NRC FORM 591S PART 1
(12-2011)
10 CFR 2.201

U.S. NUCLEAR REGULATORY COMMISSION

SAFETY INSPECTION REPORT AND COMPLIANCE INSPECTION

1. CERTIFICATE/QUALITY ASSURANCE PROGRAM (QAP) HOLDER:	2. NRC/REGIONAL OFFICE
Westinghouse Electric Co. LLC P.O. Box 355 Pittsburgh, PA 15230-0355 REPORT NUMBER(S) 71-0708/2013-201	Headquarters U. S. Nuclear Regulatory Commission Mail Stop EBB-3-D-02M Washington, DC 20555-0001

3. CERTIFICATE/QAP DOCKET NUMBER(S)	4. INSPECTION LOCATION	5. DATE(S) OF INSPECTION
71-0708	5801 Bluff Road Hopkins, SC 29061	March 12-15, 2013

CERTIFICATE/QUALITY ASSURANCE PROGRAM HOLDER:

The inspection was an examination of the activities conducted under your QAP as they relate to compliance with the Nuclear Regulatory Commission (NRC) rules and regulations and the conditions of your QAP Approval and/or Certificate(s) of Compliance. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector. The inspection findings are as follows:

☑ 1. Based on the inspection findings, no violations were identified.

☑ 2. Previous violation(s) closed.

☐ 3. The violations(s), specifically described to you by the inspector as non-cited violations, are not being cited because they were self-identified, non-repetitive, and corrective action was or is being taken, and the remaining criteria in the NRC Enforcement Policy, to exercise discretion, were satisfied.

_____ Non-cited violation(s) was/were discussed involving the following requirement(s) and Corrective Actions(s):

☐ 4. During this inspection, certain of your activities, as described below and/or attached, were in violation of NRC requirements and are being cited in accordance with NRC Enforcement Policy. This form is a NOTICE OF VIOLATION, which may be subject to posting in accordance with 10 CFR 19.11.
(Violations and Corrective Actions)

Statement of Corrective Actions

I hereby state that, within 30 days, the actions described by me to the Inspector will be taken to correct the violations identified. This statement of corrective actions is made in accordance with the requirements of 10 CFR 2.201 (corrective steps already taken, corrective steps which will be taken, date when full compliance will be achieved). I understand that no further written response to NRC will be required, unless specifically requested.

TITLE	PRINTED NAME	SIGNATURE	DATE
CERTIFICATE/QAP REPRESENTATIVE	Wes Stilwell		04/10/13
NRC INSPECTOR	Robert Temps		4-12-13
BRANCH CHIEF	Eric Benner		4/12/13

INSPECTOR NOTES COVER SHEET

Licensee/Certificate Holder	Westinghouse Electric Company LLC (WEC)
Licensee/Certificate Holder contact/address	Wes Stilwell 5801 Bluff Road Hopkins, SC 29061
Docket No.	71-0708
Inspection Report No.	71-0708/2013-201
Inspection Dates	March 12-15, 2013
Inspection Location	Columbia Facility
Inspectors	Rob Temps Jim Pearson Jack Parrott
Summary of Findings and Actions	This inspection involved a review of WEC's QA Program implementation at their location in Columbia, SC. Inspection activities focused on management controls, design activities, fabrication and maintenance controls, and how these activities are being controlled under WEC's NRC-approved QA program. Follow-up to corrective actions for a Non-Cited Violation issued in the previous 2005 NRC inspection was also performed. Overall, WEC's activities were found to be in compliance with NRC Part 71 regulations and with WEC's NRC approved QA Program.
Lead Inspector Signature/Date	04/12/13
Inspector Notes Approval Branch Chief Signature/Date	04/12/13

INSPECTOR NOTES: IP 86001 WAS USED IN CONJUNCTION WITH APPLICABLE PARTS OF NUREG/CR 6314. INSPECTION RESULTS USING THE NUREG/CR 6314 FORMAT ARE DOCUMENTED BELOW:

Background

Westinghouse Electric Company LLC (WEC), based in Pittsburgh, PA, holds Part 71 Quality Assurance Program (QAP) Approval No. 71-0708, Revision 8. The QAP authorizes activities at both the corporate office in Pittsburgh and at the fuel fabrication facility in Columbia, SC.

WEC was last inspected for Part 71 QAP activities in 2005; two inspections were performed that year. The first involved fabrication of the Traveller packagings and the second was a full QAP implementation inspection at the Columbia location. The inspection report ML numbers for the inspections are ML051310361 and ML053430189 respectively.

Inspection Purpose

This inspection involved a review of WEC's QAP implementation at the Columbia, SC, location. Inspection activities focused on management controls, design activities, and maintenance controls, and how these activities are being controlled under WEC's NRC-approved QAP. Follow-up to corrective actions to a Non-Cited Violation identified in the previous 2005 NRC inspection was also performed.

The inspection team assessed WEC's compliance with 10 CFR Parts 21 and 71, and verified that the transportation packagings which WEC holds an NRC Certificate of Compliance (CoC) comply with the quality assurance requirements of 10CFR Part 71, Subpart H, in the areas of management, design, procurement, nonconformance, maintenance, and audit program controls. The primary focus in the design and maintenance areas involved a systematic review of the Safety Analysis Report (SAR) Chapters 7 and 8 for each of three packaging CoCs that WEC holds and uses for transportation of NRC license material from the Columbia facility.

Inspection Procedures/Guidance Documents

IP 86001, "Design, Fabrication, Testing, and Maintenance of Transportation Packagings"

NUREG-6314, "Quality Assurance Inspections for Shipping and Storage Containers"

Regulatory Guide 7.10, "Establishing Quality Assurance Programs for Packaging Used in the Transport of Radioactive Material"

Inspection Results

4.1.1 Quality Assurance Policy

The team reviewed all sections of WEC's Quality Management System (QMS), Revision 6, dated April 8, 2011. The QMS was previously determined by the NRC (Office of Nuclear Reactor Regulation) to meet the requirements of Appendix B to 10 CFR Part 50. WEC applies

the QMS to Part 71 activities as allowed by 10 CFR 71.101(f). No concerns were noted in the implementation of the QMS for Part 71 activities at the Columbia facility.

4.1.2 Nonconformance and Corrective Action Controls

The team reviewed the WEC QMS and various implementing procedures that address the documentation, tracking and resolution of nonconforming conditions and conditions adverse to quality. The team reviewed the following procedures:

- QA-617, "Processing an EPN (Electronic Problem Notice)"
- CA-007, "Corrective and Preventive Action"
- CA-008, "Preventive Action"
- RA-110, "Identification and Reporting of Substantial Safety Hazards"
- CA-196, "Conditions Adverse to Nuclear Safety"

The team determined that most nonconformances are identified and resolved through the generation of an EPN; however, as allowed by QA-617, other process documentation methods can be used instead of an EPN including the use of special routings. Depending on the nature of the issue, an EPN can also warrant a Corrective Action Process (CAP) Issue Report (IR). The team noted use of EPNs to document nonconformances identified during the inspection and loading of packages prior to shipment, whereas the use of special routings is used predominantly to document nonconformances identified during the package refurbishment process. A sampling of Part 71 related nonconformance reports was reviewed and no concerns were identified with the timeliness and resolution of the underlying issues.

The team reviewed the nonconformance controls implemented by the WEC transportation packaging refurbishment operations for packagings determined to be out of conformance. The team determined that these transportation packagings were adequately segregated and tagged to prevent their use. In addition, they were entered into the WEC system that tracks the status of packagings as being in a nonconforming status. As discussed above, the use of special routings to address nonconformances versus the EPN system was noted by the team. The team observed that while this is allowed by procedure, the use of special routings does not allow for the tracking and trending of refurbishment repairs with other packaging nonconformances documented in the EPN system.

CA-007 and 008 describe the CAP and use of IRs to document and resolve issues entered into the system. The team reviewed various Part 71 related IRs and associated documents. Apparent cause and root cause techniques were often used to identify CAP commitments. The team also reviewed IR 05-286-C003 that was issued in response to a Non-Cited Violation issued during the previous NRC Part 71 inspection conducted in 2005. The team assessed that the Part 71 related CAP issues were resolved appropriately and that corrective actions for the 2005 Non-Cited Violation were also complete and satisfactory.

The team reviewed RA-110 and CA-196 that address Part 21 posting and reportability requirements. No concerns were identified.

The team concluded that WEC was using the EPN and CAP systems to properly document and address Part 71 quality issues in a timely manner. Resolution of issues was appropriate to the extent and nature of the nonconformance or condition adverse to quality.

4.1.3 Documentation Controls

The team reviewed WEC's Electronic Training and Procedure System procedure, Revision 4, to help determine the effectiveness of the QA program in controlling quality-related documentation and records. In addition, the team reviewed instructions, procedures, and drawings for adequacy, approval signatures and release by authorized personnel, and availability to personnel. The team reviewed a variety of inspection and test procedures, maintenance and test results, nonconformance reports, QA procedures, and packaging drawings chosen from the Electronic Document Management System used by WEC. The team reviewed quality records to assure that they were properly identified, retrievable, controlled, and maintained. In the area of documentation controls, the team had no findings.

4.1.4 Audit Program

The team reviewed WEC's audit program to determine whether plans, procedures, and records were available. The team determined whether WEC scheduled and performed internal QA audits and vendor audits in accordance with approved procedures and checklists; whether qualified, independent, personnel performed the audits; whether WEC management reviewed audit results; and whether WEC took appropriate follow up actions in those areas found to be deficient.

The team reviewed procedures WEC 18.1, "Internal Audits," and WEC 2.8, "Qualification of Audit Personnel." Lead auditor qualifications were verified against WEC 2.8 and no concerns were identified. The team reviewed the latest annual internal audit of activities at the Columbia location documented in Internal Audit Report WEC-11-03. The audit was conducted in October and November of 2011. The team noted that the audit was conducted by WEC staff from Pittsburgh and that various sections of the WEC QMS were assessed for compliance to activities at the Columbia location. While Part 71 activities are conducted using site procedures controlled by the QMS, and the audit evaluated site wide compliance to procedures, the team noted that not all aspects of Part 71 with regard to the eighteen criteria in 10 CFR 71, Subpart H, were included in the audit scope. The team observed that for future audits, WEC should consider performing a more comprehensive audit covering all eighteen criteria specific to Part 71 activities. This observation was discussed with WEC personnel and captured in Issue Report 13-074-M009 for further review. The audit report identified several issues that were entered into the corrective action program for appropriate resolution. Overall, no concerns were identified with the audit program.

4.2.1 Design Development and Control

The team interviewed WEC engineering personnel responsible for the preparation and approval of design documents. All personnel interviewed were able to provide detailed descriptions of the control and review processes for design control activities being performed at WEC. Through discussion and review of documents, the team assessed that WEC's design control process was adequate.

WEC has design control over, and owns and maintains packagings, with the following NRC issued CoCs:

- CoC 71-9239, MCC-3, 4 and 5
- CoC 71-9292, Patriot #'s 1 – 39
- CoC 71-9297, Traveller and Traveller XL

Aspects of the design process were reviewed in regard to determining compliance with associated QA program implementing procedures. The team reviewed portions of Procedure EP-404, "Engineering Change Notice," Procedure EP-302, "Documentation and Verification of Design Analysis," EP-102, "Engineering Records Management," and EP-109, "Engineering Review." The team interviewed a product design engineer in regard to the control of WEC designs and design changes. Specifically, the Engineering Change Notice (ECN) process was reviewed for a recently approved CoC amendment to change the top plate of the Traveller packaging. The team determined that ECN-0002175, Rev. 0, for change to Product Drawing 10004E58, "Traveller Licensing Drawings," Rev. 5, was developed with supporting engineering analysis (i.e., calculation packages, independent verification, control of engineering and design and licensing drawings) and followed the process described in EP-404 for shipping containers including the requirement to properly integrate the design change with WEC licensing and other interface groups. The design engineer provided the team with a demonstration of the availability of the relevant engineering documents and procedures in the WEC intranet and was able to describe the use and access of the system.

As part of the design review process, the team verified through the review of WEC documents, specifically the "Patriot Safety Analysis Report," Revision 4, dated January 2006, that section 7 "Operating Procedures" and Section 8, "Acceptance Tests," that the associated operating and maintenance procedures complied with the appropriate information from the SAR sections.

4.2.2 Modifications/Design Changes

The team reviewed selected drawings, procedures and records, and observed selected activities being performed to determine that fabrication and maintenance activities met design commitments and requirements documented in the CoC.

The team noted two instances in which engineering changes were made to NRC CoC packagings without appropriate licensing review. The specific examples included:

- During their refurbishment, WEC has been replacing the paint on the MCC packagings with a powder coat paint that provides better durability. However, Chapter 7 of the MCC SAR states to use Dupont Imron to paint repaired and damaged areas on the containers. While this implies that the packagings are supposed to have Imron paint to begin with, the team determined that the CoC license drawings and SAR are silent on this. Therefore, while the complete replacement of Imron paint with the powder coating would not appear to contradict any design requirement, it is inconsistent with the SAR requirement to use Imron paint on repaired and damaged areas. The issue of concern to the team was that the engineering evaluation supporting the change to powder coating should have identified and resolved the SAR wording issue; however, it did not because it did not receive a licensing review.

- During refurbishment of the MCCs, WEC has found and repaired small holes in the

packaging shell. Under the SAR Chapter 8 instruction to inspect/repair packagings, WEC has been welding small metal patches over the holes. The team considered that while the patch constituted a repair as allowed by the SAR, it was also a modification that should have required licensing review and subsequent approval by NRC through a change to the license drawing or Chapter 8 of the SAR to recognize the use of patches. While an engineering evaluation was done for the use of the patches, it did not receive a licensing review.

These findings were discussed with WEC personnel and Issue Reports 13-073-M029 and 13-073-M088 were issued to address the issue of ensuring appropriate licensing review when implementing changes to NRC CoC packagings. Subsequent to the inspection exit, WEC contacted the cognizant NRC licensing Project Manager and took timely action to initiate an amendment to the MCC CoC. The failure to ensure licensing review of the changes is a violation of 10 CFR 71.107, "Package design control." However, the changes made to the MCC packagings were of minimal safety significance. Therefore, this failure constitutes a non-repetitive minor violation that is not subject to formal enforcement action and is being treated as a violation of minor significance, consistent with Section 2 of the NRC Enforcement Policy.

4.3 Maintenance Controls

The team reviewed WEC's activities regarding refurbishment of MCC, Patriot and Traveller packagings. The team reviewed the various WEC implementing procedures and applicable check sheets to verify compliance with those documents. The team reviewed WEC's maintenance requirements, inspection and maintenance procedures, completed maintenance records, and personnel training and qualification records. The team inspected maintenance records to determine whether maintenance materials were procured from approved sources, maintenance material was controlled, and material having specified shelf life was identified and used before expiration. Tools and equipment used in packaging maintenance/refurbishment were also reviewed.

The team reviewed controls for tools and equipment use in the refurbishment of various packagings. The tools and equipment observed being used during this inspection were observed to be in good condition and calibrated when required. The inspection of torque wrenches being used indicated they were calibrated and complied with the acceptable torque range. However, a mix-up in the calibration labels for two torque wrenches was noted. The team inspected two torque wrenches which were available for use by maintenance personnel and noted that the wrench identification numbers engraved into the body of the wrenches did not match the torque wrench identification numbers used on the maintenance and Test Equipment labels affixed to the wrench. Westinghouse immediately addressed the observation by initiating Issue Report # 13-073-M004. The equipment was immediately removed from service. No findings were noted.

The team reviewed WEC's maintenance requirements, inspection and maintenance procedures. Completed maintenance records, and personnel training and qualification records were reviewed. The team observed various maintenance activities being performed.
The team reviewed the maintenance requirements in the SAR sections on operating procedures (Chapter 7) and maintenance (Chapter 8) for the Traveller, MCC, and Patriot transportation packagings against the procedures used by WEC to implement those requirements. The review included procedures for the Traveller packagings (Procedures MOP-730753, "Pack Fuel

Assembly – Traveller Package" and TR-225, "Refurbish Traveller Shipping Package"), MCC packagings (Procedures MOP-730713, "Loading Fuel Assemblies in MCC3 and MCC4 Shipping Packages" and TR-217, "Refurbish MCC Shipping Package"), and for the Patriot shipping packagings (Procedure MOP-730314, "Pack BWR Shipping Packages").

The team determined that the WEC procedures adequately implemented the maintenance requirements in the respective SARs. While no maintenance or refurbishment was occurring for the Patriot packages the team did review completed records for previous Patriot work and verified that it had been found to be acceptable. The team witnessed WEC refurbishment team members working on Traveller and MCC packagings and determined, through direct observation or review of the refurbishment checklist and special routing forms, that the maintenance requirements from the respective SARs and implementing procedures were being adequately captured and addressed during the refurbishment process. This included the SAR requirements to inspect, and repair or replace as necessary, the neutron absorber plates on Traveller packagings, on a five-year or 50-cycle basis, and to recertify the MCC packagings at least every five years to verify the existing configuration to the licensing drawings.

The team noted that the procedure for refurbishing the MCC packagings contained a step for inspection of exterior welds. The team reviewed the process used for weld inspection as it was being applied to inspect welds performed to patch pin holes found in the MCC packagings during refurbishment (Procedure TR-228, "Shipping Packaging Weld Inspection – Quality at the Source") and assessed that it was adequate. Section 4.2.2 of this inspection report discusses concerns the team identified with the use of the patches from a licensing standpoint. The team noted that documentation to show the acceptance of the AWS A5.18 weld wire used for welding of the patches was not available at the time of the inspection. The weld wire was subsequently dedicated to allow its continued use because while the weld wire was procured from an approved source, WEC was unable to locate information confirming its material properties. WEC initiated Issue Report 13-079-M068 to address the lack of weld wire documentation.

The team also reviewed the training materials for the weld inspectors and determined they were adequate for performing visual inspection of the welds. The team determined that the personnel performing the weld inspections were required to be retrained annually according to the weld inspection procedure. However, a review of training records in the WEC Electronic Training and Procedure System indicated that qualification for weld repair inspection was on a 2-year cycle. The inconsistency was identified to WEC and an Issue Report was generated.