UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

August 07, 2018

Mr. David Del Vecchio
President and Chief Operating Officer
CB&I AREVA MOX Services
Savannah River Site
P.O. Box 7097
Aiken, SC 29804-7097

SUBJECT: MIXED OXIDE FUEL FABRICATION FACILITY- NRC INSPECTION REPORT NUMBER 70-3098/2018-003

Dear Mr. Del Vecchio:

During the period from April 1, 2018, through June 30, 2018, the U. S. Nuclear Regulatory Commission (NRC) completed inspections pertaining to the construction of the Mixed Oxide Fuel Fabrication Facility. The purpose of the inspections was to determine whether activities authorized by the construction authorization and license application were conducted safely and in accordance with NRC requirements. The enclosed inspection report documents the inspection results. At the conclusion of the inspections, the findings were discussed with those members of your staff identified in the enclosed report.

The inspections examined activities conducted under your construction authorization and license application as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your authorization. The inspectors reviewed selected procedures and records, observed construction activities, and interviewed personnel.

NRC inspectors documented a finding of very low safety significance (SL IV) in this report. This finding involved a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy. If you contest the violation or significance of this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the United States Nuclear Regulatory Commission, ATTENTION: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Senior Project Manager at the MFFF.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at http://www.nrc.gov/reading-rm/adams.html and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Should you have any questions concerning this letter, please contact us.

Sincerely,

/RA/

Michael Ernstes, Chief
Construction Inspection Branch 2
Division of Construction Oversight

Docket No. 70-3098
Construction Authorization No.: CAMOX-001

Enclosure: NRC Inspection Report No. 70-3098/2018-003
w/attachment: Supplemental Information

cc w/encl: (See next page)

cc w/encl:
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Letter to D. Del Vecchio from Michael Ernstes dated August 7, 2018.

SUBJECT: MIXED OXIDE FUEL FABRICATION FACILITY- NRC INSPECTION REPORT NO. 70-3098/2018-003

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NAME	P. Carman	J. Eargle	D. Harmon	B. Adkins	D. Tiktinsky	M. Ernstes		
DATE	8/1/2018	8/1/2018	8/1/2018	8/2/2018	8/2/2018	08/07/2018		

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	70-3098
Construction Authorization No.:	CAMOX-001
Report No.:	70-3098/2018-003
Applicant:	CB&I AREVA MOX Services
Location:	Savannah River Site Aiken, South Carolina
Inspection Dates:	April 1 – June 30, 2018
Inspectors:	B. Adkins, Senior Fuel Facility Inspector, Safety Branch, Division of Fuel Facility Inspection (DFFI) P. Carman, Project Manager, Construction Inspection Branch 2 (CIB2), Division of Construction Oversight (DCO) J. Eargle, Senior Project Manager, CIB2, DCO D. Harmon, Construction Inspector, CIB2, DCO
Accompanying Personnel:	M. Ernstes, Branch Chief, CIB2, DCO W. Jones, Director, DCO D. Tiktinsky, Senior Project Manager, Fuel Manufacturing Branch (FMB), Division of Fuel Cycle Safety, Safeguards and Environmental Review (FCSE), Office of Nuclear Materials Safety and Safeguards (NMSS)
Approved by:	Michael Ernstes, Chief Construction Inspection Branch 2 Division of Construction Oversight

Enclosure

EXECUTIVE SUMMARY

CB&I AREVA MOX Services (MOX Services)
Mixed Oxide (MOX) Fuel Fabrication Facility (MFFF)
NRC Inspection Report (IR) Number (No.) 70-3098/2018-003

The scope of the inspections encompassed a review of various MFFF activities related to quality level (QL)-1 (safety-related) construction for conformance to U.S. Nuclear Regulatory Commission (NRC) regulations, the Construction Authorization Request (CAR), the MOX Project Quality Assurance Plan (MPQAP), applicable sections of the License Application (LA) and applicable industry codes and standards. This inspection included, as applicable, the following inspection attributes: Installation and Special Processes (Welding).

The following principal systems, structures and components (PSSCs) are discussed in this inspection report:

- PSSC-004, C2 Confinement System Passive Barrier
- PSSC-005, C3 Confinement System
- PSSC-006, C4 Confinement System
- PSSC-009, Criticality Controls
- PSSC-050, Supply Air System

Routine Resident Inspections

The inspectors routinely reviewed the applicant's weekly construction status package, reviewed the status of work packages maintained at various work sites, conducted daily tours of work and material storage areas, observed installation of mechanical equipment, and reviewed various corrective action documents to assess the adequacy of the MOX Services' corrective action program. Construction activities were performed in a safe and quality-related manner. No violations of more than minor significance were identified. (Section 2)

PSSC Inspections

PSSC-050, Supply Air System

The inspectors observed installation activities and reviewed documents related to the installation of the heating, ventilation, and air conditioning (HVAC) supply air (HSA) system. The inspectors observed in-process welding, reviewed welding records and procedures, and reviewed material records associated with the work activities. No violations of more than minor significance were identified. (Section 3.a)

Follow-up of Previously Identified Items

Inspector Follow-up Item 70-3098/2015-003-001, Review Criticality and Single-Parameter Spacing Analysis of Pipe Arrays in the Active Gallery

The inspectors closed Inspector Follow-up Item (IFI) 70-3098/2015-003-001, Review Criticality and Single-Parameter Spacing Analysis of Pipe Arrays in the Active Gallery. No violations of more than minor significance were identified. (Section 4.a)

Unresolved Item 70-3098/2016-002-001, Potentially Inadequate Welds of Internal Seismic Braces in Filter Housings FLU0001B, FLU0002B, FLU0003B, FLU0004B, FLU0005B, and FLU0006B

The inspectors reviewed Unresolved Item (URI) 70-3098/2016-002-001, Potentially Inadequate Welds of Internal Seismic Braces in Filter Housings FLU0001B, FLU0002B, FLU0003B, FLU0004B, FLU0005B, and FLU0006B. Based on the results of the review, URI 70-3098/2016-002-001 was closed and Non-cited Violation (NCV) 70-3098/2018-003-01, Failure to Ensure that Procured Equipment Met the Specified Requirements, was identified. This NCV was associated with the applicant's failure to ensure that cross brace welds in the medium depressurization exhaust (MDE), high depressurization exhaust (HDE), and HSA filter housings met the code quality requirements. (Section 4.b)

REPORT DETAILS

1. Summary of Facility Status

During the inspection period, the applicant (CB&I AREVA MOX Services (MOX Services)) continued construction activities of principal systems, structures and components (PSSCs). Other construction activities included staging of process piping and installation of supports in the aqueous polishing area (BAP); installation of process piping in the BAP; installation of ventilation system ductwork and supports in the BAP and MOX processing area (BMP); installation of fire dampers in the BAP and BMP; and installation of various gloveboxes in the BAP and BMP. The applicant continued to receive, store, assemble, and test glove boxes and process equipment at the process assembly facility (PAF).

2. Routine Resident Inspection Activities

a. Inspection Procedure (IP) 88130, Construction: Resident Inspection Program for On-Site Construction Activities at the Mixed Oxide Fuel Fabrication Facility

(1) Scope and Observations

The inspectors reviewed the applicant's construction weekly status meeting notes. The inspectors held discussions with MOX Services design engineers, field engineers, quality assurance (QA) and quality control (QC) personnel, and subcontractor construction personnel in order to maintain current knowledge of construction activities and any problems or concerns.

The inspectors reviewed the status of work packages (WPs) maintained at various work sites. The inspectors reviewed various corrective action documents. The review included non-conformance reports (NCRs) and condition reports (CRs). The inspectors routinely performed tours of the MOX Fuel Fabrication Facility (MFFF) work areas to observe ongoing work activities and communications.

(2) Conclusions

No violations of more than minor significance were identified.

3. PSSC Inspections

a. PSSC-050, Supply Air System

(1) Scope and Observations

The inspectors observed construction activities related to PSSC-050, Supply Air System, as described in Table 5.6-1 of the MFFF Construction Authorization Request (CAR). The inspection attribute observed was Special Processes (Welding).

The inspectors observed in-process welding of a quality level (QL)-1 HVAC duct component for the heating, ventilation, and air conditioning (HVAC) supply air (HSA) system, weld number C206-HAS-3A1-FW002-C0R0, to determine if the welding was being performed in accordance with the applicable procedures. The inspectors reviewed

the weld filler metal issue slip to determine if the filler metal had been issued in accordance with the weld filler metal control procedure. The inspectors reviewed the welding procedure and procedure qualification records to determine if the procedure had been written and qualified in accordance with the requirements of American Welding Society (AWS) D9.1, "Sheet Metal Welding Code." The inspectors also reviewed the welder's qualification records to determine if the welder had been qualified in accordance with AWS D9.1 to make the weld. Lastly the inspectors reviewed the certified material test report (CMTR) for the weld filler metal to verify if it had been procured and tested in accordance with the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC), Section II.

(2) Conclusions

No violations of more than minor significance were identified.

4. Follow-up of Previously Identified Items

a. (Closed) Inspector Follow-up Item 70-3098/2015-003-001, Review Criticality and Single-Parameter Spacing Analysis of Pipe Arrays in the Active Gallery

(1) Scope and Observations

During a previous inspection in 2015, the inspectors determined that the active gallery was not covered by a specific criticality safety analysis. The inspectors noted that MOX Services was in the process of developing a detailed computer model of the active gallery to ensure that congested areas of piping and components would remain subcritical during both normal and credible abnormal conditions. The inspectors discussed the preliminary model with MOX Services during the 2015 inspection including whether there was a basis for not modeling non-fissile (e.g., water or empty) piping. The inspectors determined that further review by the NRC staff was necessary to evaluate the acceptability of the criticality and single-parameter spacing analysis for large piping arrays in the active gallery. The inspectors opened Inspector Follow-up Item (IFI) 70-3098/2015-003-001, Review Criticality and Single-Parameter Spacing Analysis of Pipe Arrays in the Active Gallery, to further evaluate the adequacy of the MOX Services criticality analysis for the active gallery.

The inspectors reviewed DCS01-KKJ-DS-CAL-H-35095-0, "Criticality Safety of the MFFF Active Gallery," to verify that MOX Services adequately evaluated the potential for criticality in the active gallery. Specifically, the inspectors reviewed the computer model to ensure that it accurately reflected the piping and equipment configurations in the active gallery. The inspectors noted that the model was built off of the MFFF plant design system (PDS) model which includes thousands of fissile bearing pipe segments and components. The inspectors reviewed the analysis to verify that it contained conservative assumptions such as (1) modeling piping and components to the outside diameter, (2) no neutron absorption credit for stainless steel in the piping and racks, (3) all piping and components were simultaneously filled with fissile solution at bounding concentrations, (4) piping/components were conservatively reflected with one inch of water, and (5) optimum moderation. The inspectors reviewed the analysis to verify that the model parameters (e.g., chemical form, H/Pu, concentration, and energy of average lethargy causing fission (EALF)) were within the validated area of applicability (AOA) established in the validation report. The inspectors reviewed the results of model

sensitivity studies to address potential process upsets that could occur during construction. Examples reviewed included pipe or rack positioning errors, equipment location errors, wall placement errors, and changes in moderation. The inspectors reviewed the calculation results to ensure that the effective multiplication factor (Keff) met the established upper safety limit (USL) as established in the license application. The inspectors noted that there was significant margin between the calculated Keff and the USL for all normal and credible abnormal conditions.

The inspectors also reviewed DCS01-KKJ-DS-CAL-H-35101-0, "Criticality Safety of the Active Gallery Supplement." The supplemental analysis included a base case model, representative array sensitivity cases, mixed array sensitivity cases, moderation sensitivity cases, rack sensitivity cases, and pipe position sensitivity cases. The purpose of the supplemental calculations were to assess the impact of empty pipes or water pipes on reactivity (omitted from previous model), whether uniform pipe arrays (base cases) bound mixed pipe sizes (representative cases), the impact of stainless steel as an absorber, and the impact of pipe spacing tolerances on reactivity. The inspectors reviewed the original and supplemental analyses performed to determine if they provided reasonable assurance (e.g. sufficient margin – 20% below the USL) that Keff would not exceed the USL established in the license application during normal and credible abnormal conditions.

The inspectors reviewed DCS01-KKJ-CG-NTE-H-07708-A, "Aqueous Polishing – Subcritical Geometry Requirements of Pipes and Small Equipment in the Active Gallery," to verify that the generic spacing requirements contained in construction work packages will protect the assumptions assumed in the criticality analysis. The inspectors noted that no additional spacing requirements beyond standard construction tolerances are necessary for piping systems to ensure that the active gallery remains subcritical. MOX Services will perform QC inspections to verify that active gallery piping was installed in accordance with specified requirements and tolerances. The inspectors reviewed DCS01-KKJ-DS-ANS-H-35053-4, "Nuclear Criticality Safety Evaluation of the AP Auxiliary Units," to ensure that the results of the criticality calculations were documented in the criticality safety evaluation.

(2) Conclusions

No violations of more than minor significance were identified. IFI 70-3098/2015-003-001 is considered closed.

b. (Closed) Unresolved Item (URI) 70-3098/2016-002-001, Potentially Inadequate Welds of Internal Seismic Braces in Filter Housings FLU0001B, FLU0002B, FLU0003B, FLU0004B, FLU0005B, and FLU0006B

(1) Scope and Observations

During an earlier inspection in 2016, the inspectors walked down components associated with PSSC-005, C3 Confinement System, as described in Table 5.6-1 of the MFFF CAR. The inspection attributes observed were Installation and Special Processes (Welding). The associated items relied on for safety IROFS components were high depressurization exhaust (HDE) filter housings FLU0001B, FLU0002B, FLU0003B, FLU0004B, FLU0005B, and FLU0006B. Specifically, the inspectors observed the internal welds and bracing of these HDE filter housings. Unresolved Item 70-3098/2016-

002-001 was identified for potentially inadequate welds on the seismic cross bracing inside the filter housings.

During the current inspection period, the inspectors held interviews with the applicant's engineering staff and reviewed records associated with MOX Services' and AAF Flanders' (Flanders) actions taken to resolve URI 70-3098/2016-002-001 to determine if a violation of NRC requirements existed. The inspectors reviewed, "X-bracing Weld Defect Technical Justification MOX Filter Housings," Revision F, which was prepared by Flanders and approved by MOX Services as document number 08716-00003307_-0343, Revision I, as a technical use-as-is justification for the filter housing cross brace weld defects. Additionally the inspectors reviewed nonconformance report 10888-MOX-NCR-16-6896, receiving inspection report QC-RIR-14-51650, and Structural Integrity report 1800430.401.R0, "MOX Containment X-Bracing Weld Evaluation."

The inspectors also performed a walk down and visual inspection of the very high depressurization exhaust system (VHD) filter housings to verify if the applicant had adequately determined the scope of the issue to be limited to the HDE, medium depressurization exhaust (MDE), and HSA systems.

(2) Conclusions

Introduction: The NRC identified a SL IV NCV for the applicant's failure to ensure that procured equipment met the specified quality requirements. Specifically MOX Services failed to ensure that cross brace welds in the HDE, MDE, and HSA systems filter housings met the code quality requirements.

Description: MOX Services procured filter housings for the HDE, MDE and HSA HVAC systems from Flanders that were seismically qualified and fabricated to ASME AG-1 Code on Nuclear Air and Gas Treatment. Flanders used a standard commercial design with cross bracing transverse to the airflow which was seismically qualified by shake testing a representative filter housing.

After the NRC issued URI 70-3098/2016-002-001 for potentially inadequate welds on the filter housings, the applicant and Flanders performed visual inspections of cross brace welds on all filter housings that had been fabricated. The inspections concluded that 28 filter housings in the HDE, MDE, and HSA systems with multiple cross brace welds had defects which exceeded the acceptance criteria of ASME AG-1.

Flanders used the detailed inspection data for the as built welds and performed an evaluation. Flanders' evaluation used the detailed weld status of the filter housing that had been shake tested and relative stresses at different locations within the housings to justify accepting the filter housings as-is. MOX Services approved Flanders' justification September 2017.

The NRC inspectors reviewed the Flanders evaluation in February 2018 and held discussions with MOX Services' engineering staff regarding the weld defects which lay outside the bounds of the evaluation. Subsequently, MOX Services procured a computer analysis performed by Structural Integrity to demonstrate that the as built filter housings would be able to withstand the design basis earthquake. The Structural Integrity analysis was accepted by MOX Services in May 2018.

Analysis: Using the guidance contained in Inspection Manual Chapter 0613, "Power Reactor Construction Inspection Reports," the inspectors determined that the applicant's failure to ensure the quality of procured components was a more than minor finding. Specifically the deficiency represented a substantive failure to establish or implement an adequate quality oversight function and represented an adverse condition that rendered the quality of a structure, system, or component (SSC) unacceptable and required substantive corrective action. This finding was determined to be a SL IV violation using Section 6.5, "Facility Construction (10 CFR Parts 50 and 52 Licensees and Fuel Cycle Facilities) of the NRC Enforcement Policy," dated 11/01/2016, because the applicant failed to meet regulatory requirements, including one QA criteria that had a more than minor safety significance. The finding was determined to have very low safety significance because after further analysis the applicant showed the components were capable of withstanding the design basis seismic event.

Enforcement: MOX Project Quality Assurance Plan Section 7, Control of Purchased Material, Equipment, and Services, states in part that "MOX Services procurement of Quality Level 1 and Quality Level 2 material, equipment and services is controlled to assure conformance with specified technical and QA requirements."

MOX Services' LA and "HEPA Filter Housings Procurement Specification", DCS01-QGA-DS-SPE-V-10159-6, Section 2.2.4, require that the HDE, MDE, and HSA filter housings be fabricated in accordance with ASME Code AG-1 1997.

ASME Code AG-1 1997, "Code On Nuclear Air and Gas Treatment," Section 6300, "Welding Requirements," requires that welds have complete fusion, have lengths as specified in design drawings, be free of cracks, and be free of porosity and undercut in excess of stated limits.

Contrary to the above, on or before August 27, 2014, MOX Services failed to adequately control procurement of Quality Level 1 and Quality Level 2 equipment to ensure conformance with specified technical requirements. Specifically, 28 filter housings were fabricated by Flanders for the HDE, MDE, and HSA systems with cracks, lack of fusion, insufficient length, and excessive porosity and undercut in the welds joining the seismic cross-bracing inside the filter housings.

This finding was determined to be a SL IV violation using Section 6.5 of the Enforcement Policy. This violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. The violation was entered into the applicant's corrective action program as 10888-MOX-CR-18-242 and 10888-MOX-NCR-16-6896. Additionally the applicant was planning appropriate corrective actions. (NCV 70-3098/2018-003-01, Failure to Ensure that Procured Equipment Met the Specified Requirements)

5. Exit Meeting

The inspection scope and results were summarized throughout this reporting period and by the Senior Project Manager at an exit meeting with applicant management on August 7, 2018. Although proprietary documents and processes may have been reviewed during this inspection, the proprietary nature of these documents or processes was not included in this report.

SUPPLEMENTAL INFORMATION

1. PARTIAL LIST OF PERSONS CONTACTED

D. Del Vecchio, President
H. DeMart, Field Engineer
D. Gwyn, Licensing / Nuclear Safety Manager
M. Gober, Vice President Engineering
D. Ivey, Project Assurance Manager
R. Keeler, Acting Director of Construction / Project Management
E. Radford, Regulatory Compliance Manager
G. Rousseau, Deputy Project Manager / Executive Vice President
J. Starling, Licensing
D. Yates, Licensing

2. INSPECTION PROCEDURES (IPs) USED

IP 88130	Resident Inspection Program For On-Site Construction Activities at the Mixed-Oxide Fuel Fabrication Facility
IP 88139	Ventilation and Confinement Systems

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Status	Description
70-3098/2015-003-001	Closed	IFI: Review Criticality and Single-Parameter Spacing Analysis of Pipe Arrays in the Active Gallery (Section 4.a)
70-3098/2016-002-001	Closed	URI: Potentially Inadequate Welds of Internal Seismic Braces in Filter Housings FLU0001B, FLU0002B, FLU0003B, FLU0004B, FLU0005B, and FLU0006B (Section 4.b)
70-3098/2018-003-01	Opened/Closed	NCV: Failure to Ensure that Procured Equipment Met the Specified Requirements (Section 4.b)

4. LIST OF ACRONYMS USED

ADAMS	Agency-Wide Document Access and Management System
AOA	Area of Applicability
AP	Aqueous Polishing
ASME	American Society of Mechanical Engineers
AWS	American Welding Society
BAP	Aqueous Polishing Building
BMP	MOX Processing Building
BPVC	Boiler and Pressure Vessel Code
CAR	Construction Authorization Request
CB&I	Chicago Bridge and Iron
CFR	Code of Federal Regulations
CIB2	Construction Inspection Branch 2

CMTR	Certified Material Test Report
CR	Condition Report
DCO	Division of Construction Oversight
DFFI	Division of Fuel Facility Inspection
EALF	Energy of Average Lethargy Causing Fission
ECR	Engineering Change Request
FCSE	Division of Fuel Cycle Safety and Environmental Review
FMB	Fuel Manufacturing Branch
HDE	High Depressurization Exhaust
HSA	HVAC Supply Air
HVAC	Heating, Ventilation, and Air Conditioning
IFI	Inspector Follow-Up Item
IP	Inspection Procedure
IR	Inspection Report
IROFS	Items Relied on for Safety
Keff	Effective Multiplication Factor
LA	License Application
MDE	Medium Depressurization Exhaust
MOX	Mixed Oxide
MOX Services	CB&I AREVA MOX Services
MFFF	MOX Fuel Fabrication Facility
MPQAP	MOX Project Quality Assurance Plan
NCR	Non-conformance Report
NMSS	Office of Nuclear Materials Safety and Safeguards
No.	Number
NRC	U.S. Nuclear Regulatory Commission
NCV	Non-Cited Violation
PAF	Process Assembly Facility
PDS	Plant Design System
PP	Project Procedure
PQR	Procedure Qualification Record
PSSC	Principal System, Structure and Component
QA	Quality Assurance
QC	Quality Control
QL	Quality Level
Rev.	Revision
RII	Region II
SL	Severity Level
SSC	Structure, System, or Component
URI	Unresolved Item
USL	Upper Safety Limit
VHD	Very High Depressurization Exhaust System
WP	Work Package

5. LIST OF PSSCs REVIEWED

- PSSC-004, C2 Confinement System Passive Barrier
- PSSC-005, C3 Confinement System
- PSSC-006, C4 Confinement System
- PSSC-009, Criticality Controls

- PSSC-050, Supply Air System

6. RECORDS AND DOCUMENTS REVIEWED

Calculations

08716-00003307_-0229, Seismic Qualification Report – Containment Housing, Revision B
DCS01-KKJ-CG-CAL-H-07731-A, Criticality Safety of the MFFF Active Gallery in Cell C234, Revision A
DCS01-KKJ-CG-NTE-H-07708-A, Aqueous Polishing Subcritical Geometry Requirements Supports of Pipes and Small Equipment in the Active Gallery Cell C-234, Revision A
DCS01-KKJ-DS-ANS-H-35053-4, Nuclear Criticality Safety Evaluation (NCSE) of AP Auxiliary Units, Revision 4
DCS01-KKJ-DS-CAL-H-35095-0, Criticality Safety of the Active Gallery, Revision 0
DCS01-KKJ-DS-CAL-H-35101-0, Criticality Safety of the Active Gallery Supplement, Revision 0

Certified Material Test Reports (CMTRs)

Certified Material Test Report for Weld Filler Metal Lot AF9689

Condition Reports (CRs)

10888-MOX-CR-17-202, Improperly labeled storage areas in MFFF, 5/24/2017
10888-MOX-CR-18-004, Stainless Steel HVAC Duct Passivation, 1/9/2018
10888-MOX-CR-18-152, Annual Audit of Quality Assurance FY18, 5/3/2018
10888-MOX-CR-18-164, Improper Storage of Temporary Material, 5/8/2018
FFI-16-SIR-015-03, Supplier Deficiency Report from Flanders / CSC Corporation, Revision 1

CR for NCV in Section 4

10888-MOX-CR-18-242, Inadequate Welds on HDE Filter Housings, 7/9/2018

Drawings

08716-00003307_-0091, VHD 1H1W System Floor Mount, Revision J
08716-00003307_-0093, VHD 1H1W System, Revision I
08716-00003307_-0097, VHD 1H1W System Floor Mount, Revision F

Engineering Change Requests (ECRs)

ECR-027936, AP AUX NCSE, R4TBV1 Removal, 6/23/2016
ECR-028711, HVAC Cross Bracing Weld Acceptance Criteria, Revision 1
ECR-030175, Continuation of ECR 028711, HVAC Cross Bracing Weld Acceptance Criteria Revision 0

Inspection Reports / Plans

08716-00003307_-0360, UUT2 Inspection Data, Revision A
08716-00003307_-0361, Inspection Plan for UUT2, Revision A

Miscellaneous Documents

006635, Applicability Determination for ECR-030175, 2/27/2018

Non-conformance Reports (NCRs)

08716-00003307_-0384, NCR 1100, Revision A
08716-00003307_-0394, NCR 1106, Revision C
10888-MOX-NCR-17-7558, Cleanliness of Embedded Pipe, 4/13/2017
10888-MOX-NCR-18-8171, Missing Component, 2/23/2018
10888-MOX-NCR-16-6896, Welding, 4/7/2016

Project Procedures (PPs)

PP11-52, AWS D9.1 General Welding Procedure, Revision 0
PP11-73, Cleaning and Contaminant Removal for Steel and Corrosion Resistant Alloys, Revision 1

Receipt Inspection Reports

QC-RIR-14-51650, Assembly, Filter Housing, 8/27/2014

Specifications

DCS01-QGA-DS-SPE-V-10159-6, Procurement Specification, HEPA Filter Housings, Quality Level 1, Revision 6
DCS01-QGA-DS-SPE-V-15890-11, Ductwork Fabrication and Installation, Quality Level 1 (IROFS), Revision 11
DCS01-ZMJ-DS-SPE-M-21402-2, Equipment Seismic Qualification Specification, Quality Level 1, Revision 1

Technical Evaluations

08716-00003307_-0208, Similarity Report – Large Containment Housings, Revision K
08716-00003307_-0343, X-bracing Weld Defect Technical Justification, Revision I
08716-00003307_-0461, MOX Containment X-Bracing Weld Evaluation, Revision A
2012-0359-SR-002, MOX Containment Housings HSA, HDE, POE, MDE, VHD, Revision 8

Weld Records and Procedures

GTAW welder quals for welder S078
Procedure Qualification Record (PQR) D9.1-GT-3-SG-4G-16, 11/4/2011
PQR D9.1-GT-3-VG-4G-10, 11/4/2011
Welding Technique Sheet D9.1-GT-SS-01, Revision 0