Quality Assurance Manager Telephone: 801-732-2270 E-mail: whitekr@westinghouse.com
Nuclear Industry Activity:	Westinghouse Western Zirconium (WZ) facility in Ogden produces zirconium, hafnium, and zircaloy for commercial nuclear power. The plant's primary products are Fuel Rod tube shell, bar, and flat stock products of Zircaloy-4 for Pressurized Water Reactors; Zircaloy-2, Boiling Water Reactors; and ZIRLO for highly corrosion-resistant conditions and long operating cycles.
Inspection Dates:	May 7 - 8, 2013

Inspectors:			
	Aaron Armstrong	NRO/DCIP/CMVB	Team Leader
	Jonathan Ortega-Luciano	NRO/DCIP/CMVB	
	Stephen Cumblidge	NRR/DE/EPNB	

Approved by: Edward H. Roach, Chief
Mechanical Vendor Branch
Division of Construction Inspection
and Operational Programs
Office of New Reactors

EXECUTIVE SUMMARY

Westinghouse Ogden
99901426/2013-201

The U.S. Nuclear Regulatory Commission (NRC) conducted this inspection to verify that Westinghouse Western Zirconium (WZ) implemented an adequate quality assurance (QA) program that complies with the requirements of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities." In addition, the NRC inspection also verified that WZ implemented a program under 10 CFR Part 21, "Reporting of Defects and Noncompliance," that met the NRC's regulatory requirements. The NRC inspection team conducted the inspection at the WZ facility in Ogden, UT from May 7 - 8, 2013.

This technically-focused inspection evaluated the implementation of WZ's QA program activities associated with the manufacturing and testing activities associated with Zircaloy-4, Zircaloy-2 and ZIRLO components.

Some of the specific activities observed by the NRC inspection team include:

- Nondestructive examination (NDE) requirements and testing for the flat, bar, and tubular (TREX) product lines

In addition to observing these activities, the NRC inspection team verified that measuring and test equipment (M&TE) was properly identified, marked, calibrated, and used within its calibrated range. The NRC inspection team walked down WZ's manufacturing and testing floor and verified that nonconforming components were properly identified, marked, and segregated when practical, to ensure that they were not reintroduced into the manufacturing processes.

The following regulations served as the bases for the NRC inspection:

- Appendix B to 10 CFR Part 50
- 10 CFR Part 21

During the course of this inspection, the NRC inspection team implemented Inspection Procedure (IP) 43002, "Routine Inspections of Nuclear Vendors," dated April 25, 2011, and IP36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance," dated February 13, 2012.

With the exception of the violation described below, the NRC inspection team concluded that WZ's quality assurance policies and procedures comply with the applicable requirements of 10 CFR Part 21 and Appendix B to 10 CFR Part 50, and that WZ's personnel are implementing these policies and procedures effectively. The results of this inspection are summarized below.

10 CFR Part 21 Program

The NRC inspection team identified one violation of Part 21 requirements with two examples. The first example to Violation 99901426/2013-201-01 was cited for failure to perform an evaluation within 60 days of discovery for Issue Report Corrective Action Plan (CAP) #08-231-M033 as specified in Part 21. The second example to Violation

99901426/2013-201-01 was cited for failure to adopt an appropriate procedure to enter Line Stops into the CAPs to ensure evaluations of deviations and failures to comply associated with substantial safety hazards are performed within 60 days of discovery. With the exception of these examples of the violation noted above, the NRC inspection team concluded that WZ's Part 21 program was consistent with the regulatory requirements.

Control of Special Processes

The NRC inspection team concluded that WZ is implementing its control of special processes program in accordance with the regulatory requirements of Criterion IX, "Control of Special Processes," of Appendix B to 10 CFR Part 50. Based on the limited sample of activities observed and documents reviewed, the NRC inspection team also determined that WZ is implementing its policies and procedures associated with the control of special processes program. No findings of significance were identified.

Inspection

The NRC inspection team concluded that WZ is implementing its inspection program in accordance with the regulatory requirements of Criterion X, "Inspection," of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that WZ is implementing its policies and procedures associated with the inspection program. No findings of significance were identified.

Nonconforming Material, Parts, or Components

The NRC inspection team concluded that WZ is implementing its nonconforming materials, parts, or components program in accordance with the regulatory requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that WZ is implementing its policies and procedures associated with the control of nonconforming materials, parts, or components. No findings of significance were identified.

Corrective Action

The NRC inspection team concluded that WZ is implementing its corrective action program in accordance with the regulatory requirements of Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that WZ is implementing its policies and procedures associated with the corrective action program. No findings of significance were identified.

Test Control

The NRC inspection team concluded that WZ is implementing its test control program in accordance with the regulatory requirements of Criterion XI, "Test Control," of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that WZ is implementing its policies and procedures associated with the test control program. No findings of significance were identified.

Control of Measuring and Test Equipment

The NRC inspection team concluded that WZ is implementing its measuring and test equipment program in accordance with the regulatory requirements of Criterion XII, “Control of Measuring and Test Equipment,” of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that WZ is implementing its policies and procedures associated with the measuring and test equipment program. No findings of significance were identified.

REPORT DETAILS

The U.S. Nuclear Regulatory Commission (NRC) inspection team observed various activities related to Westinghouse Western Zirconium (WZ) quality assurance (QA) activities associated manufacturing and testing activities associated with Zircaloy-4, Zircaloy-2 and ZIRLO components. Some of the specific activities observed by the NRC inspection team include:

- Nondestructive examination (NDE) requirements and testing for the flat, bar, and tubular (TREX) product lines

In addition to observing these activities, the NRC inspection team verified that measuring and test equipment (M&TE) was properly identified, marked, calibrated, and used within its calibrated range. In addition, the NRC inspection team walked down WZ's manufacturing and testing areas and verified that nonconforming components were properly identified, marked, and segregated when practical, to ensure that they were not reintroduced into the manufacturing processes.

1. 10 CFR Part 21 Program

a. Inspection Scope

The NRC inspection team reviewed WZ's policies and implementing procedures that govern WZ's Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, "Reporting of Defects and Noncompliance," program to verify compliance with the regulatory requirements. In addition, the NRC inspection team evaluated the 10 CFR Part 21 postings and a sample of WZ's purchase orders (POs) for compliance with the requirements of 10 CFR 21.6, "Posting Requirements," 10 CFR 21.21, "Notification of Failure to Comply or Existence of a Defect and its Evaluation," and 10 CFR 21.31, "Procurement Documents." The NRC inspection team also reviewed the procedures that govern corrective action and the control of nonconforming items to verify an adequate link to the 10 CFR Part 21 process. Furthermore, the NRC inspection team discussed the 10 CFR Part 21 program with WZ's management and technical staff. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

b. Observations and Findings

b.1 10 CFR Part 21 Policies and Procedures

The NRC inspection team reviewed "Westinghouse Quality Management System (QMS)," Revision 6, dated April 8, 2011, and Westinghouse Policy / Procedure (WEC) 21.0, "Identification and Reporting of Conditions Adverse to Nuclear Safety," Revision 7.1, dated June 27, 2012, and Westinghouse Policy/Procedure WEC 21.0, "Identification and Reporting of Conditions Adverse to Safety," Revision 4.1, dated October 21, 2008, to verify that Westinghouse effectively implemented the requirements in 10 CFR 21. In addition, the NRC inspection team verified that Westinghouse's corrective action program provides a link to the 10 CFR Part 21 program.

The NRC inspection team reviewed WEC 21.0, Westinghouse's corporate procedure used to implement the requirements of 10 CFR Part 21 for the evaluation and reporting of defects and failures to comply. The procedure includes definitions; organizational responsibilities; flow diagrams for identification, evaluation, and reporting of potential conditions adverse to safety; and posting requirement. The NRC inspectors noted that the current WEC 21.0 defines a

potential deviation (PD) as a phase of the Westinghouse Part 21 process that identifies the elements of an issue that establishes the applicability of 10 CFR Part 21, the need for evaluation, and the information required for the evaluation. In Westinghouse terms, this is what 10 CFR Part 21 defines as "Discovery." The PD phase allows Westinghouse 30 calendars days for evaluation of reportability pursuant to 10 CFR Part 21. If Westinghouse makes the determination that during the PD phase there is a potential condition adverse to nuclear safety that needs to be evaluated, then Westinghouse will enter in a phase called potential issue (PI). WEC 21.0 defines PI as a Westinghouse term associated with, and used as an identifier for a potential condition adverse to nuclear safety that must be evaluated to comply with the requirements under 10 CFR Part 21. In accordance with WEC 21.0, the PI phase begins at the closure of the PD phase and it can last up to 60 days. WEC 21.0 states that PD is the same as discovery, which occurs when a potential issue is opened after the evaluation of a potential condition adverse to safety. Then NRC inspection team noted that, WEC 21.0 provides a second definition for discovery, which is the definition from Section 21.3, "Definitions," to 10 CFR Part 21, "Reporting of Defects and Failures to Comply." Section 21.3 states, in part, that: "*Discovery* means the completion of the documentation first identifying the existence of a deviation or failure to comply potentially associated with a substantial safety hazard within the evaluation procedures discussed in § 21.21(a)." The NRC inspection team observed that this definition is consistent with the regulations. However, the NRC inspection team determined that Westinghouse's procedures incorrectly describe the point of discovery. Specifically, the definition of the PD phase in Section 4.0, Definitions," of WEC 21.0, incorrectly describes discovery. The PD allows 30 calendar days to make a determination if Westinghouse needs to open a PI for evaluation. The PD and PI processes respectively allowed for 30 and 60 calendar days for completion. Therefore, the NRC inspection team determined that WEC 21.0 was not an appropriate procedure to ensure evaluation of deviations and failures to comply associated with a substantial safety hazard within 60 days of discovery. This issue has been identified as an example of Violation 99901426/2013-201-01. Since the example found by the NRC inspection team occurred under Revision 4.1, dated October 21, 2008, the inspectors evaluated the procedure and concluded that the guidance provided in Revision 4.1 to implement Westinghouse Part 21 program has not had any major changes since 2008. This example of violation 99901426/2013-201 is described below, see section "b.2 10 CFR Part 21 Evaluations," of this report.

The NRC inspection team also reviewed WZ's Procedure WZP21-CATS, "Western Zirconium Policy for Reporting of Significant Defect and Noncompliences," Revision 4, dated October 23, 2012. WZP21-CATS is a WZ specific procedure used to implement the 10 CFR Part 21 program consistent with WEC 21.0. The procedure's scope states, in part, "This policy describes how WZ shall identify, evaluate, and report any defects and noncompliances which would prevent those products from performing in a safe manner." The procedure also describes the postings and posting locations to satisfy 10 CFR 21.6, "Posting Requirements."

The NRC inspection team reviewed WZ-CAPS, "Western Zirconium Corrective Action Process Procedure," Revision 10, dated June 11, 2012, and WZP14-CAS, "Western Zirconium Policy for Corrective and Preventive Action," Revision 5 dated, October 26, 2010, that are used in conjunction with Westinghouse Policy and Procedure WEC 16.2, " Westinghouse Corrective Action Process," Revision 4.1, dated April 17, 2012, relating to the corrective action program to verify that there was an appropriate link between the Part 21 program and corrective action process.

The NRC inspection team verified that each of these procedures provide adequate guidance for evaluating deficiencies, as appropriate, for 10 CFR Part 21 applicability. In addition, the NRC

inspection team reviewed numerous corrective action reports and Line Stop reports to verify that they were appropriately considered for evaluation.

During the review of procedure WZ-LINE STOP, "Western Zirconium LINE STOP PROCEDURE," Revision 4, dated July 20, 2012, used at WZ to implement the line stop process, the NRC inspection team noted the procedure does not provide adequate guidance to managers on when a line stop needs to be entered into CAPs. WZ-LINE STOP states that, "All line stops dealing with safety, quality, equipment, environment, or process defect shall be entered into CAPs…Line stops dealing with documentation defects will be left up to the manager's discretion." The procedure does not provide any guidance or acceptance criteria of what constitutes a "documentation defect."

The NRC inspection team reviewed a sample of 5 line stop reports for 2013. During the review of the line stop reports the NRC inspection team noted that each of the reports did not provide objective evidence if the line stop report was entered into CAPS. The NRC inspection team observed that the content of the line stop reports were not in accordance with the requirements of WZ-LINE STOP. The content of the reports depend on what the manager wanted to document as part of the line stop and some reports contained more technical details than others. During conversations with WZ, the NRC inspection team requested any CAPs generated as a consequence of the line stops to review. The CAP Manager was not able to identify if there were any CAPs generated by reading the line stop report. The CAP Manager had to physically enter in the CAP system database and manually search for specific key words to find if there was any possible match to a CAPs. The NRC inspection team reviewed the process contained in WZP21-CATS, the process described in WEC 21.0, and interviewed personnel with responsibility for the review of potential 10 CFR Part 21 issues. In these discussions, the NRC inspection team learned that the Issue Review Committee (IRC) is responsible for reviewing Issue Reports generated by CAPs and notifies the Regulatory Compliance group for their review in accordance with WEC 21.0. The IRC is also responsible for deciding if a potential condition adverse to safety warrants further analysis to determine whether it is a deviation or failure to comply. The NRC inspection team determined that WZ-LINE STOP was not an appropriate procedure to ensure that line stops are entered into CAPs for IRC group evaluation for deviations and failures to comply associated with a substantial safety hazard within 60 days of discovery. This issue has been identified as an example of Violation 99901426/2013-201-01 and is described below, see section "b.2 10 CFR Part 21 Evaluations," of this report.

b.2 <u>10 CFR Part 21 Evaluations</u>

The NRC inspection team reviewed corrective action Issue Report Corrective Action Plan (CAP) # 08-231-M033, which was entered in the corrective action program on August 18, 2008, regarding four lots of GNF Zr2 bar failed to meet required specifications. The CAP stated that, "Final product bar from three different ingots in two different anneal runs failed the grain size test and metallographic test for atypical grains. The bar was from ingots U06827L, U06867L, and U06865L. These were travelers 55597, 55608, 55609, and 55610 vacuum annealed in runs 8-H3IP and 8H4IP."

On August 20, 2008, the IRC concluded that this issue needed to be evaluated in accordance with WEC 21.0. Once the determination was made, the IRC proceeded to update the Issue Review Committee Assessment section in Issue Report # 08-231-M033 and selected the option "YES" under one of the questions. The question states, "Does this issue potentially represent a

condition adverse to nuclear safety pursuant to the requirements of Westinghouse Policy / Procedure WEC 21.0 or WEC 22.2?"

On September 3, 2008, Westinghouse investigated the cause of the anomalous microstructure in Zr-2 bars from two vacuum annealing runs in the Ipsen furnace and found that the insulation at one end of the furnace was damaged. The investigation also revealed that the in-load thermocouples were not positioned at the extreme ends of the load, meaning that material near each end of the furnace was outside the envelope defined by the load thermocouples. Therefore, the material did not necessarily meet either the temperature or time at temperature requirements. The Westinghouse investigation revealed that 61 lots were processed in the furnace during the period the insulation may have been damaged. By the time the damaged insulation was discovered, 11 of the 61 lots identified had been shipped. Five lots went to GE Hitachi Energy Canada and six lots went to Westinghouse's subcontractor Vallorbes.

Westinghouse engineering evaluation for the six lot shipped to Vallorbes dated November 6, 2008, concluded that the samples of the material annealed during the time period in question was tested for hardness on each end of each bar and was not affected and was acceptable for use. The report states that, "If the damage affected the bar, one end of the bar would be significantly harder than the other end of the bar." The test result documented in the engineering evaluation showed that there is not a consistent difference in the hardness between the ends, concluding that the material was effectively annealed and can be use without restrictions.

The NRC inspection team determined that the completion of the IRC assessment of Issue Report # 08-231-M033 indicating that the issue was a potential condition adverse to nuclear safety pursuant to the requirements of WEC 21.0, which first identified the existence of the deviation. The Issue Report # 08-231-M033 was forwarded to the Regulatory Compliance group for further evaluation as required by WEC 21.0.

Westinghouse closed Issue Report # 08-231-M033 under PD-647 on December 10, 2008, 112 days after discovery of the IRC assessed that the issue was a potential condition adverse to nuclear safety. The NRC inspection team verified that PD-647 provided a Part 21 evaluation concluding the deviation identified in Issue Report # 08-231-M033 was not a defect that could create a substantial hazard reportable under Part 21. The NRC inspection team noted that Westinghouse did not complete its evaluation within 60 days of discovery. This issue has been identified as an example of Violation 99901426/2013-201-01.

During the review of WZ's line stop reports, the NRC inspection team requested WZ provide a CAP for Line Stop 8100. Line Stop 8100, "Procedure does not exist and/or do not reflect best practice for the use of the Chevalier grinder, Bryant grinder and machining of dies via the Bridgeport mill," dated April 24, 2013, documented a concern that an activity affecting quality was performed without a procedure. According to WZ-LINE STOP this issue can be categorized as an Equipment Line Stop. Section 4.4 of WZ-LINE STOP states that, "Equipment Line Stops affect the operation of a specific piece of machinery or equipment used in a process." In addition, step 2.5 of WZ-LINE STOP states that, "All line stops dealing with safety, quality, equipment, environment, or process defects shall be entered into the CAPs…Line stops dealing with documentation defects will be left up to the manager's discretion." WZ-LINE STOP procedure does not provide guidance on how to make the determination when a line stop needs to be entered into the CAPs. The NRC inspection team concluded that in accordance with section 2.5 of WZ-LINE STOP, the manager failed to enter the Line Stop 8100 into WZ's CAPs. The NRC inspection team identified an example where WZ failed to generate a CAP and

evaluate for Part 21 in accordance with WZP21-CATS for Line Stop 8100. This issue has been identified as an example of Violation 99901426/2013-201-01.

b.3 10 CFR Part 21 Postings

The NRC inspection team verified the Part 21 postings as well as the content of WZ's 10 CFR Part 21 postings. The NRC inspection team verified that the postings contained the information required by 10 CFR 21.6. The NRC inspection team walked down to the location and verified that WZ posted the required documents in conspicuous location consistent with the intent of 10 CFR 21.6(2).

c. Conclusion

The NRC inspection team issued Violation 99901426/2013-201-01 in association with WZ's failure to implement the regulatory requirements of 10 CFR Part 21. Violation 99901426/2013-201-01 cites WZ for failing to perform an evaluation of a deviation within 60 days of discovery and to generate a CAP for Line Stop 8100 and evaluate for Part 21 in accordance with WZP21-CATS.

2. Control of Special Processes

a. Inspection Scope

The NRC inspection team reviewed WZ's policies and implementing procedures that govern the control of special processes to verify compliance with the regulatory requirements of Criterion IX, "Control of Special Processes," of Appendix B to 10 CFR Part 50. The NRC inspection team also reviewed the training program and inspector qualifications for the nondestructive examination (NDE) requirements for the flat, bar, and tubular (TREX) products. In addition, the NRC inspection team discussed the control of special processes program with WZ's management and technical staff. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

b. Nondestructive Examination

The NRC inspection team reviewed the training program described in WZ-TQI-001, "Training and Qualifying Inspectors" Revision 2, dated January 4, 2013, for WZ's inspection personnel. WZ-TQI-001 states that the SNT-TC-1A, "Recommended Practice, Personnel Qualification and Certification in NDT," 1980 Edition, are the required training guidelines for WZ's Level II and Level III inspectors. The NRC inspection team determined that WZ's inspectors were appropriately qualified and perform inspection activities in accordance with the approved WZ's policies and procedures.

The NRC inspection team reviewed TIP-CBP(C)-02, "Quality Plan for Cold Finished Zirconium Alloy Bar", Revision 16, date February 1, 2013, TIP-BTB(B)-02, "Quality Plan for Zirconium Lined Zircaloy-2 Hollow Quenched Barrier TREX," Revision 10, dated January 1, 2007, and PQAR-1226, "Procurement Quality Assurance Requirements For Zirc Bar," Revision 1, dated July 16, 2008. The NRC inspection team also reviewed PQAR 1288, "Procurement Quality Assurance Requirements for Low Tin Zirlo Strip and Sheet-Westinghouse Specification," Revision 1, March 5, 2013 and PQAR-1234, "Procurement Quality Assurance Requirements for ZIRLO Tube Shell for W Nuclear Fuel ENUSA and EDF Application (SAP Part Number TXSMPZ2.5)," Revision 1, dated March 30, 2013.

The applicable product requirements are described in the purchase orders for each product and can vary based on customer needs. WZ staff produced the purchase orders which specified the required QA programs, QA program documents, and demonstrated how they are to meet the QA requirements for each order. All documents are stored electronically and can be found, reviewed, and printed from a number of ETAPS (Electronic Training and Procedure System) computer terminals throughout the facility.

The NRC inspection team observed that the NDE staff at WZ review the relevant procedures every morning on ETAPS before conducting nondestructive testing. The NRC inspection team reviewed inspection procedures IN-OP-1201, "Bar Inspection for Product Less than 0.750" In Diameter" Revision 9, dated April 25, 2013, and NDT-UTB-1196A, "General Ultrasonic Inspection Procedure for Cylindrical Bar Product," Revision 11, dated January 18, 2013, for the inspection of bar product. In addition, the NRC inspection team observed NDE testing of bar product using the ROTA 25 ultrasonic testing system.

c. Conclusion

The NRC inspection team concluded that WZ is implementing its control of special processes program in accordance with the regulatory requirements of Criterion IX, "Control of Special Processes," of Appendix B to 10 CFR Part 50. Based on the limited sample of activities observed and documents reviewed, the NRC inspection team also determined that WZ is implementing its policies and procedures associated with the control of special processes program. No findings of significance were identified.

3. Inspection

a. Inspection Scope

The NRC inspection team reviewed WZ's policies and implementing procedures that govern the inspection program to verify compliance with the requirements of Criterion X, "Inspection," of Appendix B to 10 CFR Part 50. The NRC inspection team reviewed the nondestructive testing procedures for flat product, bar product, tubular products, quality assurance requirements for several purchase orders, and observed nondestructive tests of the flat product and bar product. In addition, the NRC inspection team discussed the inspection program with WZ's management and technical staff. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

b. Observations and Findings

In-process and Final Inspections

The NRC inspection team reviewed inspections procedure IN-OP-1000, "Tube Shell Inspection," Revision 8, dated January 24, 2012, which was used to inspect WZ's TREX product. The NRC inspection team reviewed strip charts inspection data from the ROTA 130 ultrasonic test system use for the IN-OP-1000 testing. The NRC inspection team noted a trained in-process inspector can operate the test equipment for the ultrasonic data recordings, but requires qualified Level III inspectors to review and sign for test data acceptance of TREX product. The ROTA 130 measures the inner diameter and outer diameter of the tubular product to assure the diameter and thickness of the TREX is within required tolerances. The ROTA 130 is also used to inspect the TREX product for cracking and de-bonding issues. The NRC inspection team observed that if the TREX product is not properly centered in the ROTA 130 system, it could result in

deviations of inner and outer diameters, but the inner and outer diameters requirements are set to such tight tolerances that a poorly centered tube would result in a test failure. The NRC inspection team also noted that failed tubes are reworked and then recycled in accordance with WZ's nonconformance procedures.

The NRC inspection team reviewed inspection procedure NDT-UTR-001, "Western Zirconium Ultrasonic Inspection of Rectangular Shaped Materials," Revision 9, dated July 12, 2012, for the flat plate product. NDT-UTR-001 states that a trained in-process inspector can operate the test equipment for the ultrasonic data recordings, but requires qualified Level III inspectors to review and sign for test data acceptance of flat product. The NRC inspection team also observed WZ's immersion tank system used for flat plate product inspections and an inspection of zirconium plate. The NRC inspection team noted that an in-process inspector first scanned the plate product and a qualified Level III inspector performs the final data review and test acceptance for the flat product.

c. Conclusion

The NRC inspection team concluded that WZ is implementing its inspection program in accordance with the regulatory requirements of Criterion X, "Inspection," of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that WZ is implementing its policies and procedures associated with the inspection program. No findings of significance were identified.

4. Test Control

a. Inspection Scope

The NRC inspection team reviewed WZ's policies and implementing procedures that govern the test control program to verify compliance with the requirements of Criterion XI, "Test Control," of Appendix B to 10 CFR Part 50. In addition, the NRC inspection team discussed the test control program with WZ's management and technical staff. The NRC inspection team also reviewed a sample of test procedures. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

b. Observations and Findings

b.1 Test Plan and Procedures

The NRC inspection team reviewed POs for TREX, bar, and flat plate product. The NRC inspection team reviewed PO 5500002074, "Stock Transport Sched. Agreement 5500002074," Revision 1, dated October 11, 2011, and the applicable testing procedure NDT-UTR-001. The inspection procedure NDT-UTR-001 was reviewed and approved by the customer. The NRC inspection team also reviewed Global Nuclear Fuel (GNF) PO 437059036," GNF Purchase Order 437059036," Revision 3, dated February 25, 2013, and the applicable testing procedure TIP-CRP(CC)-02, "Quality Plan for Corrosion Resistant Zirconium Alloy Channel Strip," Revision 23, dated February 1, 2013. The NRC inspection team determined the ultrasonic testing activities for flat product were performed according to the POs and regulatory requirements.

The NRC inspection team reviewed PO 437058952, "GNF Purchase Order 437058952," Revision 3, dated January 11, 2013, for bar product and the applicable testing procedure TIP-CBP(C)-02, "Quality Plan for Cold Finished Zirconium Alloy Bar," Revision 16, dated

February 1, 2013, which describes the ultrasonic testing requirements. The NRC inspection team also reviewed PO 5500002042, "Change to Stock Transport Sched Agreement 5500002042," Revision 1, dated September 16, 2011. PO 5500002042 specified the use of PQAR-1226 and the applicable testing procedure NDT-UTB-1196A. The NRC inspection team determined the ultrasonic testing activities of bar product were performed according to the POs and regulatory requirements.

The NRC inspection team also reviewed PO 437058947, "GNF Purchase Order 437058947," Revision 5, dated April 2, 2013, for the TREX products. This PO requires the use of TIP-BTB(B)-02, which specifies the ultrasonic testing requirements for the tubular product. The NRC inspection team determined the ultrasonic testing activities of TREX product were performed according to the POs and regulatory requirements.

b.2 Test Results and Data Evaluation

The NRC inspection team reviewed the recorded electronic inspection data for the flat plate product, and bar product and determined that the recorded inspection data met the POs and regularly requirements. In addition, the NRC inspection team reviewed recorded electronic inspection data for TREX products recorded on strip charts and determined that the strip chart data for the TREX met the POs and regulatory requirements.

c. Conclusion

The NRC inspection team concluded that WZ is implementing its Test Control program in accordance with the regulatory requirements of Criterion XI, "Test Control," of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that WZ is implementing its policies and procedures associated with the Test Control program. No findings of significance were identified.

5. Control of Measuring and Test Equipment (M&TE)

a. Inspection Scope

The NRC inspection team reviewed WZ's policies and implementing procedures that govern the M&TE program to verify compliance with the requirements of Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR Part 50. The NRC inspection team also reviewed a sample of the recorded calibrations of the ultrasonic equipment used to inspect the bar, flat, and TREX products. In addition, the NRC inspection team discussed the M&TE program with WZ's management and technical staff. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

b. Observations and Findings

The NRC inspection team reviewed the calibration methods and standards used to assure the testing equipment is functioning and adjusted properly. The NRC inspection team reviewed QPI(12)-A, "Tubeshell Inspection Standard A," Revision 4, dated August 18, 2011, QPI(07)-A, "2.5" TREX Inspection Standard," Revision 22, dated July 26, 2011, QPI(07)-U, "Bar Inspection For Product Less than 0.750" in Diameter," Revision 7, dated April 8, 2013, and PS-UT-TB-72, "Ultrasonic Test Standard," Revision 1, dated January 6, 1998 for flat products. The standards reviewed have ideal flaws, such as notches and flat bottom holes, which provide ultrasonic reflections. These ultrasonic reflections are used to test and calibrate the ultrasonic testing

equipment responses, before, periodically during, and after each production run. The NRC inspection team confirmed that the strip charts test data results from the TREX and bar product calibrations met the acceptance criteria specified in the POs.

The NRC inspection team observed inspection activities for flat plate products. Two identical inspection standards are placed on either side of the plates to be inspected for comparison and calibration. These plates are included in every recorded scan for the flat product. The data is recorded electronically for the flat plate products and reviewed for acceptance by Level III inspectors. The NRC inspection team confirmed that the test results for flaws in the calibration standards met the acceptance criteria specified in the POs and regulatory requirements.

c. Conclusion

The NRC inspection team concluded that WZ is implementing its Measuring and Test Equipment program in accordance with the regulatory requirements of Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that WZ is implementing its policies and procedures associated with the M&TE program. No findings of significance were identified.

6. Nonconforming Materials, Parts, or Components

a. Inspection Scope

The NRC inspection team reviewed WZ's policies and implementing procedures that govern the control of nonconformances to verify compliance with the requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," of Appendix B to 10 CFR Part 50. The NRC inspection team reviewed a sample of nonconformance reports and verified that the disposition and control of nonconformances was in accordance with WZ's procedural guidelines. In addition, the NRC inspection team discussed the nonconformance program with WZ's management and technical staff. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

b. Observations and Findings

The NRC inspection team reviewed WZ's procedures WZP13-CNM, "Western Zirconium Policy for Control of Noncomformaces," Revision 16, dated April 18, 2013. WZP13-CNM describes the requirement and responsibilities for control of nonconforming and potential nonconforming material. This includes identification, documentation, evaluation, segregation, review, engineering holds, recycling, corrective action, and disposition of nonconformances. The NRC inspection team also verified that WZP13-CNM provides guidance to evaluate nonconformance for reportability under WZ's 10 CFR Part 21 program.

The NRC inspection team walked down WZ's manufacturing and inspection floor and verified that nonconforming materials were properly identified, marked, and segregated, when practical, to ensure that they were not reintroduced into the production processes. The NRC inspection team also verified that WZ had adequate controls for segregation of in-process nonconforming materials.

The NRC inspection team verified that, for the sample nonconformances reviewed, WZ's had: (1) dispositioned identified nonconformances in accordance with WZ's approved procedures, (2)

presented an appropriate technical justification for each disposition, (3) taken adequate action in regard to the nonconforming material or item, and (4) subjected all identified nonconformances (as appropriate) to an assessment or evaluation under 10 CFR Part 21.

c. Conclusion

The NRC inspection team concluded that WZ is implementing its nonconforming materials, parts, or components program in accordance with the regulatory requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that WZ is implementing its policies and procedures associated with the control of nonconforming materials, parts, or components. No findings of significance were identified.

7. Corrective Action

a. Inspection Scope

The NRC inspection team reviewed WZ policies and implementing procedures that govern the corrective action program to verify compliance with the requirements of Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50. The NRC inspection team reviewed a sample of CAPs and verified that the CAPs' disposition and control provide adequate documentation and description of conditions adverse to quality, and specify the cause of these conditions and the corrective actions taken to prevent recurrence. In addition, the NRC inspection team discussed the corrective action program with WZ's management and technical staff. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

b. Observations and Findings

The NRC inspection team noted that WZ's procedures WZ-CAPS, "Western Zirconium Corrective Action Process Procedure," Revision 10, dated June 11, 2012, and WZP14-CAS, "Western Zirconium Policy for Corrective and Preventive Action," Revision 5, dated October 26, 2010, which are used in conjunction with Westinghouse Policy and Procedure WEC 16.2, " Westinghouse Corrective Action Process," Revision 4.1, dated April 17, 2012, establishes the process for identifying, recording and correcting conditions adverse to quality, and defined the requirements and responsibilities for assessing enhancements and recommendations. These procedures detailed the process of identifying and documenting conditions adverse to quality under the scope of Westinghouse quality assurance program, investigating and correcting those adverse conditions, and closing CAPs upon completion of corrective action.

The NRC inspection team reviewed a sample of CAPs issued from 2008 to 2013. The NRC inspectors noted that each CAP contained a detailed description of the deficiency, included the appropriate review and accepted, and had been evaluated for applicability of 10 CFR Part 21 requirements. The NRC inspectors evaluated the timeliness of corrective actions and found that, in general, the CAPs are processed in a timely fashion. No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that WZ is implementing its corrective action program in accordance with the regulatory requirements of Criterion XVI, “Corrective Action,” of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that WZ is implementing its policies and procedures associated with the corrective action program. No findings of significance were identified.

8. Entrance and Exit Meetings

On May 7, 2013, the NRC inspection team discussed the scope of the inspection with Ms. Kim White, WZ Quality Assurance Manager, and other members of WZ’s management and technical staff. On May 8, 2012, the NRC inspection team presented the inspection results and observations during an exit meeting with Ms. Kim White, WZ Quality Assurance Manager, and other members of WZ’s management and technical staff. On May 28, 2013, a telephonic re-exit meeting was held with Ms. White, where the lead inspector presented the final results of the inspection. The attachment to this report lists the entrance and exit meeting attendees, as well as those individuals whom the NRC inspection team interviewed.

ATTACHMENT

1. ENTRANCE/EXIT MEETING ATTENDEES

Name	Title	Affiliation	Entrance	Exit	Interviewed
Aaron Armstrong	Lead Inspection	NRC	X	X	
Jonathan Ortega-Luciano	Inspector	NRC	X	X	
Stephen Cumblidge	Technical Specialist	NRC	X	X	
Cynthia Padilla	Corrective Actions Manager	WEC	X	X	
Abbie Wagner	Quality Engineer	WEC	X	X	
Glenn Galer	Plant Manager	WEC	X	X	
Nickey Brichacek	Licensing Engineer	WEC	X	X	
Michael Morris	Laboratory Manager	WEC	X	X	
Lisa Hansen	Quality Engineer	WEC	X	X	
Terry Cook	Fellow Engineer	WEC	X	X	
Tim Razzeca	Organizational Improvement Manager	WEC		X	
Matt Rydalch	Quality Engineer / Level III	WEC	X	X	X
Denny Hardy	Operations Manager	WEC	X		
Kim White	Product Assurance	WEC		X	
Rich Lehn	Tube UT Operator	WEC			X
Steve Thomas	Cold Mill Operator	WEC			X
Josh Harris	Hot Mill Operator	WEC			X
Rick Martin	Channel Cell	WEC			X
Mike Koegel	Bar Cell	WEC			X
Hazel Luxford	Round Product	WEC			X
Jody Vance	NDT Level II Inspector	WEC			X
Patrick Smith	NDT Level II Inspector	WEC			X
Scott Edsinger	Melting Operator	WEC			X
John Nelson	Forge Operator	WEC			X
Jack Sicles	Beta Quench Operator	WEC			X
Dell Ashby	Bar UT Operator	WEC			X

Name	Title	Affiliation	Entrance	Exit	Interviewed
Don Avis	Bar UT Operator	WEC			X

2. INSPECTION PROCEDURES USED

Inspection Procedure (IP) 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance," dated February 13, 2012.

IP 43002, "Routine Inspections of Nuclear Vendors," dated April 25, 2011.

IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated April 25, 2011.

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Status	Type	Description
99901426/2013-201-01	Open	NOV	10 CFR Part 21

4. DOCUMENTS REVIEWED

- Westinghouse Issue Report Corrective Action Plan (CAP) #08-231-M033, "Four lots of Global Nuclear Fuel (GNF) Zr2 bar that failed grain size test and metallography test for atypical grains," dated August 18, 2008
- LTR-RCPL-08-220, "Westinghouse evaluation of this deviation of CAP #08-231-M033," dated December 10, 2008
- WZ-LINE STOP, "Western Zirconium LINE STOP PROCEDURE," Revision 4, dated July 20, 2012
- WZP21-CATS, "Western Zirconium Policy for Reporting of Significant Defects and Nonconformances (10 CFR Part 21) ," Revision 4, dated October 21, 2012,
- Line Stop 8100, "Procedure does not exist and/or do not reflect best practice for the use of the Chevalier grinder, Bryant grinder and machining of dies via the Bridgeport mill," dated April 24, 2013.
- QMS, "Westinghouse Quality Management System (QMS)," Revision 6, dated April 8, 2011
- Westinghouse Policy / Procedure (WEC) 21.0, "Identification and Reporting of Conditions Adverse to Nuclear Safety," Revision 7.1, dated June 27, 2012
- Westinghouse Policy/Procedure (WEC 21.0) , "Identification and Reporting of Conditions Adverse to Safety," Revision 4.1, dated October 21, 2008
- WZP21-CATS, "Western Zirconium Policy for Reporting of Significant Defect and Noncompliences," Revision 4, dated October 23, 2012
- WZ-CAPS, "Western Zirconium Corrective Action Process Procedure," Revision 10, dated June 11, 2012
- WZP14-CAS, "Western Zirconium Policy for Corrective and Preventive Action," Revision 5, dated October 26, 2010
- Westinghouse Policy and Procedure (WEC 16.2), " Westinghouse Corrective Action Process," Revision 4.1, dated April 17, 2012

- WZ-TQI-001, “Training and Qualifying Inspectors,” Revision 2, dated January 4, 2013
- SNT-TC-1A, “Recommended Practice, Personnel Qualification and Certification in NDT, ” 1980 Edition
- TIP-CBP(C)-02, “Quality Plan for Cold Finished Zirconium Alloy Bar,” Revision 16, dated February 1, 2013
- TIP-BTB(B)-02, “Quality Plan for Zirconium Lined Zircaloy-2 Hollow Quenched Barrier TREX,” Revision 10, dated January 1, 2007
- PQAR-1226, “Procurement Quality Assurance Requirements For Zirc Bar,” Revision 1, dated July 16, 2008
- PQAR 1288, “Procurement Quality Assurance Requirements for Low Tin Zirlo Strip and Sheet-Westinghouse Specification,” Revision 1, dated March 5, 2013
- PQAR-1234, “Procurement Quality Assurance Requirements for ZIRLO Tube Shell for W Nuclear Fuel ENUSA and EDF Application (SAP Part Number TXSMPZ2.5),” Revision 1, dated March 30, 2013
- IN-OP-1201, “Bar Inspection for Product Less than 0.750” In Diameter,” Revision 9, dated April 25, 2013
- NDT-UTB-1196A, “General Ultrasonic Inspection Procedure for Cylindrical Bar Product,” Revision 11, date January 18, 2013
- IN-OP-1000, “Tube Shell Inspection,” Revision 8, date January 24 ,2012
- NDT-UTR-001, “Western Zirconium Ultrasonic Inspection of Rectangular Shaped Materials,” Revision 9, dated July 12, 2012
- PO 5500002074, “Stock Transport Sched. Agreement 5500002074,” Revision 1, dated October 11, 2011
- PO 437059036, “GNF Purchase Order 437059036,” Revision 3, dated February 25, 2013
- TIP-CRP(CC)-02, “Quality Plan for Corrosion Resistant Zirconium Alloy Channel Strip,“ Revision 23, dated February 1, 2013
- PO 437058952, “GNF Purchase Order 437058952,” Revision 3, dated January 11, 2013
- TIP-CBP(C)-02, “Quality Plan for Cold Finished Zirconium Alloy Bar”, Revision 16, date February 1, 2013
- PO 5500002042, “Change to Stock Transport Sched Agreement 5500002042,” Revision 1, dated September 16, 2011 PO 437058947, “GNF Purchase Order 437058947,” Revision 5, dated April 2, 2013
- QPI(12)-A, “Tubeshell Inspection Standard A,” Revision 4, dated August 18, 2011
- QPI(07)-A, “2.5" TREX Inspection Standard,” Revision 22, dated July 26, 2011
- QPI(07)-U, “Bar Inspection For Product Less than 0.750" in Diameter,” Revision 7, dated April 8, 2013
- PS-UT-TB-72, “Ultrasonic Test Standard,” Revision 1, dated January 6, 1998
- WZP13-CNM, “Western zirconium Policy for Control of Noncomformaces,” Revision 16, dated April 18, 2013
- 13-66-M024.02, “Commitment 13-66-M024.02,” dated April 25, 2013
- Training record, “Employees Meeting all requirements for PA-OP1003 Filling Out EPM Form,” dated May 8, 2013
- Training record, “Employees meeting all Requirements for PA-OP1004 EPN Process,” dated May 8, 2013
- Training record, “Employees meeting all Requirements for WZP13-CNM- Policy for the Control of Nonconforming Material,” dated May 8, 2013
- FP-OP1004, “UT 3/4" and 1" Plate,” Revision 2, dated October 3, 2011
- PO 5500002002, “Stock Transport Sched. Agreement 5500002002,” dated July 11, 2011

- IN-OP1201, “Bar Inspection For Product Less than 0.750" in Diameter,” Revision 8, dated March 8, 2012
- IN-OP1205, “Zircaloy Bar Acceptance Requirements for UT Angular Indications,” Revision 1, dated January 18, 2013
- MQP-CPB(P)-08, “Western Zirconium Manufacturing and Quality Plan Cold Finished Zircaloy-4 Bar,” Revision 5, dated March 3, 2011
- MQP-NFD-201, “Western Zirconium Manufacturing and Quality Plan ZIRLO TREX MQP-NFD-201,” Revision 19, dated November 7, 2011
- MQP-ZLT(TSG)-08, “Western Zirconium Manufacturing and Quality Plan Cold Rolled Low Tin Zirlo Spacer Strip MQP-ZLT(TSG)-08,” Revision 5, November 1, 2011
- NDT-UTB(SOI)14, “Western Zirconium Special Operating Instruction for the Ultrasonic Inspection of Bar Product,” Revision 5, dated February 8, 2013
- NDT-UTB(SOI)18, “Western Zirconium Special Operating Instruction for the Ultrasonic Inspection of Bar Product,” Revision 1, dated September 15, 2010
- NDT-UTR-001, “Western Zirconium Ultrasonic Inspection of Rectangular Shaped Materials,” Revision 9, dated July 12, 2012
- PS-UT-PL-09, “Ultrasonic Test Standard Product Type Plate,” Revision 4, dated April 11, 2006
- QPI(01)-A, “2.5" TREX Inspection Standard,” Revision 16, dated May 22, 2012
- EPN 57, “Defect Code Notches and Laps Not Allowed,” dated July 10, 2009
- EPN 442, “Defect Surface under Laps and Notches Not Allowed,” dated September 10, 2009
- EPN 5932, “Defect Code Dimensional Not per Blueprint Requirement,” dated March 20, 2012
- EPN 5946, “New Surface RA at 13 and 22,” dated March 22, 2012
- EPN 7499, “Defect Code Crossbow Does Not Met Spec,” dated April 24, 2013
- EPN 7508, “Defect Mechanical Equipment Failure Issue in Furnace,” dated April 1, 2013
- EPN 7521, “Surface Defect not Allowed,” date May 1, 2013
- EPN 7529, “Defect Code Dimensional,” dated May 2, 2013
- PA-OP1003, “Filling out EPM Form,” Revision 00, dated July 1, 2012
- PA-OP1004, “EPN Process,” Revision 1, dated May 9, 2012