NRC FORM 591S PART 1
(8-2002)
10 CFR 2.201

U.S. NUCLEAR REGULATORY COMMISSION

SAFETY INSPECTION REPORT AND COMPLIANCE INSPECTION

1. LICENSEE/CERTIFICATE HOLDER	2. NRC/REGIONAL OFFICE
Areva, NP Inc. 1724 Mt. Athos Road Lynchburg, VA 24504 REPORT NUMBER(S): 71-0003/2008-201	Division of Spent Fuel Storage and Transportation U. S. NRC M/S EBB-3D-02M Washington, DC 20555-0001

3. LICENSEE/CERETIFICATE NUMBER(S)	4. INSPECTION LOCATION	5. DATE(S) OF INSPECTION
71-9319 (CoC) / 71-0003 (QA)	Trout Run, PA	November 17-20, 2008

The inspection was an examination of the activities conducted under your license as they relate to radiation safety and to compliance with the Nuclear Regulatory Commission (NRC) rules and regulations and the conditions of your license of Certificate of Compliance (CoC). 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 violation or nonconformances were identified.

☐ 2. Previous violations(s) or nonconformance(s) closed.

☐ 3. The violation(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, NUREG-1600, 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 or nonconformance of NRC requirements and are being cited. This form is a NOTICE OF VIOLATION OR NONCONFORMANCE, which may be subject to posting in accordance with 10 CFR19.11.

(Violations, Nonconformances, and Corrective Actions)

During an NRC inspection conducted at the NuWeld, Inc., fabrication facility, in Trout Run, Pennsylvania, November 17 through 20, 2008, violations of NRC requirements were identified. NuWeld fabricates the MAP-12 packaging, NRC Certificate of Compliance No. 9319, for AREVA, NP Inc., an NRC certificate holder under 10 CFR Part 71. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violations are listed on NRC Form 591S Part 2.

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 I made in accordance with the requirements of 10 CRF 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; OR

☒ Written Response requested in 30 days ☒ Yes ☐ No

TITLE	PRINTED NAME	SIGNATURE	DATE
LICENSEE	William Tibbs		11/26/08
NRC INSPECTOR	Earl Love		11/21/2008

NRC FORM 591S PART 2
(8-2002)
10 CFR 2.201

U.S. NUCLEAR REGULATORY COMMISION

SAFETY INSPECTION REPORT AND COMPLIANCE INSPECTION

1. LICENSEE/CERTIFICATE HOLDER	2. NRC/REGIONAL OFFICE
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(Continued)

A. 10 CFR 71.111, "Instructions, procedures, and drawings," states, in part, that the certificate holder shall prescribe activities affecting quality by documented procedures and shall require that these procedures be followed.

Contrary to the above, the following instances were identified by the NRC where activities affecting quality were not prescribed in documented procedures, or where procedures for activities affecting quality were not followed:

1) Section 15.2.1 of the NuWeld Quality System Manual, states that when the disposition of a Non-conformance Report (NCR) is "use-as-is", the Staff Engineer shall provide a technical justification for acceptance. The NRC identified several instances where NCRs were dispositioned as "use-as-is" and the NCRs did not have a NuWeld Staff Engineer technical justification. The NRC also identified that the NCR form does not contain provisions for documenting Staff Engineer justification.

2) NuWeld procedure NWS-012, "Internal Audits," Section 4.0 states that every area/function will be audited at least annually. However, the NRC identified that the audit checklist for the area of Quality Control was deficient in that it did not require that Sections 15 and 16 of the Quality System Manual, dealing with NCRs and corrective actions, respectively, be audited.

3) Areva Technical Document 08-9053441-006, "Specification for the MAP-12 Shipping Container," Section 4.2.7.3 states that "where specified, liquid penetrant inspection shall be performed in accordance with ASME B&PV Code, Section III, Subsection NB, Article NB-5000, and Subsection V, Article 6, or with ASME B&PV Code, Section III, Subsection NF, Article NF 5000, and Subsection V, Article 6." Contrary to this requirement, the NRC identified that the NuWeld procedure, NWS-033, "Liquid Penetrant Testing/Color Contrast Visible Dye Method," was written to satisfy the acceptance criteria requirements of ASME B31.1.

4) NuWeld procedure NWS-031.1, "Visual Testing – Welds," Section 5.0, states all surfaces requiring inspection shall be free of scale, flux, spatter or other foreign material which could impair resolution of surface defects and that welded joints shall be blend ground to yield smooth contours which will aid in visual resolution of any material or weld related defects. Further, Section 6.0 states that all artifacts of the welding process, including but not limited to, spatter, flux, and arc strikes, shall be removed prior to visual inspection and that machined surfaces shall be free of burrs and sharp edges. Contrary to these requirements, components were presented for inspection that did not meet the specified criteria of Sections 5.0 and 6.0.

This is a Severity Level IV violation (Supplement VI).

B. Areva Technical Document 08-9053441-006, "Specification for the MAP-12 Shipping Container," Section 3.1.2 states, in part, that it is the responsibility of the vendor (NuWeld) to implement the provisions of 10 CFR Part 21. 10 CFR 21.21, "Notification of failure to comply or existence of a defect and its evaluation," states, in part, that it is the responsibility of a corporation subject to the regulations in Part 21 to adopt appropriate procedures for the evaluation and reporting of certain defects and failures. Contrary to this requirement, the NRC identified that the NuWeld did not adopt appropriate procedures for the evaluation and reporting of certain defects and failures subject to 10 CFR Part 21.

This is a Severity Level IV violation (Supplement VI).

INSPECTOR NOTES COVER SHEET

Licensee/Certificate Holder (name and address)	Areva, NP Inc. 1724 Mt. Athos Road Lynchburg, VA 24504
Licensee/Certificate Holder contact and phone number	Mr. William Tibbs, Supplier Quality Specialist / 434-832-5172 Mr. Richard Montgomery, Project Manager / 434-832-5246
Docket No.	71-0003
Inspection Report No.	71-0003/2008-201
Inspection Date(s)	November 17-20, 2008
Inspection Location(s)	NuWeld, Inc. Trout Run, PA
Inspectors	Earl Love, Safety Inspector, Lead Clyde Morell, Safety Inspector Rob Temps, Senior Safety Inspector David Pstrak – Branch Chief, SFST/RIOB, Observer Jon Chen – High Level Waste, Observer Alicia Mullins – High Level Waste, Observer
Summary of Findings and Actions	This Safety Inspection report refers to the team inspection conducted by the U.S. Nuclear Regulatory Commission (NRC) during November 17-20, 2008, at the NuWeld, Inc. fabrication facility in Trout Run, PA. NuWeld is a fabrication contractor for Areva, NP, fabricating MAP-12 packages designed to transport two unirradiated uranium fuel assemblies. The inspection was conducted to determine if fabrication activities were performed in accordance with the requirements of 10 CFR Part 71, Subpart H; 10 CFR Part 21; Certificate of Compliance (CoC) No. 9319, Revision 1; Safety Analysis Report (SAR), and Areva NP's NRC-approved Quality Assurance Program (QAP), Fuel Sector Quality Manual, FQM, Revision 2, dated 01/1/06. The team concluded that overall, Areva NP's implementation of its Quality Manual for fabrication activities at NuWeld was adequate. NuWeld's fabrication processes were assessed to be of good quality. The team identified some issues with regard to performance of quality activities by NuWeld personnel without appropriate procedure controls and some examples of failure to follow quality procedures; however, none of the issues were safety significant and did not affect the quality of fabricated components. Two (2) Severity Level IV violations of NRC requirements were identified as follows: 71.111: Failure to prescribe quality activities by procedure or failure to follow procedures (4 examples). 21.21: Failure to adequately prescribe by procedure the evaluation and reporting of certain defects and failures subject to 10 CFR Part 21.
Lead Inspector Signature/Date	Earl Love 12/19/2008 Earl Love
Inspector Notes Approval Section Chief Signature/Date	David W. Pstrak DWP 12/19/2008

INSPECTOR NOTES: SECTIONS 02.02 THROUGH 02.10 OF IP 86001 WERE PERFORMED AS APPLICABLE IN REGARD TO DETERMINE IF FABRICATION ACTIVITIES WERE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF 10 CFR PART 71, SUBPART H; 10 CFR PART 21; CERTIFICATE OF COMPLIANCE (COC) NO. 9319, REVISION 1; SAFETY ANALYSIS REPORT (SAR), AND AREVA, NP'S NRC-APPROVED QUALITY ASSURANCE PROGRAM (QAP), FUEL SECTOR QUALITY MANUAL, FQM, REVISION 2, DATED 01/1/06. THE INSPECTION RESULTS ARE DOCUMENTED BELOW:

02.02 Verify that the CoC holder's activities related to transportation packagings are being conducted in accordance with the CoC, as well as the NRC-approved QAP (reference Regulatory Guide 7.10), and that implementing procedures are in place and effective.

Although NuWeld's QA Program is not a program directly approved by the NRC, the NuWeld QA program is applied as directed by AREVA, NP's procurement agreements with NuWeld. AREVA, NP's QA Program is an NRC-approved program and the vendor contractually imposed QA requirements on NuWeld that meet NRC's requirements. All of the quality activities performed by NuWeld personnel and observed or reviewed by the team were determined to meet NRC's QA requirements.

The team determined that, overall, NuWeld has adequate procedures and controls in place governing the implementation of their NQA-1 based QA program for 10 CFR Part 71 fabrication activities conducted for Areva, NP. NuWeld has a dedicated full-time Quality Control Manager (QCM) and the team determined that the QCM has appropriate organizational independence and reports directly to NuWeld senior management. A statement of authority and responsibility, signed by the president of NuWeld, states that the QCM has the full support of management and the authority and responsibility to initiate and execute the NuWeld QA program. No concerns were identified.

02.03 Verify that provisions are in place for reporting defects which could cause a substantial safety hazard, as required by 10 CFR Part 21.

With respect to 10 CFR Part 21, the inspection team noted that Areva, NP Technical Document 08-9053441-006, "Specification for the MAP-12 Shipping Container," Section 3.1.2 states, in part, that it is the responsibility of the vendor (NuWeld) to implement the provisions of 10 CFR Part 21. 10 CFR 21.21, "Notification of failure to comply or existence of a defect and its evaluation," states, in part, that it is the responsibility of a corporation subject to the regulations in Part 21 to adopt appropriate procedures for the evaluation and reporting of certain defects and failures. Contrary to this requirement, the team identified that NuWeld did not adopt appropriate procedures for the evaluation and reporting of certain defects and failures subject to 10 CFR Part 21. This violation is cited in the Form 591 (B) issued with these inspector notes.

02.04 Interview selected personnel and review selected design documentation to determine that adequate design controls are implemented.

Overall, the team assessed that NuWeld procedures related to design development and modification were adequate in addressing related requirements of 10 CFR 71, Subpart H.

The inspection team reviewed a selected sample of NuWeld fabrication drawings and compared them to Areva NP and PacTec (subcontractor to Areva, NP) design drawings for compliance to NRC licensed drawings as noted within CoC 9319, Revision 1. The results of the review concluded that fabrication activities were compliant to design drawings, as certified by Areva, NP.

Areva, NP	PacTec	NuWeld	
02-9047028D, r(2)	50499-200-S, r(2)	D00256, r(B)	"Base Weldment"
02-9047078D, r(1)	50499-500-S, r(1)	D00241, r(D)	"Inner Lid Assembly"
02-9047035D, r(2)	50499-204-S, r(2)	C01459, r(C)	"Base Plate Lock Weldment Assembly"
02-9047066D, r(0)	50499-301-S, r(0)	C01581, r(-)	"Inner Door Leaf"

The inspection team reviewed revised design documents and verified that design changes were made using design control measures equal to those of the original design, including Areva, NP evaluation and approval as required.

02.05 Review selected drawings, procedures and records, and observe selected activities being performed to determine that the fabrication, test, and maintenance activities meet SARP design commitments and requirements documented in the CoC.

The inspection team reviewed Areva, NP Specification No. 08-9053441-006, specific to the MAP-12 shipping container for regulatory compliance and determined that the requirements for materials, fabrication, welding, inspection, examination, testing, and quality assurance for the fabrication and machined parts of the MAP-12 shipping container were satisfied with the exception noted.

The team reviewed the requirement applicable to NDT for Liquid Dye Penetrant (PT) and determined that ASME Section III, Subsection NF and NF Article NF 5000, and Subsection V, Article 6 for PT acceptance requirements for inspection of fabrication welds was required. Contrary to this requirement the team reviewed PT procedure No. NWS-033, dated 1/13/2005 and determined ASME B31.3, 1996 edition, was referenced as the acceptance criteria for PT inspection. The team observed PT inspections of completed welds specific to traveler no. 50499-202-123, Shop order no. 200710, Item no. 202 and determined that actual acceptance was based on criteria taken from ASME B31.3. This violation is cited in the Form 591 (A.3) issued with these inspector notes.

The inspection team reviewed NuWeld Standard Nos. NWS-019, "Receiving Inspection," NWS-014 "Welding Procedure & Performance Qualification," NWS-028, "Gage Control," and NWS-031.1, "Visual Inspection" for compliance to Areva, NP's Technical Specification and determined that NuWeld's QA program, in the areas of procedures and instructions with respect to inspection and welding, was adequate. In addition, the inspection team concluded that, overall, welding production drawing and changes; issuance of Weld Procedure Specifications to production; use of qualified welders; and control/usage of welding materials was satisfactory and that implementation of the NuWeld program was adequate.

The Inspection team reviewed various Procedure Qualification Record's (PQR's) and Welding Procedure Specification's (WPS's) for compliance to ASME Section IX requirements. The results of the review concluded that the PQR's, and WPS's were compliant and that no concerns were identified.

The inspection team reviewed NWS-031.1, "Visual Inspection," and noted a requirement that stated in part, "all surfaces requiring inspection and at least 1" beyond the weld area shall be dry and free of dirt, oil, grease, scale and spatter (weld spatter), or other foreign material which could impair resolution of surface defects," and that, "all artifacts of the welding process, including but limited to, spatter, flux and arc strikes shall be removed prior to visual inspection." Contrary to these requirements, spatter and scale was prevalent in the 1" weld inspection area on various completed and inspected weldments throughout the fabrication shop. The inspection team noted that the removal of artifacts should have occurred prior to inspection. This violation is cited in the Form 591 (A.4) issued with these inspector notes.

The inspection team reviewed NuWeld's Standard No. NWS-028, "Gage Control" utilized to perform inspections as well as observations of various equipment and tools (i.e., calipers, volt/amp meters, and welding equipment) in use and determined effective implementation. No concerns were identified.

02.06 Observe activities affecting safety aspects of the packaging (such as fabrication, assembly, and testing) to verify that they are performed in accordance with approved methods, procedures, and specifications.

As a result of the management interviews and observations of shop activities (including but not limited to assembly, welding, inspection, and material controls), with the exception of the noted violations (refer to 02.05), the inspection team determined that NuWeld has adequate procedural controls to satisfy the fabrication and assembly requirements as invoked by Areva, NP.

02.07 Review selected drawings and records, and interview selected personnel, to verify that the procurement specifications for materials, equipment, and services received by the QAP holder meet the design requirements.

Overall, the team concluded that NuWeld's procurement activities were being performed in accordance with their controlling procedures. Procurement personnel clearly understood the procurement process and the procedures used. Methods used to approve addition of suppliers to the ASL were appropriate and the audits and surveillances used to qualify and maintain suppliers on the ASL were adequate. As required by NuWeld Standard (NWS), audit findings and vendor restrictions were documented as applicable. No concerns were identified.

NWS-019, "Receiving Inspection," assures that purchased products and material conform to purchase order and code requirements. A Receiving Inspection Checklist (RIC) defines the attributes and acceptance requirements used by the receiving inspector. Upon completion, the checklist is returned to the QC Manager for review and final release to stores for production. The inspection team reviewed various RICs from numerous suppliers of subassembly parts (Marstrand Industries, Norcen Industries Inc., Q-E Manufacturing Company, and Fastenal Company) and Customer (Areva, NP) Furnished Material (Boral Plates and Raw Foam) for conformance to design requirements. The inspection team noted that dimensional verification

attributes categorized as Critical To Quality (CTQ) were adequately recorded, as applicable. No concerns were identified.
The inspection team observed Inner Doors and various Subassembly Parts located in the Materials Receiving/Stocking Area for compliance to NuWeld standard NWS-019 "Receiving Inspection and NWS-013 "Material Handling, Storage and Shipping." The inspection team determined that materials were adequately controlled assuring traceability and that items were adequately identified as to inspection status.

02.08 Review selected records and interview selected personnel to verify that a nonconformance control program is effectively implemented, and that corrective actions for identified deficiencies are technically sound and completed in a timely manner.

The team reviewed Section 15 of NuWeld's Quality System Manual (QSM) titled "Control of Non-Conforming Items," and Section 16 titled "Corrective Action," as well as supporting implementing quality procedures. The team also reviewed NuWeld's implementation of 10 CFR Part 21 evaluation and reporting requirements as Areva, NP had contractually required NuWeld to implement these provisions. The team assessed that the procedures for documenting, resolving, and trending non-conformances and corrective actions were adequate. However, as described below, the team identified two violations of NRC requirements and one weakness in NuWeld's implementation of the procedures.

10 CFR 71.111, "Instructions, procedures, and drawings," states, in part, that the certificate holder shall prescribe activities affecting quality by documented procedures and shall require that these procedures be followed. Contrary to this requirement, the team identified the following instance where Areva, NP's fabricator, NuWeld, performed activities affecting quality that were not prescribed in documented procedures, or where procedures for activities affecting quality were not followed when it dispositioned several Non-conformance Reports (NCRs). Specifically, Section 15.2.1 of NuWeld's QSM states that when the disposition of an NCR is "use-as-is," the Staff Engineer shall provide a technical justification for acceptance. The team identified several instances where NCRs were dispositioned as "use-as-is" and the NCRs did not have a NuWeld Staff Engineer technical justification. The team also identified that the NCR form did not contain provisions for documenting Staff Engineer justification. This violation is cited in the Form 591 (A.1) issued with these inspector notes.

The team noted a weakness with regard to the timeliness of NuWeld's response to audit findings from an audit conducted by Areva, NP in early October 2008. The team noted that only one of five audit findings had been captured in a corrective action report and that NuWeld had requested a time extension for responding to the remaining audit findings. Also, one of the audit findings had been assigned for resolution through the NCR system. Although an NCR number was assigned in the NCR log book, there was no formal NCR in the system documenting the issue, as NuWeld was carrying the item on an NCR form marked "draft." The team questioned the NuWeld QCM as to why, when issues are identified either from audits or as non-conformances, they are not immediately documented by entry into an NCR or corrective action form. The team was concerned that in the absence of immediate entry of an issue into the corrective action system, issues could end up being lost, particularly in the absence of the QCM who is essentially the sole manager of the NCR and corrective actions programs. The QCM acknowledged the NRC's concern and stated it would be addressed.

02.09 Review selected records and procedures, interview selected personnel, and observe selected activities affecting the safety aspects of the packaging to verify that individuals performing activities affecting quality are properly trained and qualified, and to verify that management and quality assurance (QA) staff are cognizant and provide appropriate oversight.

The team reviewed QC inspection personnel NDT/NDE certification records in various disciplines and levels to assure qualification and certification were performed according to NuWeld Standard NWS-006 which invokes the guidelines of ASNT-TC-1a -1996. No concerns were identified.

The inspection tem determined adequate oversight through the review of NuWeld's status reports for nonconforming material and corrective action as well as the QA/QC sign-offs observed on various process travelers. Further, NuWeld was audited by Areva, NP thus maintaining the regulatory required independence. The inspection team reviewed Quality Audit Report #08-93 dated 10/6-7, 2008 to assure that the requirements of Specification 08-9053441, revision 6, "Specification for the MAP-12 Shipping Container" and NuWeld, Inc. Quality Control Manual NQA-1, 1989 edition #2 revision 0 dated 9/15/2006 were implemented. The audit reported six (6) findings in the areas of 1) failure to document use of Temporary Weld Attachments, 2) failure to sign shop traveler after completion of a specific operation, 3) failure to invoke 10 CFR Part 21 within procurement document on to a supplier, 4) failure to protect material from contamination, 5) failure to maintain complete NDE training records, and 6) failure to calibrate M&TE prior to use. Overall, the audit concluded that NuWeld is effectively implementing the requirements of the Technical Specification and will continue to be maintained as an approved supplier for shipping containers according to NuWeld's QCM dated 9/15/2006. The inspection team noted a weakness with regard to the timeliness of NuWeld's response to audit findings from an audit conducted by Areva, NP in early October 2008 (refer to section 02.08 for details).

02.10 Verify that audits of the QAP and activities affecting the safety aspects of the packaging are scheduled, have been performed as scheduled, and that identified deficiencies have been satisfactorily resolved in a timely manner.

The team reviewed Section 18 of Nuweld's Quality System Manual (QSM), associated with audits, as well as procedure NWS-012, "Internal Audits," Revision C, dated 3/14/06. The team determined that NuWeld requires an internal audit on an annual basis covering five major functional areas. The team determined that an annual audit schedule is prepared and that audit check lists are used. Lead auditors were determined to be qualified and a lead auditor independent from the QA group performed the audit for the quality control area. The 2007 audits were reviewed and assessed to be comprehensive, with good documentation of what was specifically audited, and with findings and observations noted. However, the team did identify one violation of NRC requirements as described below.

10 CFR 71.111, "Instructions, Procedures, and Drawings," states, in part, that the certificate holder shall prescribe activities affecting quality by documented procedures and shall require that these procedures be followed. Contrary to this requirement, the team identified the following instance where Areva's fabricator, NuWeld, performed activities affecting quality that were not prescribed in documented procedures, or where procedures for activities affecting quality were not followed when performing the annual internal audits. Specifically, NuWeld procedure NWS-012, "Internal Audits," Section 4.0 states that every area/function will be

audited at least annually. However, the team identified that the audit checklist for the area of Quality Control was deficient in that it did not require that Sections 15 and 16 of the Quality System Manual, dealing with NCRs and corrective actions, respectively, be audited. This violation is cited in the Form 591 (A.2) issued with these inspector notes.

Further, the team identified that vendor capabilities are evaluated by Quality Assurance staff. Evaluations consist of an in depth survey using a checklist as a guide. Re-evaluation of suppliers occurs depending on the performance history of supplier, changes to procedures or implementation which conflict to purchase orders. ASME-3800 or NQA-1 vendors are surveyed triennially supplemented by annual audits or performance assessments. Performance assessments include a review of quality history and material testing. NuWeld's QC Manager uses the results of the audits to establish or update the Approved Suppliers List (ASL). Vendors holding an ASME Quality System certificate (Materials) are not required to be surveyed and are placed on the ASL. In lieu of a survey, vendor performance is reviewed to validate vendor processes by audit or by re-test of supplied material. The inspection team reviewed survey, assessment and audit reports of material and service vendors Arcos industries, LLC, Qual Tech Labs, Noren Industries, QE Manufacturing, and System One Holding, LLC. The inspection team determined that in all cases the supplier's scope of approval was commensurate with the requirements of the procurement documents and ASL listing. No concerns were identified.