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

February 14, 2013

Mr. Kelly D. Trice
President and Chief Operating Officer
Shaw AREVA MOX Services
Savannah River Site
P.O. Box 7097
Aiken, SC 29804-7097

SUBJECT: MIXED OXIDE FUEL FABRICATION FACILITY- NRC INSPECTION REPORT NO. 70-3098/2012-004 AND NOTICE OF VIOLATION

Dear Mr. Trice:

During the period from October 1 through December 31, 2012, the U. S. Nuclear Regulatory Commission (NRC) completed inspections pertaining to the construction of the Mixed Oxide (MOX) Fuel Fabrication Facility. The purpose of the inspections was to determine whether activities authorized by the construction authorization 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 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 activities, and interviewed personnel.

Based on the results of this inspection, one violation of NRC requirements was identified for failure to meet MOX Project Quality Assurance Plan requirements for welding of safety-related ventilation ductwork.

The violation was evaluated in accordance with the NRC Enforcement Policy available on the NRC's Web site at www.nrc.gov. The violation is cited in the enclosed Notice of Violation (Notice) and is cited in the Notice because they were identified by the NRC. The circumstances surrounding the violations are described in detail in the subject inspection report.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration, NRC Information Notice 96-28, "SUGGESTED GUIDANCE RELATING TO DEVELOPMENT AND IMPLMEMENTATION OF CORRECTIVE ACTION," is available on the NRC's web site.

In accordance with 10 CFR 2.390 of NRC's "Rules of Practice," a copy of this letter and its enclosures may be accessed through the NRC's public electronic reading room, Agency-Wide Document Access and Management System (ADAMS) on the Internet at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

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

Sincerely,

/RA/

Deborah A. Seymour, Chief
Construction Projects Branch 1
Division of Construction Projects

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

Enclosures:

1. Notice of Violation
2. NRC Inspection Report 70-3098/2012-004
   w/attachment: Supplemental Information

cc w/encls: (See next page)

cc w/encls:

Mr. Kevin Hall, Acting Federal Project Director
NA-262.1
P.O. Box A
Aiken, SC 29802

Mr. Sam Glenn, Deputy
Federal Project Director
NA-262.1
P.O. Box A
Aiken, SC 29802

Dr. Peter Winokur, Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Ave., NW, Suite 700
Washington, DC 20004

Mr. Joseph Olencz, NNSA/HQ
1000 Independence Ave., SW
Washington, DC 20585

Susan Jenkins
Division of Radioactive Waste Management
Bureau of Health and Environmental Control
2600 Bull St.
Columbia, SC 29201

D. Silverman
Morgan, Lewis, and Bockius
1111 Penn. Ave., NW
Washington, DC 20004

G. Carroll
Nuclear Watch South
P.O. Box 8574
Atlanta, GA 30306

Diane Curran
Harmon, Curran, Spielburg and Eisenberg, LLP
1726 M St., NW, Suite 600
Washington, DC 20036

L. Zeller
Blue Ridge Environmental Defense League
P.O. Box 88
Glendale Springs, NC 28629

Mr. Dealis Gwyn, Licensing Manager
Shaw AREVA MOX Services
Savannah River Site
P.O. Box 7097
Aiken, SC 29804-7097

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■ PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE ■ NON-SENSITIVE

ADAMS: ■ Yes ACCESSION NUMBER: _ML13045A451___ ■ SUNSI REVIEW COMPLETE ■ FORM 665 ATTACHED

OFFICE	RII: DCP	RII: DCP	RII: DCP				
SIGNATURE	WBG	MXS1 via e-mail	BJA1 via e-mail				
NAME	W. Gloersen	M. Shannon	B. Adkins				
DATE	2/13/3013	2/14/3013	2/13/3013				
E-MAIL COPY?	YES	YES	YES				

OFFICIAL RECORD COPY
DOCUMENT NAME: G:\CCI\DCP\CPB1\MOX FFF\Inspection\Inspection Reports\2012\2012-004\IR 2012004.docx

Letter to Kelly Trice from Deborah Seymour dated February 14, 2013.

SUBJECT: MIXED OXIDE FUEL FABRICATION FACILITY- NRC INSPECTION REPORT NO. 70-3098/2012-004 AND NOTICE OF VIOLATION

Distribution w/encls:
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K. O'Donohue, RII
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K. Steddenbenz, RII
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B. Adkins, RII
PUBLIC

NOTICE OF VIOLATION

Shaw AREVA MOX Services (MOX Services) Docket Number (No.) 70-3098
Aiken, South Carolina Construction Authorization No. CAMOX-001

During Nuclear Regulatory Commission (NRC) inspection activities conducted October 1 through December 31, 2012, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Condition 3.A of NRC Construction Authorization (CA) No. CAMOX-001, Revision 2, dated February 8, 2011, authorizes, in part, the applicant to construct a plutonium processing and mixed oxide fuel fabrication plant, known as the Mixed Oxide Fuel Fabrication Facility (MFFF) located at the Department of Energy's Savannah River Site, in accordance with the statements, representations, and conditions of the MOX Project Quality Assurance Plan (MPQAP) dated March 26, 2002, and supplements thereto (MPQAP, Revision 10, Change 1, dated July 28, 2011).

MPQAP, Revision 10, Change 1, Section 5, Instructions, Procedures and Drawings, states in part, that quality-affecting activities are performed in accordance with documented, approved QA procedures and other approved implementing documents (drawings, specifications, etc.) appropriate to the MOX Project work scope.

The welding data sheet (WDS) in MOX Services work package 12-CP23-B123-HDE-D-M-003, for quality level one (QL-1) stainless steel ductwork, for the High Depressurization Exhaust (HDE) System, required through-wall complete joint penetration (CJP)

MPQAP, Revision 10, Change 1, Section 10, Inspection, states, in part; that in-process inspections, process monitoring methods, and final inspections shall be systematically performed to ensure that specified requirements for the quality of items are met.

Contrary to the above, on or before October 22, 2012, MOX Services failed to ensure that final inspections were systematically performed to ensure that specified requirements for the quality of items were met. Specifically, MOX Services failed to identify that they had not achieved the specified requirement of through-wall CJP, as required by the WDS in work package 12-CP23-B123-HDE-D-M-003, by not inspecting the internal portion of two field welds on QL-1 stainless steel ductwork for the HDE System. The two field welds had rejectable, internal root passes with incomplete joint penetration. The HDE system is a principle system, structure, and component (PSSC-005), located upstream of the final high efficiency particulate air (HEPA) filter boxes.

This is a Severity Level IV violation (Enforcement Policy 6.5.d) (Violation (VIO) 70-3098/2012-004-001)

Pursuant to the provisions of Title 10, Code of Federal Regulations (CFR) 2.201, Shaw AREVA MOX Services 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 Regional Administrator, Region II, and a copy to the NRC Resident Inspector at the Mixed Oxide Fuel Fabrication Facility construction project, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). 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, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an Order or Demand for Information may be issued as to why the authorization should not be modified, suspended, or revoked, or why such other actions as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room (PDR), or from the NRC's document system (ADAMS), which is accessible from the NRC web site at http://www.nrc.fob/reading-rm/adams.html, to the extent possible, it 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, 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 withholding of such material, 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 will 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.
In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated at Atlanta, Georgia this 14th day of February 2013.

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	70-3098
Construction Authorization No.:	CAMOX-001
Report No.:	70-3098/2012-004
Applicant:	Shaw AREVA MOX Services
Location:	Savannah River Site Aiken, South Carolina
Inspection Dates:	October 1 – December 31, 2012
Inspectors:	M. Shannon, Senior Resident Inspector, Construction Projects Branch (CPB) 1, Division of Construction Projects (DCP), Region II (RII) B. Adkins, Resident Inspector, CPB1, DCP, RII S. Alexander, Construction Inspector, Construction Inspection Branch (CIB) 2, Division of Construction Inspection (DCI), RII A. Artayet, Senior Construction Inspector, CIB3, DCI, RII J. Bartleman, Senior Construction Inspector, CIB3, DCI, RII J. Christensen, Construction Inspector, CIB3, DCI, RII D. Edwards, Construction Project Inspector, CPB1, DCP, RII W. Gloersen, Senior Project Inspector, CPB1, DCP, RII A. Matos-Marin, Construction Inspector, CIB2, DCI, RII S. Smith, Sr. Construction Inspector, CIB2, DCI, RII K. Steddenbenz, Construction Project Inspector, CPB1, DCP, RII
Accompanying Personnel:	A. Chowdhury, Center for Nuclear Waste and Regulatory Analysis D. Tiktinsky, Project Manager, Nuclear Materials Safety and Safeguards D. Seymour, Branch Chief, CPB1, DCP, RII
Approved by:	D. Seymour, Branch Chief, CPB1, DCP, RII

EXECUTIVE SUMMARY

Shaw AREVA MOX Services (MOX Services)
Mixed Oxide (MOX) Fuel Fabrication Facility (MFFF)
NRC Inspection Report Number (No.) 70-3098/2012-004

The scope of the inspections encompassed a review of various MFFF activities related to Quality Level (QL)-1 construction for conformance to NRC regulations, the Construction Authorization Request (CAR), the MOX Project Quality Assurance Plan (MPQAP), applicable sections of the license application (LA) and applicable industry standards. This inspection included, as applicable, the following inspection attributes: control of materials, equipment, and services; design and document control; inspection; special processes; vendor oversight/inspection; fabrication; installation; Title 10, Code of Federal Regulations (CFR) Part 21; procurement; and corrective action program.

The principle systems, structures and components (PSSCs) discussed in this inspection report included: PSSC-005, C3 Confinement System; PSSC-010, Double-Walled Pipes; PSSC-012, Emergency Alternating Current (AC) Power System; PSSC-018, Emergency Diesel Generator (EDG) Fuel Oil System; PSSC-21, Fire Barriers; PSSC-024, Gloveboxes; PSSC-036, MFFF Building Structure (including the vent stack); and PSSC-041, Process Cells. Non-PSSCs discussed in this inspection report include a Quality Assurance (QA) Program inspection in the following areas: Program Development and Implementation (IP 88106); Inspection, Test Control, and Control of Measuring and Test Equipment (IP 88109); 10 CFR 21 Inspections-Facility Construction (IP 88111); Control of Electronic Management of Data (IP 88113); Supplier/vendor Inspection (IP 88115); and Inspection of Safety Related Function Interfaces for the Mixed Oxide Fuel Fabrication Facility (IP 88116).

Inspections were also conducted to verify that MOX Services implemented adequate vendor oversight of Diversified Metal Products (DMP), Inc. fabrication activities related to PSSC-010, PSSC-012, PSSC-018 and PSSC-024. The NRC observed MOX Services' oversight of DMP's QA program activities related to the design, procurement, material control test control, special processes, and MPQAP requirements. In addition, the NRC performed this inspection to verify that DMP implemented a program under 10 CFR Part 21, Reporting of Defects and Noncompliance, that met the NRC's regulatory requirements. The inspectors performed walk downs of DMP's facility and fabrication areas that were used for the fabrication and testing of the PSSCs and items relied on for safety (IROFS) components noted above.

Routine Resident Inspections

Construction activities were performed in a safe and quality-related manner. No findings of significance were identified. (Section 2)

PSSC Vendor Related Inspections

Programmatic Review of PSSC-010, Double-walled Pipe; PSSC-024, Gloveboxes; PSSC-012, Emergency AC Power System; and PSSC-018, EDG Fuel Oil System

The inspectors observed fabrication activities related to PSSC-010, Double-walled Pipe; PSSC-024, Gloveboxes; PSSC-012, Emergency AC Power System; and PSSC-018, EDG Fuel Oil System as described in Table 5.6-1 of the MFFF CAR. The associated IROFS components were glovebox seal pots (PSSC-010), gloveboxes KPA*GB2000 and KPA*GB2010 (PSSC-

024), and EDG fuel oil storage tanks (FOSTs) EGF*TK2500A, EGF*TK2500B, EGF*TK2503A and EGF*TK2503B (PSSC-012 and PSSC-018). Several inspection attributes were observed.

- An inspection attribute observed was vendor oversight/inspection. The inspectors concluded that MOX Services provided adequate oversight of DMP in the areas of audits and training. No findings of significance were identified. (Section 3.a.(1))

- An inspection attribute observed was 10 CFR Part 21 - Construction. The inspectors verified that DMP adequately implemented procedures and program activities associated with the requirements of 10 CFR Part 21 with regard to postings, identifying its applicability in procurement documents, and identifying reporting requirements and responsible personnel. No findings of significance were identified. (Section 3.a.(2))

- An inspection attribute observed was the corrective action program. The applicant provided adequate oversight of DMP to ensure the vendor had a program in place to identify and correct deficiencies and to properly disposition non-conformances. No findings of significance were identified. (Section 3.a.(3))

PSSC-024, Gloveboxes

The inspectors observed fabrication activities related to PSSC-024, Gloveboxes, as described in Table 5.6-1 of the MFFF CAR. The associated IROFS components were gloveboxes KPA*GB2000 and KPA*GB2010. Several inspection attributes were observed.

- An inspection attribute observed was special processes. MOX Services implemented adequate oversight of special process activities consistent with the regulatory requirements of the MPQAP, Section 9, Control of Special Processes. These special processes were adequately performed and met the license requirements. No findings of significance were identified. (Section 3.b.(1))

- An inspection attribute observed was test control. The inspectors concluded that MOX Services was implementing adequate oversight of testing activities, control of measuring and test equipment, and inspection consistent with the regulatory requirements of the MPQAP. No findings of significance were identified. (Section 3.b.(2))

- An inspection attribute observed was procurement. The inspectors verified that adequate technical and quality assurance requirements were included or referenced in procurement documents for Quality Level-1 (QL-1) items and services. No findings of significance were identified. (Section 3.b.(3))

- An inspection attribute observed was control of control of materials, equipment, and services. The inspectors verified that adequate technical and quality assurance requirements were included or referenced in procurement documents for QL-1 items and services. The inspectors verified that QL-1 materials and components were properly marked, QC accepted, and stored. No findings of significance were identified. (Section 3.b.(4))

PSSC-010, Double-Walled Pipe

Vendor fabrication activities were observed at DMP related to PSSC-010, Double-Walled Pipe, as described in Table 5.6-1 of the MFFF CAR. The associated IROFS components were glovebox seal pots. The inspection attribute observed was design control. No findings of significance were identified pertaining to design control processes during fabrication of glovebox components. (Section 3.c)

PSSC-012, Emergency AC Power System and PSSC-018, EDG Fuel Oil System

Vendor fabrication activities were observed at DMP related to PSSC-012, Emergency AC Power System and PSSC-018, EDG Fuel Oil System, as described in Table 5.6-1 of the MFFF CAR. Specifically, the IROFS components observed were two long term supply EDG FOSTs (EGF*TK2500A and EGF*TK2500B) and two short duration supply EDG FOSTs (EGF*TK2503A and EGF*TK2503B). The inspection attribute observed was special processes associated with the EDG FOSTs. These activities were adequately performed and met the license requirements. No findings of significance were identified. (Section 3.d)

PSSC Related Inspections

PSSC-041, Process Cells

The inspectors observed construction activities related to PSSC-041, Process Cells, as described in Table 5.6-1 of the MFFF CAR. The inspection attribute observed was installation. The associated IROFS component was the Room C-234 Process Cell Drip Tray. The inspectors observed performance of vacuum box leak testing of drip tray welds and verified the testing was performed in accordance with American Society of Mechanical Engineers (ASME) Section V code requirements. The inspectors verified that personnel performing the leak testing were trained, qualified and certified in accordance with the American Society for Nondestructive Testing (ASNT) SNT-TC-1A requirements. (Section 4.a)

PSSC-005, C3 Confinement System

The inspectors observed welding activities related to PSSC-005, C3 Confinement System. The inspection attribute observed was fabrication of round ductwork associated with the High Depressurization Exhaust (HDE) system. A violation was identified for failure to inspect internal root passes of field welds (Violation 70-3098/2012-004-001). Specifically, MOX Services failed to verify that specified requirements for complete joint penetration of an IROFS component were met throughout the duration of the welding process in accordance with the regulatory requirements of the MPQAP, Section 10, Inspection. (Section 4.b)

PSSC-021, Fire Barriers

Testing activities associated with PSSC-021, Fire Barriers, as described in Table 5.6-1 of the MFFF CAR were reviewed. The inspection attribute observed was test control. The associated IROFS components were fire dampers. The inspectors reviewed the fire damper seismic test plan, selection of representative fire dampers using a Similarity Report, and seismic testing of six fire damper/sleeve assemblies to qualify 107 fire dampers. The seismic test plan and the testing of the fire damper/sleeve assemblies were adequate. (Section 4.c)

PSSC-036, MFFF Building Structure (Including Vent Stack)

Construction activities related to PSSC-036 as described in Table 5.6-1 of the MFFF CAR were adequately performed and included installations of reinforcing steel, embedded plates and ground cables, concrete placements, operation of the batch plant, heavy lifts of equipment and supplies, verification of equipment placements by surveys, rebar installation, placement of concrete, welding, non-destructive testing, installation of tanks, and receipt of materials. These construction activities were performed in a safe and quality related manner and in accordance with procedures and work packages (WPs). No findings of significance were identified. (Section 4.d)

Non-PSSC Inspections

Quality Assurance Program Inspection:

Program Development and Implementation (IP 88106)

Based upon the samples selected in this inspection, the implementation of QA audits and management assessments met MPQAP and regulatory requirements. The implementation of QA training also met applicable requirements. No findings of significance were identified. (Section 5.a)

Inspection, Test Control, and Control of Measuring and Test Equipment (Pre-licensing and Construction) (IP 88109)

The inspectors verified the applicant's programs for inspection, test control, and control of M&TE, were in accordance with the applicant's MPQAP. No findings of significance were identified. (Section 5.b)

10 CFR Part 21 Inspections - Facility Construction (IP 88111)

Based on inspection activities performed, the applicant adequately implemented the requirements of 10 CFR Part 21. No findings of significance were identified. (Section 5.c)

Control of the Electronic Management of Data (IP 88113)

Based on inspection activities performed, the applicant adequately implemented the MPQAP requirements related to the control of the electronic management of data. No findings of significance were identified. (Section 5.d)

Supplier/Vendor Inspection (Construction Phase) (IP 88115)

The inspectors verified the applicant provided acceptable oversight of the vendor's QA activities through surveillances, receipt inspections, and shop inspections. No findings of significance were identified. (Section 5.e)

Inspection of Safety Related Function Interfaces for the Mixed Oxide Fuel Fabrication Facility (Pre-Licensing and Construction) (IP 88116)

Based upon the samples selected in this inspection, the implementation of safety related function interfaces for MOX Services met MPQAP and regulatory requirements. No findings of significance were identified. (Section 5.f)

REPORT DETAILS

1. Summary of Facility Status

During the period, the applicant (Shaw AREVA MOX Services (MOX Services)) continued construction activities of principle systems, structures and components (PSSCs). Construction activities continued related to Release 3A and 3B activities which included multiple inside and outside walls, elevated floors, and roof sections of the Mixed Oxide (MOX) Fuel Fabrication Facility (MFFF) Manufacturing Building (BMP), Aqueous Polishing Building (BAP), and the Shipping Receiving Building (BSR). The applicant continued with the application of coatings on the walls and ceilings of the BMP and BAP upper level rooms and hallways. Other construction activities included installation of process piping and supports in the BAP and BMP, installation of ventilation system ductwork and supports in the BAP, BSR, and BMP, installation of cable trays and cable tray supports in the BAP and BMP, installation of conduit in the BAP and BMP, and installation of fire doors and dampers in the 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 (Inspection Procedure (IP) 88130, Resident Inspection Program for On-Site Construction Activities at the Mixed Oxide Fuel Fabrication Facility)

a. Scope and Observations

The inspectors routinely attended the applicant's construction plan-of-the-day meetings and civil engineering meetings. The inspectors routinely held discussions with MOX Services design engineers, field engineers, quality control/assurance personnel, batch plant personnel, steel workers, and subcontractors (Alberici, Superior, Electric Boat, and Soils and Materials Engineering, Inc. (S&ME)) construction personnel in order to maintain current knowledge of construction activities and any problems or concerns.

The inspectors routinely reviewed the status of work packages (WPs) maintained at various work sites. The inspectors monitored the status of WP completion to verify construction personnel obtained proper authorizations to start work, monitor progress and to ensure WPs were kept up-to-date as tasks were completed.

The inspectors routinely verified that changing weather conditions were taken into account for planned construction activities and construction activities were conducted in a safe manner. The inspectors also observed proper communication in the work areas, observed that the work force was attentive, workers adhered to procedures, observed proper communication between supervisors and workers, and noted that hazardous materials were properly stored and/or properly controlled when in the field.

The inspectors routinely reviewed various corrective action documents. The review included non-conformance reports (NCRs), condition reports (CRs), root causes, and supplier deficiency reports (SDRs); and reviewed the closure of selected NCRs and CRs. The inspectors noted that the applicant entered issues identified during self assessments into the corrective action system.

b. Conclusions

Construction activities were performed in a safe and quality-related manner. No findings of significance were identified.

3. PSSC Vendor Related Inspections

During November 5-9, 2012, the NRC performed an inspection of MOX Services' oversight of Diversified Metal Products (DMP), Inc., which specializes in the manufacture of welded or mechanical elements, alloy component engineering, fabrication, integration, and installation. DMP is a Nuclear Quality Assurance-1 (NQA-1) Appendix B supplier to MOX Services. DMP is listed on MOX Services Approved Supplier List (ASL) with a restriction to submit its commercial grade dedication program procedure and associated plan to MOX Services for review prior to use. The DMP scope of work for MOX Services included the following activities: (1) fabrication and assembly of Pellet Handling Unit (PML) fire door assemblies, glovebox shells, mechanical components, ventilation equipment, and integration of process unit equipment; (2) fabrication of waste storage process unit and waste counting units, electrical cabinets and safety control panels for quality level-1 (QL-1) applications; and (3) fabrication of emergency diesel generator (EDG) fuel oil tanks, demisters, leakage detection and separator pots, and jacketed pipe-in-pipe heat exchangers. The inspectors selected the following associated items relied on for safety (IROFS) components: Gloveboxes KPA*GB2000 and KPA*GB2010 (PSSC-024), glovebox seal pots (PSSC-010), and EDG fuel oil storage tanks (FOSTs) (PSSC-012 and PSSC-018).

a. Programmatic Review of PSSC-010, Double-walled Pipe; PSSC-024, Gloveboxes; PSSC-012, Emergency Alternating Current (AC) Power System, and PSSC-018, EDG Fuel Oil System

(1) Attribute: Vendor Oversight/Inspection (IP 88115, Supplier/Vendor Inspection (Construction Phase))

(a) Scope and Observations

1) Audits

The inspectors reviewed MOX Services' Quality Assurance Audit Report Number DMP-12-VE44 of DMP, Inc., dated June 14, 2012. The audit was performed from April 16-19, 2012. The scope of the audit included the following areas: (1) fabrication and assembly of PML fire door assemblies, glove box shells, mechanical components, ventilation equipment, and integration of process unit equipment; (2) waste storage process unit and waste counting units, electrical cabinets and safety control panels for QL-1 applications; and (3) code and non-code fabrication, including, emergency generator fuel oil tanks, demisters, leakage detection and separator pots, and jacketed pipe-in-pipe heat exchangers. The audit resulted in the identification of two SDRs pertaining to management assessments and timeliness of corrective action response closure. The inspectors verified that the SDRs were tracked by MOX Services. Specifically, the inspectors reviewed documentation in support of the corrective actions taken to address SDR-DMP-12-VE44-01, and verified that MOX Services had reviewed and determined the SDR response to be acceptable, and closed the SDR in accordance with PP 3-12,

Supplier Evaluation, Revision 11. The inspectors noted that MOX Services was in the process of reviewing the corrective actions to the second SDR, SDR-DMP-12-VE44-02. In addition, the inspectors reviewed Surveillance Reports (SRs)-DMP-11-SIR150, Diversified Metal Products Regarding Gloveboxes and Seal Pots/Demisters, dated July 19, 2011, and SR-DMP-12-VS170, Diversified Metal Products, February 24, 2012. The inspectors verified that the four SDRs from the 2011 surveillance and the two SDRs from the 2012 surveillance were tracked and reviewed by MOX Services and were either closed or were in the process of being closed.

The inspectors also reviewed Nuclear Industry Assessment Committee (NIAC) Audit of Tioga Pipe and Supply, Inc. (QL-1 stainless steel pipe supplier to DMP), dated August 27, 2012. DMP had performed a review and approval of the audit performed by NIAC (NIAC Audit 17045, July 24-27, 2012) to qualify Tioga Pipe and Supply, Inc. for placement on the DMP Approved Vendors List (AVL) as a Category 6 metal materials supplier (NQA-1) able to perform commercial grade dedication. The inspectors verified that the DMP review and approval of the NIAC audit was in accordance with Quality Procedure (QP) 7-1, Vendor Qualification and Control, Revision 15, September 26, 2012 (Sections 5.1.1 and 5.8), and included verification that the scope of the NIAC audit included the following: (1) traceability of materials, parts, and weld filler material; (2) control of handling, shipping, and storage (3) prompt identification and correction of conditions adverse to quality; and (4) identification and disposition of non-conforming items in accordance with procedures or instructions. The DMP conclusion stated that three findings identified in the audit were in the process of being closed. The inspectors verified that NIAC had accepted Tioga's disposition and response to the three supplier finding reports (SFRs). DMP concluded that based on the results of the NIAC audit, and the review of the audit performed by DMP, Tioga Pipe and Supply, Inc. be placed on the DMP AVL as a Category 6 metal materials supplier.

2) Quality Assurance Program

The inspectors reviewed DMP's Quality Assurance Manual (QAM), 5th edition, and verified that the QAM specified the requirements for training and qualification of welders, inspectors and auditors. The inspectors noted that DMP required employees who perform quality-related work be trained according to their functions, education, experience and proficiency on the QAM and quality procedures.

The inspectors selected one lead auditor and verified that the qualifications of the lead auditor were consistent with DMP procedure QP 2-2, Qualification of Audit Personnel, and the non- mandatory guidance in Appendix 2A-3, Non-Mandatory Guidance on the Education and Experience of Lead Auditors, of American Society of Mechanical Engineers (ASME) NQA-1-1994 Edition.

The inspectors reviewed the training records of seven Level II certified non-destructive examination (NDE) personnel. Based on the review of the staff qualifications and training records for NDE personnel, the inspectors determined that the selected NDE personnel qualifications were consistent with the requirements of the DMP QAM and QPs.

(b) Conclusions

The inspectors observed fabrication activities related to PSSC-010, Double-walled Pipe; PSSC-024, Gloveboxes; PSSC-012, Emergency AC Power System, and PSSC-018, EDG Fuel Oil System as described in Table 5.6-1 of the MFFF Construction Authorization Request (CAR). The inspection attribute observed was vendor oversight/inspection. The associated IROFS components were glovebox seal pots (PSSC-010), gloveboxes KPA*GB2000 and KPA*GB2010 (PSSC-024), and the EDG FOSTs, specifically, EGF*TK2500A, EGF*TK2500B, EGF*TK2503A and EGF*TK2503B (PSSC-012 and PSSC-018). The inspectors concluded that MOX Services provided adequate oversight of DMP in the areas of audits and training. No findings of significance were identified.

(2) Attribute: 10 CFR Part 21 - Construction (IP 88111, 10 CFR, Part 21, Inspection-Facility Construction)

(a) Scope and Observations

The inspectors reviewed QP 15-2, Evaluation and Reporting of Defects and Noncompliance, which provided guidance related to the identification, evaluation, and reporting of defects and noncompliance in accordance with 10 CFR Part 21. The procedure identified requirements for posting the regulations of 10 CFR Part 21, Section 206 of the Energy Reorganization Act, and a copy of this procedure in various locations accessible to all employees. The procedure also identified personnel responsibilities under 10 CFR Part 21 and defined the evaluation process, notification requirements, and evaluation and reporting time frames. The requirements in the procedure were consistent with those of 10 CFR Part 21.

The inspectors selected one location in the facility and verified that the posting requirements specified by QP 15-2 and 10 CFR Part 21 were met. The inspectors reviewed five procurement documents to verify that DMP appropriately specified the applicability of 10 CFR Part 21. The inspectors also interviewed qualified personnel to verify that they were knowledgeable of the timeliness requirements for discovery, evaluation, notification to the responsible manager, and interim reporting to the NRC, as identified in their procedures and 10 CFR Part 21.

(b) Conclusions

The inspectors observed fabrication activities related to PSSC-010, Double-walled Pipe; PSSC-024, Gloveboxes; PSSC-012, Emergency AC Power System and PSSC-018, EDG Fuel Oil System, as described in Table 5.6-1 of the MFFF CAR. The inspection attribute observed was 10 CFR Part 21 - Construction. The associated IROFS components were glovebox seal pots (PSSC-010), gloveboxes KPA*GB2000 and KPA*GB2010 (PSSC-024), and the EDG FOSTs, specifically, EGF*TK2500A, EGF*TK2500B, EGF*TK2503A and EGF*TK2503B (PSSC-012 and PSSC-018). The inspectors verified that DMP had adequately implemented procedures and program activities associated with the requirements of 10 CFR Part 21 with regard to postings, identifying its applicability in procurement documents, and identifying reporting requirements and responsible personnel. No findings of significance were identified.

(3) Attribute: Corrective Action Program (IP 88110, Problem Identification, Resolution, and Corrective Action)

(a) Scope and Observations

The inspectors reviewed QP 16-1, Corrective Action, Revision 8, dated June 24, 2011, to verify that conditions adversely affecting the quality assurance program were promptly identified, isolated, documented and corrected in a timely manner. The inspectors reviewed the DMP corrective action log and selected six corrective action reports pertaining to NCRs where prevention of recurrence was needed, and responses to customer audits, that were generated between October 3, 2011 and September 10, 2012. The inspectors reviewed the six corrective action reports and verified that the corrective action reports had been initiated, reviewed, and resolved or in the process of being resolved in accordance with QP16-1. Report Number DMP-12-VE44 had identified an SDR pertaining to the timeliness of resolving and closing corrective action reports. MOX Services was in the process of reviewing the DMP response to this SDR.

Additionally, the inspectors reviewed the DMP evaluation of results of NCR trending for the first and second quarters 2012. The inspectors noted that DMP had a process for coding the NCRs as design/engineering, projects, quality assurance, shop/fabrication, or vendor categories. The inspectors observed that DMP had reviewed, evaluated, and documented the results of their trending evaluations for the first and second quarters of 2012. The inspectors also observed that trending information was used to identify conditions adverse to quality. For the items reviewed, the inspectors verified that DMP had adequately implemented QP 16-1.

(b) Conclusions

The inspectors observed fabrication activities related to PSSC-010, Double-walled Pipe; PSSC-024, Gloveboxes; PSSC-012, Emergency AC Power System; and PSSC-018, EDG Fuel Oil System, as described in Table 5.6-1 of the MFFF CAR. The inspection attribute observed was the corrective action program. The associated IROFS components were glovebox seal pots (PSSC-010), gloveboxes KPA*GB2000 and KPA*GB2010 (PSSC-024), and the EDG FOSTs, specifically, EGF*TK2500A, EGF*TK2500B, EGF*TK2503A and EGF*TK2503B (PSSC-012 and PSSC-018). The applicant provided adequate oversight of DMP to ensure the vendor had a program to identify and correct deficiencies and to properly disposition non-conformances. No findings of significance were identified.

b. PSSC-024, Gloveboxes

(1) Attribute: Special Processes (IP 55050, Nuclear Welding General; and IP 55100, Structural Welding General)

(a) Scope and Observations

The inspectors observed construction activities related to PSSC-024, Gloveboxes, as described in Table 5.6-1 of the MFFF CAR. The inspection attribute observed was special processes (welding) and the associated IROFS components were gloveboxes.

The inspectors reviewed documents and work activities related to welding of QL-1 gloveboxes to determine if the gloveboxes were procured, fabricated, and tested in accordance with design specifications, procedures, and American Welding Society (AWS) D1.6, Structural Welding Code - Stainless Steel, 1999 edition. The inspectors reviewed welder performance qualification records (WPQRs) to determine whether the welders were qualified in accordance with the requirements of AWS D1.6.

Specifically, the inspectors reviewed six work packages related to the fabrication and testing of gloveboxes and related components to determine whether applicable documents were included, weld travelers were followed, hold points were observed, and welding was documented. The inspectors also witnessed welding and NDE performed by DMP personnel on QL-1 gloveboxes being fabricated for use at the MFFF.

The inspectors concluded that MOX Services implemented adequate oversight of special process activities consistent with the regulatory requirements of the MOX Project Quality Assurance Plan (MPQAP), Section 9, Control of Special Processes. Based on the limited sample of documents reviewed and activities witnessed, the inspectors concluded that DMP adequately implemented its policies and procedures associated with special processes.

(b) Conclusions

The inspectors observed fabrication activities related to PSSC-024, Gloveboxes, as described in Table 5.6-1 of the MFFF CAR. The inspection attribute observed was special processes. The associated IROFS components were gloveboxes KPA*GB2000 and KPA*GB2010. MOX Services implemented adequate oversight of special process activities consistent with the regulatory requirements of the MPQAP, Section 9, Control of Special Processes. These special processes were adequately performed and met the license requirements. No findings of significance were identified.

(2) Attribute: Test Control (IP 88109, Inspection, Test Control, and Control of Measuring Equipment)

(a) Scope and Observations

The inspectors evaluated the adequacy of the DMP measuring and test equipment (M&TE) program. The inspectors reviewed QP 12-1, Control of Measuring and Test Equipment, to verify that the procedure was in compliance with the requirements of MPQAP, Section 12, Control of Measuring and Test Equipment. The inspectors interviewed DMP staff to determine whether the staff understood and handled M&TE in accordance with the requirements of QP 12-1. The inspectors conducted a walk down of the M&TE storage area to determine whether calibrated and non-conforming M&TE was properly marked, stored, and controlled. The inspectors verified that out-of-calibration devices were properly tagged and segregated and not used until recalibrated.

The inspectors reviewed certificates of calibration for various devices including load cell LLX-25T, torque wrench TW-007, and digital thermometer TH001 to determine whether M&TE used in the field was calibrated against certified equipment having known valid relationships to nationally recognized standards. The inspectors verified that the calibration standards had a greater accuracy than required of the M&TE being calibrated. The inspectors observed the use of M&TE in the field and verified that the

M&TE had the necessary markings to indicate its calibration. The inspectors verified that DMP had a system to track and document the use of M&TE in the field in the event that M&TE was found to be out-of-calibration during recalibration. The inspectors reviewed nonconformance reports associated with M&TE to determine whether the technical evaluation for out-of-calibration M&TE was dispositioned in accordance with DMP quality procedures.

The inspectors observed dye penetrant testing (PT) NDE performed by DMP personnel on welds made during the fabrication of QL-1 gloveboxes. The inspectors reviewed four work packages related to gloveboxes and related components to determine whether applicable documents were included, and NDE was performed and documented.

(b) Conclusions

The inspectors observed fabrication activities related to PSSC-024, Gloveboxes, as described in Table 5.6-1 of the MFFF CAR. The inspection attribute observed was test control. The associated IROFS components were gloveboxes KPA*GB2000 and KPA*GB2010. The inspectors concluded that MOX Services was implementing adequate oversight of testing activities, control of measuring and test equipment, and inspection consistent with the regulatory requirements of the MPQAP. No findings of significance were identified.

(3) Attribute: Procurement (IP 88108, Control of Materials, Equipment, and Services)

(a) Scope and Observations

The inspectors reviewed the adequacy of the DMP procurement document control program. The inspectors reviewed QP 4-1, Procurement Document Control, to determine if the procedure was consistent with the requirements of MPQAP, Section 7, Procurement Document Control. The inspectors reviewed various procurement documents for proper content including scope of work, technical requirements, quality assurance program requirements, right of access, documentation requirements, handling of non-conformances, and spare parts requirements. The inspectors verified that procurement documents were adequately reviewed by the appropriate technical and quality assurance personnel. The inspectors verified that changes to procurement documents were subject to the same degree of review and approval as the original documents.

(b) Conclusions

The inspectors observed construction activities related to PSSC-024, Gloveboxes, as described in Table 5.6-1 of the MFFF CAR. The inspection attribute observed was procurement. The associated IROFS components were gloveboxes KPA*GB2000 and KPA*GB2010. The inspectors verified that adequate technical and quality assurance requirements were included or referenced in procurement documents for QL-1 items and services. No findings of significance were identified.

(4) Attribute: Control of Materials, Equipment, and Services (IP 88108, Control of Materials, Equipment, and Services)

(a) Scope and Observations

The inspectors verified that QL-1 suppliers of systems, structures and components (SSCs) were based on the supplier's technical and quality capability as determined by an audit of the supplier's ASME NQA-1 quality assurance program. The inspectors verified that suppliers of QL-1 items and services were included on the DMP AVL. The inspectors verified that measures used for evaluating and selecting procurement sources were as specified in quality assurance (QA) procedures and met the requirements of the DMP QAM. The inspectors verified that DMP had adequate measures for evaluating supplier and subcontractor performance after contracts were awarded.

The inspectors reviewed the implementation of the DMP commercial grade dedication (CGD) program. The inspectors reviewed QP 7-2, Dedication of Commercial Grade Items, to verify that the CGD program was consistent with the requirements of 10 CFR Part 21 and industry guidance contained in Electric Power Research Institute (EPRI) NP-5652, Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Related Applications (NCIG-07). The inspectors reviewed commercial grade item evaluations (CGIE) for the procurement of (1) American Society for Testing Materials (ASTM) A-240 stainless steel plate material and (2) weld filler metal used in the fabrication of glovebox KPA*GB2000. These CGIEs were found to adequately identify the necessary critical characteristics and acceptance methods to ensure that the glovebox would be capable of performing its intended safety function of nuclear material confinement. The inspectors reviewed completed CGD documentation such as dimensional inspection reports, certified material test reports (CMTRs), and certificates of conformance (C of C) to ensure that DMP adequately implemented the requirements of the CGIE. The inspectors noted that DMP submitted the CGIEs to MOX Services for review and approval as part of the vendor submittal process.

In the area of material identification control, the inspectors reviewed QP 8-2, Material Identification Control, to verify that the vendor had established and maintained an identification system on QL-1 items. The inspectors determined that QP 8-2 provided a systematic process for assigning unique identification numbers to QL-1 materials and items. For metallic materials including weld filler metal, DMP assigns a material identification control (MIC) number that provides traceability to a CMTR. The DMP receiving inspector logs the MIC number into a MIC log that contains information such as heat number, purchase order number, and a brief description of the material and grade. During fabrication, the MIC number is recorded in the work traveler to provide traceability in the event the markings are removed during pickling and passivation. For commercial items, the items are marked with a Receiving Identification Control (RIC) number in lieu of a MIC number. The RIC number is a combination of the purchase order number and corresponding line item. The inspectors conducted tours of the fabrication shop to ensure that materials and commercial items were properly marked in accordance with the requirements of QP 8-2. The inspectors verified that MIC numbers were properly transferred when subdividing materials. The inspectors reviewed various work travelers to verify that that MIC and RIC numbers were properly recorded and that they were traceable to CMTRs. The inspectors verified that the marking pens were nuclear grade and free of chlorides/halides.

In the area of receipt inspection, the inspectors reviewed QP 8-1, Identification and Control of Items, to ensure that QL-1 materials, items, and services were properly inspected prior to acceptance. The inspectors conducted interviews with receipt inspection personnel to assess their knowledge on the requirements of QP 8-1. The inspectors conducted a tour of the material receiving area to ensure that material was properly marked and segregated. The inspectors noted that DMP placed hold tags on materials and items that required receipt inspection. The inspectors verified that the material was properly segregated in a specific quality control (QC) hold area and that hold tags were placed on items until the receipt inspection process was complete. The inspectors conducted tours of the fabrication areas to verify that materials, parts, and components were organized on shelves or designated in storage areas segregated by job number. The inspectors verified that MIC or RIC numbers were only placed on items that were accepted by QC as required by QP 8-1. The inspectors confirmed that hold tags were removed when the MIC or RIC number was properly transcribed on the material or item. The inspectors verified materials, parts, or components that do not meet the requirements of the purchase order were properly segregated, tagged, and processed in accordance with the requirements of QP 15-1, Nonconformance Control.

In the area of material handling, shipping, and storage, the inspectors reviewed QP 12-1, Material Storage, to determine if DMP developed a storage level classification system consistent with the requirements of Subpart 2.2, Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants. The inspectors conducted tours of material storage areas to ensure that materials and components were properly stored including items such as electronic equipment and instrumentation that are susceptible to environmental conditions such as temperature and humidity.

(b) Conclusions

The inspectors observed fabrication activities related to PSSC-024, Gloveboxes, as described in Table 5.6-1 of the MFFF CAR. The inspection attribute observed was control of control of materials, equipment, and services. The associated IROFS components were gloveboxes KPA*GB2000 and KPA*GB2010. The inspectors verified that adequate technical and quality assurance requirements were included or referenced in procurement documents for QL-1 items and services. The inspectors verified that QL-1 materials and components were properly marked, QC accepted, and stored. No findings of significance were identified.

c. PSSC-010, Double-Walled Pipes

(1) Attribute: Design Control (IP 88136, Mechanical Components)

The inspectors reviewed DMP design control processes during fabrication of glovebox components, including the glovebox seal pots to verify that MOX Services was implementing adequate oversight of DMP to ensure that its vendor's design control processes were consistent with the requirements of MPQAP Section 3, Design Control. The inspectors reviewed completed work, as well as fabrication work in process, and conducted interviews with DMP staff to verify that the design control processes during fabrication of components were adequate to ensure that current design requirements were translated into shop fabrication drawings.

(2) Conclusions

The inspectors observed fabrication activities related to PSSC-010, Double-Walled Pipe, as described in Table 5.6-1 of the MFFF CAR. The associated IROFS components were glovebox seal pots. The inspection attribute observed was design control. No findings of significance were identified pertaining to design control processes during fabrication of glovebox components.

d. PSSC-012, Emergency AC Power System, and PSSC-018, EDG Fuel Oil System

(1) Attribute: Special Processes (IP 55050, Nuclear Welding General; and IP 55100, Structural Welding General)

(a) Scope and Observations

The inspectors reviewed documents and work activities related to welding of QL-1 EDG FOSTs to determine that the tanks were fabricated and tested in accordance with design specifications, procedures, and ASME Section VIII, Division 1, Rules for Construction of Pressure Vessels, 2007 edition with 2009 addenda. The inspectors reviewed WPQRs to determine whether the welders were qualified in accordance with ASME Section IX, Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators, 2007 edition with 2009 addenda.

Specifically, the inspectors reviewed one work package related to FOSTs to determine whether applicable documents were included, weld travelers were followed, hold points were observed, and welding was documented.

The inspectors observed that MOX Services implemented adequate oversight of special process activities consistent with the regulatory requirements of MPQAP Section 9, Control of Special Processes. Based on the limited sample of documents reviewed and activities witnessed, the inspectors concluded that MOX Services' supplier DMP was implementing its policies and procedures associated with special processes. The inspectors witnessed welding and NDE performed by DMP personnel on QL-1 EDG FOSTs being fabricated for use at the MFFF.

Additionally, the inspectors noted that the requirements of the basis of design were correctly translated into engineering specifications and procurement controls for QL-1 EDG FOSTs, EGF-TK-2500A/B. The inspectors reviewed documents related to the fabrication of the EDG FOSTs. In addition, the inspectors observed fabrication of the EDG FOSTs at the supplier's facility.

(b) Conclusions

Vendor fabrication activities were observed at DMP related to PSSC-012, Emergency AC Power System, and PSSC-018, EDG Fuel Oil System, as described in Table 5.6-1 of the MFFF CAR. Specifically, the IROFS components observed were two long term supply EDG FOSTs (EGF*TK2500A and EGF*TK2500B) and two short duration supply EDG FOSTs (EGF*TK2503A and EGF*TK2503B). The inspection attribute observed was special processes associated with the EDG FOSTs. These activities were adequately performed and met the authorization requirements. No findings of significance were identified.

4. PSSC Related Inspections

a. PSSC-041, Process Cells

(1) Attribute: Test Control (IP 88136, Mechanical Components)

(a) Scope and Observations

The inspectors observed performance of vacuum box leak testing of process cell drip tray welds FW043CORO, FW040CORO, and FW037CORO in Room C-234 (Active Gallery) of the BAP. The inspectors noted that the testing was performed by United Research Services (URS) MOX Corporation. URS MOX Corporation is listed on the MOX ASL as a QL-1 supplier of NDE services.

The inspectors verified that the testing was performed in accordance with URS Procedure M-NDE-010, Leak Testing/Bubble Test – Vacuum Box Technique. The inspectors verified that the test procedure complied with the requirements of Appendix II, Bubble Test – Vacuum Box Technique, of ASME Section V, Article 10, Leak Testing. The inspectors observed the following ASME code-related activities: (1) proper application of the bubble forming solution, (2) measurement of the surface temperature with calibrated instrumentation, (3) proper use and placement of the vacuum box, (4) verification that the pressure gauge was calibrated and of proper range, (5) required vacuum was held for a minimum of 10 seconds of examination time, (6) surface was properly examined for indication of leakage, and (7) post-test cleaning.

The inspectors reviewed training records to verify that personnel performing the vacuum box testing were trained, qualified and certified in accordance with American Society for Nondestructive Testing (ASNT) SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing, 1988 Edition.

(b) Conclusions

The inspectors observed construction activities related to PSSC-041, Process Cells, as described in Table 5.6-1 of the MFFF CAR. The inspection attribute observed was installation. The associated IROFS component was the Room C-234 Process Cell Drip Tray. The inspectors observed performance of vacuum box leak testing of drip tray welds and verified the testing was performed in accordance with ASME Section V code requirements. The inspectors verified that personnel performing the leak testing were trained, qualified and certified in accordance with ASNT SNT-TC-1A requirements.

b. PSSC-005, C3 Confinement System

(1) Installation Attribute (IP 88139, Ventilation and Confinement Systems)

(a) Scope and Observations

The inspectors observed welding activities, reviewed weld records, and interviewed personnel performing fabrication and installation of QL-1 IROFS stainless steel round ductwork for the PSSC-005 High Depressurization Exhaust (HDE) System (Energy Research Development Administration (ERDA) Construction Level 4) upstream of the final high efficiency particulate air (HEPA) filter boxes. The inspections were conducted

to verify that welding and subsequent inspections were performed in accordance with the regulatory requirements and MPQAP, Revision 10, Change 1, Section 10, Inspection.

The inspectors observed in-process field welding on weld number B123-HDE-D-M-0003-FW 001 at one end of a 22” diameter and 1/16” wall thickness stainless steel ductwork spool piece BMP-L1-05-40-HDE-42. The spool piece included three circumferential butt welds joined by the gas metal arc welding (GMAW) process using the short-circuiting arc transfer method (GMAW-SC), ER308LSi weld filler metal of 0.030” diameter, and dual-mix welding shielding gas composition of 75% argon and 25% carbon dioxide.

The inspectors reviewed the MOX Services Welding Technique Sheet (WTS) D9.1-GM-SS-01, Revision 1, with supporting procedure qualification records (PQRs) and welder qualification test record for ID Symbol S032, to verify that the GMAW-SC dual-mix shielding gas welding procedure and welder were qualified in accordance with the visual examination requirements of the AWS D9.1, Sheet Metal Welding Code.

The inspectors reviewed work package 12-CP23-B123-HDE-D-M-003 for the spool piece with the three circumferential welds and observed that the Welding Data Sheet (WDS) required through-wall complete joint penetration (CJP) with the use of a square-groove butt joint design “D-1” with a zero to 1/16” root opening tolerance, as indicated in Attachment D of MOX Services Project Procedure (PP)11-56, Weld Joint Designs, and referred by WTS D9.1-GM-SS-01, Revision 1. The inspectors observed the internal root pass for two butt welds that were not readily accessible, at each end of the stainless steel round ductwork spool pieces BMP-L1-05-40-HDE-42 and -43, using an industrial fiberscope with video recording capability (provided by MOX Services), and determined that the through-wall penetration was inadequate with lack of penetration for both welds. The inspectors observed that the applicant failed to adequately inspect field welds to ensure that internal root passes exhibit complete joint penetration, as specified by engineering in the WDS and stipulated in MOX Services PP11-52, Revision 0, AWS D9.1 General Welding Procedure, paragraph 3.4.9.2.B.

MPQAP, Revision 10, Change 1, Section 10, Inspection, states, in part, that in-process inspections, process monitoring methods, and final inspections shall be systematically performed to ensure that specified requirements for the quality of items are met.

Contrary to the above, on or before October 22, 2012, MOX Services failed to ensure that final inspections were systematically performed to ensure that specified requirements for the quality of items were met. Specifically, MOX Services failed to identify rejectable internal root passes with incomplete joint penetration, by not inspecting the internal portion of two field welds joined with the GMAC process using the short-circuiting arc transfer mode, on QL-1 stainless steel ductwork for PSSC-005, C3 Confinement System (HDE System) of Construction Level 4, upstream of the final HEPA filter boxes.

Failure to meet MPQAP inspection requirements for QL-1 ductwork welds was considered to be a violation (VIO) of NRC requirements and is identified as VIO 70-3098/2012-004-001, Failure to Inspect Internal Root Passes of Field Welds.

This violation was considered more than minor because the field welds of both circumferential square-groove butt joints were incomplete for the through-wall full

thickness of the ductwork. Therefore, this issue represented a failure to properly inspect the internal root pass of field welds on a QL-1 IROFS which could render the quality of the HDE ductwork fabrication indeterminate.

(b) Conclusions

The inspectors observed welding activities related to PSSC-005, C3 Confinement System. The inspection attribute observed was fabrication and installation of round ductwork associated with the HDE system. A violation was identified for failure to inspect internal root passes of field welds (VIO 70-3098/2012-004-001). Specifically, MOX Services failed to verify that specified requirements for complete joint penetration of an IROFS component were met throughout the duration of the welding process in accordance with the regulatory requirements of the MPQAP, Section 10, Inspection.

c. PSSC -021 Fire Barriers

(1) Attribute: Test Control (IP 88136, Mechanical Components)

(a) Scope and Observations

The inspectors selected seven reports to conduct an onsite inspection of the seismic qualification of MFFF fire dampers. On November 12–15, 2012 the inspectors performed a detailed technical review of the selected seven reports and the associated documents; interviewed the structural, mechanical, and fire protection engineers; and inspected the fire dampers at the storage area and partially installed in the BMP.

This review included:

- 08716-00003307_00003-0009-A: Seismic Test Plan for MOX Fire Dampers and Sleeves
- 08716-00003307_00003-0010-A: Similarity Report-MOX Fire Damper
- 08716-00003307_00003-0261-E: Seismic Qualification Report-MOX Fire Dampers and Sleeves
- DCS01-QGA-DS-NDS-M-65765-2: Statement of Work-Fire Dampers
- 08716-00003307_00003-0272-B: Seismic Qualification Test for Six Fire Dampers and Sleeves
- 08716-00003307_00003-0273-B: Seismic Qualification Test for One SSDRD-210 Fire Dampers and Sleeves
- DCS01-ZMJ-DS-SPE-M-21402-2: Equipment Seismic Qualification Specification

The review of associated documents included:

- 08716-00003307_00003-0279-B: Equipment Qualification-Seismic Certificate of Compliance
- 08716-00008791-00000-0526-A: Equipment Qualification-Seismic Certificate of Compliance
- 08716-00003307_00003-0272-B: Seismic Qualification Test for Flanders/CSC 6 Fire Dampers and Sleeves
- 08716-00003307_00003-0273-B: Seismic Qualification Test for Flanders/CSC 1 SSDFD-210 Fire Damper and Sleeve

- DCS01-ZMS-DS-NTE-M-10936-3: Seismic Accelerations for Suspended Commodity Design in the BAP, BMP, BSR, and BEG
- DCS01-ZMS-DS-CAL-M-12026-2: Required Response Spectra for Equipment and Component Seismic Qualification
- Flanders Report on Surveillance of Greenheck: Final Source Surveillance Report
- 08716-00003307_00003-0278-D: Compiled UL Damper Test Report for MOX Project
- MOX Services, LLC Report FFI-12-SIR258: Shop Inspection Report
- MOX Services, LLC Report FFI-12-SIR349: Shop Inspection Report
- 08716-00005031_0238-B: Seismic Qualification of Actuators (Electrical/Mechanical), and Rectangular Fire Damper Assembly With Actuators Types 12, 21, 22, 24, 36, 37, 44 with Damper Sizes Varying from 6" × 6" to 24" × 36"
- 08716-00003307_00003-0260-F: Fire Dampers Installation, Operation and Maintenance Manual

The inspectors observed that the applicant's seismic test plan for MOX fire dampers and sleeves was adequate. The seismic test plan followed Institute of Electrical and Electronics Engineers, Inc. (IEEE) standards, IEEE 344-1987, IEEE 382-1996, and IEEE 323-1983; ASME standards, ASME NQA-1-1994 and ASME NQA-1a-1995 Addenda; and American Concrete Institute (ACI) standard 156-2010 (the titles of these standards are listed in the Supplemental Information portion of this IR, in Section 6, Records and Documents Reviewed). The receipt inspection procedure for the fire damper test units and sleeve assemblies was clearly specified in the seismic test plan. The inspection of the fire damper units under testing (UUT) was to ensure that the UUTs matched the manufacturer's design parameters which were necessary for the fire dampers to perform their intended function as specified in the MOX Services' Statement of Work. The sleeve assemblies and sleeve to damper mounting inspections were performed to ensure that pertinent design requirements of Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMANCA) had been met.

Seismic testing of six fire dampers, UUT-1 through UUT-6, was conducted following the Seismic Test Plan-MOX Fire Dampers and Sleeves. This included retesting of UUT-1 (called UUT-1A) because the electro thermal linkage of UUT-1 was damaged during handling before seismic testing. The seismic testing was conducted using conservative envelope response spectra curves. These six fire dampers were selected following the procedure specified in the Similarity Report to represent a batch of 107 fire dampers that were listed in Appendix C of Seismic Qualification Report-MOX Fire Dampers and Sleeves. The methodology and selection of representative fire damper test units was adequately documented in the Similarity Report, and followed IEEE 344-1987, IEEE 382-1996, ASME NQA-1-1994, and ASME NQA-1a-1995 Addenda. The inspectors found the selection method of the six fire dampers, to represent the batch of 107 fire dampers, adequate.

(b) Conclusion

The inspectors reviewed testing activities associated with PSSC-021, Fire Barriers, as described in Table 5.6-1 of the MFFF CAR. The inspection attribute observed was test control. The associated IROFS components were fire dampers. The inspectors reviewed the fire damper seismic test plan, selection of representative fire dampers

using the Similarity Report, and seismic testing of six fire damper/sleeve assemblies to qualify 107 fire dampers. The seismic test plan and the testing of the fire damper/sleeve assemblies were adequate.

d. PSSC-036, MFFF Building Structure (Including Vent Stack)

(1) Attribute: Installation (IP 88132, Structural Concrete; and IP 88134, Piping Relied on for Safety)

(a) Scope and Observations

During the inspection period, the inspectors observed the following activities associated with PSSC-036, MFFF building structure (including vent stack):

1) Installation of structural reinforcing steel in the BMP, the BAP, and BSR;
2) Installation of embedded piping, embedded support plates, and plant grounding system in all three buildings
3) Concrete placements in walls and floors of the BSR, BAP, and BMP and placement of the roof section of the BMP
4) Operation of the concrete batch plant
5) Receipt of cement, fly ash, sand and gravel
6) Concrete testing in the field (slump, air entrainment, and temperature)
7) Installation of building grounding cables in various floors and walls
8) Surveys (proper positioning/location) of embedded piping and embedded plates
9) Cleanliness of areas prior to concrete placement, and maintenance of cleanliness during the concrete placements
10) Installation of coatings in the BAP and BMP

The inspectors observed routine lifts conducted to position reinforcing steel and embedded plates; installation and removal of concrete retaining walls; and movement of equipment such as generators, pumps, temporary lighting, and toolboxes. The lifts were conducted in accordance with the applicant's procedures. The inspectors reviewed the applicable sections of the MPQAP and verified that installations of the structural reinforcing steel, embedded plates, embedded piping, and electrical grounding of the MFFF structures were in accordance with QA programmatic requirements. Specifically, the inspectors verified that installations were in accordance with applicable field drawings and met the general construction notes detailed on the following drawings: 1) MFFF Concrete and Reinforcing General Notes, DCS01-01352, Revision 9 (Sheet 1 of 2); and 2) MFFF Concrete and Reinforcing General Notes and Tolerance Details, DCS-01352, Revision 6 (Sheet 2 of 3), and Revision 0 (Sheet 3 of 3).

The inspectors evaluated the adequacy of ongoing concrete placement activities conducted by Alberici, S&ME, and MOX Services. The inspection of these activities focused on reinforcing steel bar installation, formwork preparation, pre-placement testing, and placement procedures associated with QL-1 concrete construction of the MFFF building structure.

The inspectors observed various activities prior to and during each major concrete placement. Prior to selected placements, the inspectors selectively checked for proper placement of reinforcing steel, including proper lap splices, supports, and bar spacing, alignment, and proper clear cover. The inspectors selectively checked for proper embed

plate placement by observing ongoing surveys and verified embed plate support structures were properly restrained. The inspectors observed placement of embedded piping, installation of piping supports, mounting of piping to supports, installation of galvanic sleeves between piping and supports, and verified cleanliness of the placement area.

The inspectors observed the installation of the grounding system for the reinforcing steel, including embedded grounding posts for future equipment installation. During the placements, the inspectors observed proper lift heights as well as MOX Services' field engineers and QC personnel performing inspections of the reinforcing steel, embed plates, embed piping, cleanliness prior to placements, and detailed observations of the placements.

The inspectors observed that concrete samples were collected at the prescribed frequency and noted that the slump and air content met the acceptance criteria or were appropriately dispositioned with NCRs. The inspectors also observed that once collected the concrete test cylinders were temporarily stored per procedure prior to transport to S&ME for curing and later testing. Batch plant operators correctly implemented procedural requirements and were in constant communication with the concrete placement crews. The inspectors reviewed concrete cylinder break test records performed and documented by S&ME. The inspectors noted that the cylinder breaks met the acceptance criteria specified in American Concrete Institute (ACI)-349, Code Requirements for Nuclear Safety Related Concrete Structures.

The following list is a summary of the reviewed concrete placement activities:

October 1, 2012, BAP-W409.1/411.3, BAP Interior Wall, 253 cubic yards
October 4, 2012, BSR-W308.5, BSR Interior Wall, 158 cubic yards
October 5, 2012, BAP-F401/402, BAP Elevated Floor, 328 cubic yards
October 17, 2012, BSR-W308.4, BSR Interior Wall, 267 cubic yards
October 18, 2012, BMP-GW10.B/11B.1, BMP Gabion Wall, 102 cubic yards
October 18, 2012, BMP-TCO-B142b, BMP TCO, 8 cubic yards
October 19, 2012, BAP-R25A/26A.1, BAP Roof, 305 cubic yards
October 23, 2012, BAP-W310.1/412.3, BAP Interior Wall, 285 cubic yards
October 25, 2012, BAP-W406.2, BAP Interior Wall, 132 cubic yards
October 30, 2012, BAP-W402/403.2/BSR3, BAP Interior Wall, 520 cubic yards
October 31, 2012, BSR-R17A/21A.2, BSR Roof, 622 cubic yards
November 2, 2012, BAP-GW16A/17A.1, BAP Gabion Wall, 42 cubic yards
November 5, 2012, BAP-W408.4, BAP Interior Wall, 10 cubic yards
November 14, 2012, BAP-W410.2/412.4, BSP Interior Wall, 138 cubic yards
November 14, 2012, BAP-W409.2/411.4, BAP Interior Wall, 145 cubic yards
November 14, 2012, BAP-W407.1, BAP Interior Wall, 5 cubic yards
November 14, 2012, BAP-W410.5/409.5, BAP Interior Wall, 10 cubic yards
November 28, 2012, BSR-R18A.1/22A.1, BSR Roof, 615 cubic yards
November 30, 2012, BMP-FSH-F001.2, BMP Fire Barrier, 28 cubic yards
November 30, 2012, BAP-F408, BAP Interior Wall, 4 cubic yards
November 30, 2012, BAP-W407.3/409.4, BAP Interior Wall, 104 cubic yards
December 6, 2012, BMP-R6C, BMP Roof, 7 cubic yards
December 6, 2012, BMP-GW02C.3, BMP Gabion Wall, 50 cubic yards
December 7, 2012, BAP-AP-1-11-C110, BAP Elevated Floor, 11 cubic yards
December 11, 2012, BAP-W408.3, BAP Interior Wall, 60 cubic yards

December 14, 2012, BAP-W407.1A, BAP Interior Wall, 10 cubic yards
December 19, 2012, BSR-R17B/21B/18B.1, BSR Roof, 840 cubic yards
December 19, 2012, BAP-GW16A.2/17A.2, BAP Gabion Wall, 83 cubic yards
December 27, 2012, BAP-F409, BAP Elevated Floor, 12 cubic yards

The inspectors performed various reviews for the above placements, which included walk downs with the field engineers, walk downs with QC personnel, verification of reinforcing bar (rebar) by use of field drawings, reviews of WPs, and routine walk downs of the area to verify adequate cleanliness prior to concrete placement.

(b) Conclusions

Construction activities related to PSSC-036 as described in Table 5.6-1 of the MFFF CAR were adequately performed and included installations of reinforcing steel, embedded plates and ground cables; concrete placements; operation of the batch plant; heavy lifts of equipment and supplies; verification of equipment placements by surveys; rebar installation; placement of concrete; welding; non-destructive testing; installation of tanks; and receipt of materials. These construction activities were performed in a safe and quality related manner and in accordance with procedures and WPs. No findings of significance were identified.

5. Non-PSSC Inspections

a. Quality Assurance: Program Development and Implementation (IP 88106)

(1) Scope and Observations

The inspectors reviewed the applicant's QA organizational structure to verify functional responsibilities, delegation authority, and interfaces were established in accordance with the NRC approved MPQAP. Interviews were conducted with individuals who manage, perform, and assess the work to verify inspection, audit, and oversight activities met the requirements of implementing procedures.

The inspectors reviewed the procedural requirements for qualification and certification of QC personnel, including NDE personnel, inspection and test personnel, and surveillance personnel, provided in PP3-27, Quality Control Personnel Certification/Construction Department Inspection Certification. The qualification and certification programs were compared to the requirements in the approved MPQAP and NQA-1-1994, as amended, to verify necessary aspects were adequately translated and incorporated.

The inspectors reviewed over 20 training and qualification records for receipt inspectors, auditors, individuals who conduct surveillances and individuals who oversee M&TE, to verify the records included the elements specified in the MPQAP and implementing procedures. For the records reviewed, the inspectors verified the personnel performing quality-affecting activities obtained the necessary qualifications before performing QC activities. The records were also reviewed to confirm the required periodic reevaluation of job performance was performed at the required intervals and necessary records of qualifications and certifications were kept.

The inspector's reviewed the implementation of quality assurance audits. The inspectors reviewed six internal audits, four external audits, audit program procedures,

selected qualification records for auditors, and conducted interviews with responsible personnel. The audit reports and schedules were reviewed to verify audits were adequately implemented and provided adequate coverage. The inspectors evaluated the use of audit plans and checklists, whether audit results were documented and communicated to management, and whether findings were entered into the corrective action program.

The inspectors determined the applicant's audits over the past year examined samples of activities associated with each of the 18 quality program elements defined in the MPQAP. The audit reports selected for review in this inspection provided sufficient detail to substantiate audit determinations. Audits documented the performance of follow up verifications of responses to previous audit findings.

The inspectors also reviewed management assessments to determine the applicant's assessments evaluated scope, status, adequacy, programmatic compliance, and implementation effectiveness of QA and other management measures in their areas of responsibility. The inspection included reviews of three assessments and the assessment procedure. The inspectors verified the procedure was implemented in accordance with the MPQAP and the assessment results were adequately documented and submitted for management review.

Inspectors also ensured the management self-assessments were scheduled for all of the functional areas identified by the MPQAP. The sample of assessment reports reviewed by the inspectors were found to provide adequate review of associated quality activities and formally documented conditions requiring follow up actions.

Finally, the inspectors reviewed the QA indoctrination provided to personnel performing quality-affecting activities at the MFFF. The inspectors reviewed training procedures and associated training records to verify the program included the appropriate elements specified in the MPQAP.

(2) Conclusions

Based upon the samples selected in this inspection, the implementation of quality assurance audits and management assessments met MPQAP and regulatory requirements. The implementation of QA training was also found to meet the applicable requirements. No findings of significance were identified.

b. Quality Assurance: Inspection, Test Control, and Control of Measuring and Test Equipment (Pre-licensing and Construction) (IP 88109)

(1) Scope and Observations

The inspectors reviewed procedures, receipt inspection records, surveillance reports, and work packages to verify the applicant's QA and QC inspection activities were controlled and documented. The inspectors verified inspection activities were planned and contained sufficient detail as prescribed in the applicable procedures. Through interviews with QC and QA management and inspectors, it was verified that selection of personnel to perform inspections was based on requirements in the MPQAP and implementing procedures. The inspectors reviewed in-process WPs to verify inspection hold points were used to control work and were signed before work continued beyond

the designated hold points. The inspectors observed receipt inspections and reviewed receipt inspection records to verify in-process inspections, monitoring, and control of items, were documented. The inspectors reviewed surveillance reports and verified inspections were conducted and documented in accordance with procedures, results were clearly stated, and any deficiencies were entered into the corrective action program.

The inspectors reviewed WP09-CP20-3B-BSR-W308-C to verify required tests were planned and executed and testing intervals were appropriate for the work being conducted. For a sample of three tests included in this WP, the inspectors verified the characteristics tested and test methods employed were specified. The inspectors reviewed the procedures associated with those tests to ensure necessary ASTM requirements were incorporated. The inspectors also observed testing performed under this WP to verify the test results were documented and their conformance with acceptance criteria was evaluated.

The inspectors reviewed the applicant's M&TE program to verify control of M&TE used for quality-affecting activities was conducted and documented in accordance with the MPQAP. The inspectors verified M&TE was controlled, calibrated, and adjusted to maintain accuracy within necessary limits. The inspectors reviewed PP3-15, Control of Measuring & Test Equipment, to verify it specified calibration intervals, handling and storage, and a process for documenting and tracking nonconformances. Through observation of the M&TE storage area, interviews with M&TE inspectors, and review of M&TE in the field, the inspectors verified M&TE was processed, issued, and handled in accordance with PP3-15 and other implementing procedures.

The inspectors reviewed procedures for receipt inspection to verify the applicant established requirements to identify the status of inspection and test activities. The inspectors completed a walk down of the receipt inspection warehouse and lay down yards and verified the inspection and release status was indicated on items through the use of tags. Through review of receipt inspection records, the inspectors also verified the inspection and release status was indicated in computerized logs traceable to the items. The inspectors reviewed receipt inspection plans and verified the plans contained sufficient information to complete the inspection and ensure the items received were the items specified in the purchase orders.

(2) Conclusions

The inspectors verified the applicant's programs for inspection, test control, and control of M&TE were in accordance with the applicant's MPQAP. No findings of significance were identified.

c. Quality Assurance: 10 CFR Part 21 Inspections - Facility Construction (IP 88111)

(1) Scope and Observations

The inspectors reviewed documents and conducted walk downs to verify that the applicant has established procedures and program activities to effectively implement the requirements of 10 CFR Part 21, Reporting of Defects and Noncompliance. The inspectors verified that the applicant has implemented the posting requirements of 10 CFR 21.6 through walk downs, and verified that appropriate procurement documents

specified their applicability to 10 CFR Part 21 in accordance with 10 CFR 21.31 requirements. The inspectors reviewed records of identified deviations and the associated evaluations to determine the effectiveness of established procedures in evaluating deviations, and to verify that the applicant had effectively implemented the requirements of 10 CFR 21.21(a). The inspectors verified that the applicant's procedures accurately reflected the provisions of 10 CFR 21.21 regarding time frames for reporting identified defects or failures to comply. The inspectors evaluated the applicant's controls to assure proper maintenance of records to verify the implementation of 10 CFR 21.51 requirements.

(2) Conclusion

Based on inspection activities performed, the applicant adequately implemented the requirements of 10 CFR Part 21. No findings of significance were identified.

d. Quality Assurance: Control of the Electronic Management of Data (IP 88113)

(1) Scope and Observations

The inspectors reviewed implementing procedures, conducted interviews and performed walk downs of storage areas to determine if electronic data was properly controlled in accordance with the MPQAP. The inspectors specifically verified that electronic data was adequately protected, stored, secure, complete, and accurate, and that adequate controls for data transfers were established. The inspectors also verified that the applicant had an established framework in which record creation and maintenance occurred. The inspectors reviewed QA procedures for the storage of digital archive media, the control of documents and the electronic document management system (EDMS). The inspectors conducted visits of the Project Records Center (PRC) and the PRC vault. The inspectors verified policies and procedures were adequate for the handling, storage, and transfer of media at the Primary Tape Storage System and the PRC vault, and for the creation and maintenance of records, through interviews and sampling of stored records. The inspectors verified controls to protect digital archive media and electronic media in storage from damage due to moisture and temperature when in use.

(2) Conclusion

Based on inspection activities performed, the applicant adequately implemented the MPQAP requirements related to the control of the electronic management of data. No findings of significance were identified.

e. Quality Assurance: Supplier/Vendor Inspection (Construction Phase) (IP 88115)

(1) Scope and Observations

The inspectors reviewed procurement documents to verify requirements were included for the supplier to establish and maintain a QA program that complied with the requirements of 10 CFR Part 21 regarding the reporting of defects and noncompliances. The inspectors also verified the procurement documents established applicant oversight authority for QA and QC responsibilities delegated to the contractor or supplier.

The inspectors reviewed the applicant's surveillance and shop inspection program to determine if the applicant provided acceptable oversight of the vendor's QA activities. This review included surveillance plans, surveillance records, receipt inspection records, documentation of deficiencies, and corrective actions. The inspectors reviewed the applicant's ASL and verified necessary adjustments to this list were completed as stated in the surveillance records and associated documentation. The inspectors also reviewed qualification records and conducted interviews with individuals who conduct surveillances and receipt inspections to verify those individuals were adequately trained, qualified, and knowledgeable in the areas they are inspecting.

(2) Conclusions

The inspectors verified that the applicant provided acceptable oversight of the vendor's QA activities through surveillances, receipt inspections, and shop inspections. No findings of significance were identified.

f. Quality Assurance: Inspection of Safety Related Function Interfaces for the Mixed Oxide Fuel Fabrication Facility (Pre-Licensing and Construction) (IP 88116)

(1) Scope and Observations

Inspectors reviewed six procurement packages for suppliers providing Quality Level-1 (QL-1) materials to ensure the necessary interface between engineering and procurement was established and followed. Procurement packages were reviewed to ensure the supplier was on the ASL, required audits were performed, and applicable restrictions were listed. Inspectors also reviewed procurement packages to ensure quality requirements and engineering specifications were included as part of the supplier's contract and requests for information were transmitted and reviewed by the appropriate design authority, as required.

Inspectors also reviewed two work packages located in the field to verify the appropriate controls were in place to ensure the interface between engineering and construction for QL-1 activities was adequate. While reviewing packages, the inspectors determined if the applicable technical requirements and drawings reflected the latest revisions as approved by engineering.

Inspectors reviewed Section 18 of the MPQAP which requires audits and assessments for each of the MOX Services functional areas performing quality-affecting activities during the design and construction phases. PP3-7, Audits, and PP3-11, Assessments, provided implementing guidance for scheduling, planning, execution, and follow-up. The inspectors confirmed audits and assessments were scheduled and implemented as required for activities affecting quality. The inspectors verified internal audits assessed the functional interfaces between organizations and assessments verified the adequacy and effectiveness of the project processes and programs.

(2) Conclusions

Based upon the samples selected in this inspection, the implementation of safety related function interfaces for MOX Services met the MPQAP and regulatory requirements. No findings of significance were identified.

6. Follow-up of Previously Identified Items

a. (Closed) Unresolved Item (URI) 70-03098/2011-003-002: Quality Classification Level Change in ECR 8982

(1) Scope and Observations

URI 70-03098/2011-003-002 was opened to further review Engineering Change Request (ECR) 8982 and the applicable design documentation and to evaluate if a QA review was required but not completed.

Specifically, ECR-8982 stated, in part, all loads requiring seismically qualified uninterruptable power from the Essential System were moved to an emergency uninterruptable power supply. This change downgraded the quality classification level of the Essential System from QL- 2 to QL-4. The affected document in the ECR was DCS01-AAJ-DS-DOB-E-40111-3, Basis of Design for Electrical Systems Components.

PP 9-3, Design Control, Section 3.12.6.1 requires a QA review and concurrence on the justification for the downgrade, when a specification revision downgrades the specification from QL-1 or QL-2 to a lower quality level. The inspectors identified that ECR 8982 did not downgrade the QL level of the affected document; it downgraded the QL-level of a specific electrical system. Justification for the change was documented on the ECR and the ECR was reviewed by the Nuclear Safety Group in accordance with PP 9-3, Section 3.6.2.3; and PP 9-21, Engineering Change Request, Section 3.5.3.1. The inspectors identified that PP 9-3 did not require QA reviews of ECRs prepared to implement changes to technical documents, such as basis of design (BOD) documents. PP 9-3, Section 3.12.6 did require a QA review if the document initially required a QA review and the document revision or approved change affects implementation of QA requirements. Similarly PP 9-21 Section 3.5.4 required a QA review for documents initially requiring a QA review if the ECR affected implementation of QA requirements. However, the document affected by ECR 8982 did not initially require a QA review. The inspectors identified that the review and approval of changes to DCS01-AAJ-DS-DOB-E-40111-3, BOD for Electrical Systems, as a result of ECR 8982, were performed by the organization responsible for electrical system design control. The responsible manager was clearly identified on the document.

The lower tier technical specifications affected by the change to DCS01-AAJ-DS-DOB-E-40111-3 did receive QA reviews in accordance with PP 9-3 3.12.5 and PP 9-21 3.5.4 as they were documents that initially required a QA review. The affected technical specifications were the following: DCS01-AAJ-DS-TRD-D-40122-4, Functional Classification List; DCSOI-EEJ-DS-SPE-E-25134-2, Procurement Specification for Batteries, Battery Disconnect Switches and DC Distribution Switchboards; and DCSOI-EEJ-DS-SPE-E-25232-2, Three Phase Static Uninterruptible Power Supplies.

(2) Conclusion

No findings of significance were identified. URI 70-03098/2011-003-002 was closed.

7. Exit Interviews

The inspection scope and results were summarized throughout this reporting period and by the resident inspectors on October 18, 2012; November 5-8, 2012; and January 3, 2013. No dissenting comments were received from the applicant. 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

MOX Services

R. Alley, Engineering Assurance Manager
J. Burnette, Chemical and Mechanical Engineering Manager
C. Calandra, Process Unit Design and Commissioning Project Manager
F. Cater, Equipment Qualification Manager
G. Corriero, Project Manager
C. Deters, Procurement Subcontracts Administrator
R. Gebhart, QA Specialist
M. Gober, Vice President Engineering
D. Gwyn, Licensing Manager
D. Ivey, Quality Assurance Manager
R. Jones, Chief Technology Officer
R. Justice, QA Corrective Action Manager
D. Kehoe, Quality Assurance Engineer
S. Murphy, Construction Manager
J. Nadeau, Help Desk Manager
E. Najmola, Vice President of Construction
B. Pemberton, Electrical/I&C Manager
J. Peregoy, Quality Control Manager
D. Pike, Construction Services Supervisor
E. Radford, Regulatory Compliance
R. Stephens, Vendor Shop Inspection/Surveillance Manager
M. Thomson, IT Project Manager
R. Treger, Document Control Supervisor
K. Trice, Shaw AREVA MOX Services President
R. Whitley, Vice President Project Assurance
L. Wood, Regulatory Compliance Manager
T. Zeyfang, Document Control Manager

Diversified Metal Products, Inc.

T. Adelizzi, Quality Manager
K. Archibald, Quality Foreman
B. Carver, Vice President, Operations
N. Lanier, Production Manager
N. McMasters, President
B. Myers, Procurement Manager
K. Staker, QA/QC Inspector and Auditor
S. Strobel, Vice President, General Manager
J. VanOrden, QC Inspector
J. Webb, Level II Certified NDE
M. Wilson, Welder

2. INSPECTION PROCEDURES (IPs) USED

IP 55050	Nuclear Welding General Inspection Procedure
IP 55100	Structural Welding General Inspection Procedure
IP 88106	Program Development and Implementation
IP 88108	Control of Materials, Equipment, and Services
IP 88109	Inspection, Test Control, and Control of Measuring Equipment
IP 88110	Quality Assurance: Problem Identification, Resolution, and Corrective Action
IP 88111	10 CFR 21 Inspection – Facility Construction
IP 88113	Control of the Electronic Management of Data
IP 88115	Supplier/Vendor Inspection (Construction Phase)
IP 88116	Inspection of Safety Related Function Interfaces for the Mixed Oxide Fuel Fabrication Facility (Pre-Licensing and Construction)
IP 88130	Resident Inspection Program For On-Site Construction Activities at the Mixed-Oxide Fuel Fabrication Facility
IP 88132	Structural Concrete Activities
IP 88136	Mechanical Components
IP 88139	Ventilation and Confinement Systems

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Status	Description
VIO 70-3098/2012-004-001	Open	Failure to Inspect Internal Root Passes of Field Welds (Section 4.b)
URI 70-3098/2011-003-002	Closed	Quality Classification Level Change in ECR 8982 (Section 6)

4. LIST OF ACRONYMS USED

AC	Alternating Current
ACI	American Concrete Institute
ADAMS	Agency-Wide Document Access and Management System
ASL	Approved Supplier List
ASME	American Society of Mechanical Engineers
ASNT	American Society for Nondestructive Testing
ASTM	American Society of Testing and Materials
AVL	Approved Vendor List
AWS	American Welding Society
BAP	Aqueous Polishing Building
BMP	MOX Process Building
BOD	Bases of Design
BSR	Shipping and Receiving Building
CAR	Construction Authorization Request
CFR	Code of Federal Regulations
CGD	Commercial Grade Dedication
CGIE	Commercial Grade Item Evaluation
CIB1, 2, 3	Construction Inspection Branch 1, 2, or 3
CJP	Complete Joint Penetration
CMTR	Certified Material Test Report

C of C	Certificate of Conformance
CPB1, 2, 3	Construction Projects Branch 1, 2, or 3
CR	Condition Report
DCI	Division of Construction Inspection
DCP	Division of Construction Projects
DMP	Diversified Metals Products Inc.
ECR	Engineering Change Request
EDG	Emergency Diesel Generator
EDMS	Electronic Document Management System
EPRI	Electric Power Research Institute
ERDA	Energy Research and Development Administration
FOST	Fuel Oil Storage Tank
GMAW-SC	Gas Metal Arc Welding-Short Circuiting (arc transfer method)
HDE	High Depressurization Exhaust
HEPA	High Efficiency Particulate Air
HVAC	Heating Ventilation and Air Conditioning
IEEE	Institute of Electrical and Electronics Engineers
IFI	Inspector Follow-up Item
IP	Inspection Procedure
IR	Inspection Report
IROFS	Items Relied on for Safety
LA	License Application
M&TE	Measuring and Test Equipment
MFFF	MOX Fuel Fabrication Facility
MIC	Material Identification Control
MOX	Mixed Oxide
MOX Services	Shaw AREVA MOX Services
MPQAP	MOX Project Quality Assurance Plan
NCR	Non-conformance Report
NDD	PuO_2 Can Receiving and Emptying Unit
NDE	Non-Destructive Testing
NIAC	Nuclear Industry Assessment Committee
NQA-1	Quality Assurance Requirements for Nuclear Facilities Applications
NRC	Nuclear Regulatory Commission
NTE	Technical Document
PAF	Process Assembly Facility
PML	Pellet Handling Unit
PP	Project Procedure
PQRs	Procedure Qualification Record
PSSC	Principle System, Structure, and Component
PRC	Project Records Center
PT	Dye Penetrant Testing
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QAM	Quality Assurance Manual
QC	Quality Control
QL	Quality Level
QL-1	Quality Level 1
QL-2	Quality Level 2
QL-4	Quality Level 4
QP	Quality Procedure

Rebar	Reinforcing Bar
RIC	Receiving Identification Control
RII	Region II
S&ME	Soils and Materials Engineering, Inc.
SDR	Supplier Deficiency Report
SFR	Supplier Findings Report
SMANCA	Sheet Metal and Air Conditioning Contractors' National Association, Inc.
SOW	Statement of Work
SRs	Surveillance Reports
SS	Stainless Steel
SSC	Systems, Structures, and Components
URI	Unresolved Item
URS	United Research Services
UUT	Units Under Testing
VIO	Violation
WDS	Welding Data Sheet
WP	Work Package
WPQRs	Welder Performance Qualification Records
WTS	Welding Technique Sheet

5. LIST OF PSSCs REVIEWED

PSSC-005	C3 Confinement System
PSSC-010	Double-Walled Pipe
PSSC-012	Emergency AC Power System
PSSC-018	Emergency Diesel Generator Fuel Oil System
PSSC-021	Fire Barriers
PSSC-024	Gloveboxes
PSSC-036	MOX Fuel Fabrication Building Structure (including vent stack)
PSSC-041	Process Cells

6. RECORDS AND DOCUMENTS REVIEWED

Procedures

EG 75, Revision 0, Design Freeze
PP1-3, Project Training
PP1-11, Revision 0, Action Tracking Process
PP2-1, Project Organization, Roles & Responsibilities, Revision 16
PP3-2, Revision 3, Trend Analysis
PP3-4 R7 Records Management
PP3-5, Revision 8, Control of Nonconforming Items
PP3-6, Revision 15, Corrective Action Process
PP3-7, Revision 7, Audits
PP3-8, Qualification and Certifications of Auditors, Revision 7, ICN 01
PP3-11, Assessments, Revision 8, ICN 03
PP3-12, Supplier Evaluation, Revision 11
PP3-13, Supplier Verification, Revision 7
PP3-14, Process & Product Sampling, Revision 0
PP3-15, Control of Measuring & Test Equipment, Revision 4

PP3-22, Counterfeit Fraudulent Suspect Items, Revision 0
PP3-26, Surveillance Activities, Revision 2
PP3-27, Quality Control Personnel Certification/Construction Department Inspection Certification, Revision 5
PP3-28, Quality Control Receiving Inspection, Revision 3
PP3-29, Inspection at Supplier Facilities, Revision 1
PP3-30, Quality Control Inspection Plans and Inspection Reports, Revision 2
PP3-31, Quality Control Inspection Exception Report, Revision 0
PP7-9, Electronic Document Management System, Revision 3
PP8-3, Revision 6, Evaluation of Defects and Noncompliance (10 CFR Part 21)
PP8-6, Revision 10, Licensing Basis Configuration Management
PP9-1, Revision 13, SSC Quality Levels and Marking Design Documents
PP9-3, Design Control, Revision 20, ICN 01
PP9-8, Revision11, Technical Documents
PP9-9, Revision 12, Engineering Specifications
PP9-18, Commercial Grade Item Evaluation
PP 9-21, Engineering Change Request, Revision 8
PP9-32, Revision 1, Equipment Qualification
PP9-38, Redline Process for Vendor Fabrication, Revision 1
PP9-39, Verification of Subcritical Dimensions for Critical Safety, Revision 0
PP10-10, Procurement Change Management, Revision 4, ICN 01
PP10-14, Revision 7, Supplier/Subcontractor Technical Document Submittal Management
PP11-74, Piping Support Installation
PP10-36, Shipping and Receiving Materials, Revision 0
PP11-35, Construction Inspection and Acceptance Testing, Revision 5
PP11-37, Revision 0, HVAC Ductwork Field Fabrication and Installation for Nuclear Clean Air Systems
PP11-38, Revision 0, HVAC Duct and Equipment Supports Field Fabrication, Modification, and Installation
PP11-44, Work Package Planning, Development, Approval and Closure, Revision 8
PP11-50, Revision 0, General Welding Program Instructions
PP11-74, Revision 0, Piping Support Installation
PP14-3, Storage for Digital Archive Media, Revision 3
Bahnson, Inc., W/IP NDT 600 Liquid Penetrant Testing, Revision 0
Bahnson, Inc., W/IP NDT 100 Visual Testing, Revision 8
Intermech Welding Procedures IM-96, Revision 1; BSC-77, Revision 0
Intermech Procedure Qualification Records: IM-96.1, Revision 0; IM-96.2, Revision 0;
QP 15-1, Nonconformance Control, Revision 18, August 16, 2011
QP 15-2, Evaluation and Reporting of Defects and Noncompliance (10 CFR Part 21), Revision 0, June 10, 2009
QP 12-1, Control of Measuring and Test Equipment, Revision 12, October 25, 2012
QP 17-1, Quality Assurance Records, Revision 9, April 10, 2012

M&TE

Check in/out Log for Digital Caliper DC-011, November 7, 2012
Certificate of Calibration for Digital Caliper DC-011 (and accurate calibration sticker), April 12, 2012
Check in/out Log for Digital Caliper DC-012, November 6, 2012
Check in/out Log for Surface Tester 218501109, November 6, 2012

Master List of Calibrated Tools to confirm accurate calibration sticker and dates for Surface Tester 218501109, November 7, 2012
Certificate of Calibration for True RMS Clamp Meter 77157419 (and accurate calibration sticker), April 13, 2012
Certificate of Calibration for Surface Roughness Tester ST-002 (and accurate calibration sticker), December 9, 2012
Certificate of Calibration for Torque Wrench TW-007 (and accurate calibration sticker), October 17, 2012
Certificate of Calibration for Tension Load Scale G04038, November 10, 2011
NCR 11-183, Load Cell, 0-25 Tons, S/N: G04038 (Out of Tolerance in the "As Found" condition, returned in tolerance; certificate of calibration and M&TE Log attached). November 17, 2011.
Certificate of Calibration for Digital Thermometer Platinum - RTD and Probe 254, October 29, 2012
Master List of Calibrated Tools to confirm inactive equipment: Digital Hygrometer TH-001

Specifications

Shaw AREVA MOX Services Specification DCS01-KKJ-DS- NTE-L-16272-6, Welding Equipment and Piping General Specification for 304L Stainless Steel Materials QL-1 IROFS, Revision 6, dated February 1, 2011
Shaw AREVA MOX Services Specification DCS01-ZMJ-DS- SPE-M-19116-2, Process Unit Standard Manufacturing Technical Requirements Specification QL-1 IROFS, Revision 2, dated July 31, 2008
Shaw AREVA MOX Services Requirements DCS01-ZMJ-DS- SPE-M-19107-7, Process Equipment Welding Requirements QL-1, Revision 7, dated February 27, 2012
Shaw AREVA MOX Services Requirements DCS01-ZMJ-DS- SPE-M-19113-6, Glovebox Shell Fabrication, Inspection and Test Requirements QL-1 IROFS, Revision 6, dated April 28, 2011

Work Packages

DMP FIP No. KDD-NOM-31002-ASM, KDD GB 1200, Revision 0, dated September 20, 2011
DMP FIP No. KKD-NOM-71001-ASM, KDD GB 7000 FIP - Assembly, Revision 0, dated August 11, 2011
DMP FIP No. N5222-FIP-KCD-TK1920, Seal Pot Assembly KCD-TK1920, Revision 0, dated November 2, 2011
DMP FIP No. N5222-FIP-KWD-TK3035, Seal Pot Assembly KWD-TK3035, Revision 0, dated November 2, 2011
DMP FIP No. N5236-FIP-FOST-0038, Fuel Oil Storage Tank, Revision 1, dated November 11, 2011
DMP FIP No. N5323-KPA2000-002, Glovebox Shell for GB2000, Revision 0, dated August 28, 2012
DMP FIP No. N5323-KPA2010-002, Glovebox Shell for GB2010, Revision 0, dated August 28, 2012
WP DCS01-NPG-AG-WPK-M-50090, Homogenization and Pelletization Unit
WP 09-CP20-3B-BSR-W-308-C, Civil Concrete Placement for BSR Walls

Condition Reports

CR-11-117
CR-11-556
CR-11-664
CR-12-161
CR-12-164
CR-12-188
CR-12-526
CR 12-092
CR 12-091
CR 12-305
CR 11-650
CR 11-652
CR 11-655
CR 12-253

Surveillance Reports

ACS-12-SIR063, Fabrication of Electrical Cabinets, February 17, 2012
ACS-12-SIR080, Fabrication of Electrical Cabinets, February 24, 2012
OIW-12-SIR015, Radiography Review for PML Glovebox 700B & 700C, January 16, 2012
OIW-12-SIR295, Glove Boxes 0700C, 0700D1, 0700D4, 0700H, September 24, 2012
QSC-12-SIR180, Carbon Steel Platforms, Stairs for IROFS Equipment, May 29, 2012

ECRS

ECR 008982 Changes to Electrical BOD for Essential System

Nonconformance Reports

NCR 12-265, Rejected Glovebox Window Frame on LCT GB-5000, September 28, 2012
NCR 12-301, Rejected Weld on KPB-GB-2000 Glovebox Shell, October 11, 2012
NCR 11-066, Misc. Swagelok Parts Items #01-06, May 25, 2011
NCR 12-199, Line 5: 1” sch 80 Flange, Line 6: 1” schedule 80 elbow, May 23, 2012
NCR 12-273, LCT-GB-1000 Shell Assembly, August 22, 2012
NCR 12-272, NDD-GB-2000 (Shell Weldment) NOM 01003, August 21, 2012
AT-11-3600
AT-12-4427

Supplier Deficiency Reports

OIW-12-SIR015-01
OIW-12-SIR295-01
OIW-12-SIR295-02
SMCI-09-VE38-01
SMCI-09-VE38-02
SMCI-09-VE38-03
SMCI-09-VE38-04
SMCI-09-VE38-05

SMCI-09-VE38-06
SMCI-09-VE38-08
SMCI-2011-01
SMCI-2011-02, Revision 1
SMCI-2011-03
SMCI-2011-04, Revision 1

Shop Inspection Reports:

SR-CE-12-0114, PP3-26A, February 16, 2012
SR-CE-12-0124, Material Accountability, February 21, 2012
SR-CE-12-0125, Observation of Field Engineer, February 21, 2012
SR-CE-12-0325, Hold Points in Work Packages, May 4, 2012
SR-CE-12-0374, Hold Points, May 15, 2012
SR-CE-12-0401, Hold Points, May 19, 2012
SR-CE-12-0402, Hold Points, May 22, 2012
SR-CE-12-0682, Accuracy check for Laser Chalk Line/Plumbing laser, July 2, 2012
SR-QC-11-0503, Moisture and Temp Surveillance on the Colemanite Mock Up, November 2, 2011
SR-QC-11-0561, M&TE Weekly Control Activities, December 21, 2011
SR-QC-12-0027, M&TE Weekly Control Activities, January 17, 2012
SR-QC-12-0082, Conditional Release Surveillance, February 6, 2012
SR-QC-12-0113, QC Surveillance PP-11-44D form – PUDC Work Package Drawing/Document review to Documentum Revisions, February 16, 2012
SR-QC-12-0208, PSI Work Package Signatures, March 27, 2012
SR-QC-12-0446, Surveillance of Receiving Inspection Report QC-RIR-12-31977, May 22, 2012
SR-QC-12-0544, QC Receipt Monthly Surveillance for November 2011, December 6, 2011
SR-QC-12-0877, M&TE monthly, September 17, 2012
SR-QC-12-0912, Acceptance Testing for Batch Lot at receipt, October 4, 2012

Receipt Inspection Reports

QC-RIR-11-26981, HVAC Duct, Oct. 15, 2012
QC-RIR-11-25378, HVAC Duct, Oct. 16, 2012
QC-RIR-11-26463, HVAC Duct, Oct. 16, 2012
QC-RIR-12-39525, Bolt Material, Oct. 16, 2012
QC-RIR-11-26963, HVAC Duct, Oct. 16, 2012
QC-RIR-12-27848, HVAC Duct, Oct. 15, 2012
QC-RIR-12-40506, Fasteners, Oct. 16, 2012
QC-RIR-12-40938, HVAC Duct, Oct. 18, 2012

Procurement Package Request for Information

RFI ENG-00006, Jan. 15, 2009
RFI ENG-00132, Oct. 14, 2010
RFI ENG-00159, Jun. 3, 2011
RFI ENG-00169, Nov. 1, 2010
RFI ENG-00366, Oct. 20, 2011

Procurement Packages

10888-P-2613, Piping and Fittings Fabrication
10888-B-3893, Basic Order Agreement
10888-0-7232, Post Installed Concrete Anchors and Misc. Tools
10888-0-7434, Unistrut Nuclear Metal Framing Products
10888-0-7433, Unistrut Nuclear Metal Framing Products
10888-P-6883, Misc. Structural Steel10888-P-2613, Piping and Fittings Fabrication
10888-B-3893, Basic Order Agreement
10888-0-7232, Post Installed Concrete Anchors and Misc. Tools
10888-0-7434, Unistrut Nuclear Metal Framing Products
10888-0-7433, Unistrut Nuclear Metal Framing Products
10888-P-6883, Misc. Structural Steel
Purchase Order No. 46672, Tioga Pipe Supply Company, Inc. Revision 0, August 16, 2012
Purchase Order No. 46651, Affiliated Metals. Revision 1, September 10, 2012
Purchase Order No. 46396, DuBose National Energy Services, Inc. Revision 0, July 16, 2012
Purchase Order No. 46545, DuBose National Energy Services, Inc. Revision 0, August 16, 2012
Purchase Order No. 46496, Airgas Intermountain, Inc. Revision 0, August 6, 2012

Audits and Assessments

Audit PTI-12-VE89, Supplier Audit, September 5, 2012
Audit URSW-12-VE50, Supplier Audit, May 23, 2012
Audit FFI-11-VE104, Supplier Audit, December 15, 2011
Audit SMCI-12-VE49, Supplier Audit, June 8, 2012
Audit SA-12-A01, Construction Programs and Activities, September 4, 2012
Audit SA-11-A03, Quality Assurance Programs, October 19, 2011
Audit SA-11-A07, Engineering Programs and Activities, January 3, 2012
Audit SA-11-A08, Procurement, February 28, 2012
Audit SA-11-A02, QC Programs and Activities, June 20, 2011
Audit SA-10-A01, Quality Assurance and Quality Control Activities, August 4, 2010
Assessments CY12-M-QA-004, 2011 QA Management Assessment Report, May 7, 2012
Assessment CY12-M-OPS-015, Information Protection-Classification Program Self Assessment, June 12, 2012
Assessment CY11-M-CON-001, Construction Management Assessment for Calendar Year 2011, May 11, 2011

Miscellaneous Documents

DMP Form No. N02101 (Revision 1 – April 19, 2011), Nondestructive Examination Record Visible Solvent Removable Liquid Penetrant Examination, Job No. N5215 NDD GB2000, Report No. 12-1026, date signed October 17, 2012
DMP Form No. Q10204-N5215 (Revision 0 – January 5, 2011), Dimensional Inspection Report, Job No. N5215, Report No. 12-722, date signed July 30, 2012
DMP Form No. Q10204-N5215 (Revision 0 - January 5, 2011), Dimensional Inspection Report, Job No. N5215, Report No. 12-768, date signed August 15, 2012

DMP Form No. Q10204-N5215 (Revision 0 - January 5, 2011), Dimensional Inspection Report, Job No. N5215, Report No. 12-852, date signed August 22, 2012
DMP Form No. Q10204-N5215 (Revision 0 - January 5, 2011), Dimensional Inspection Report, Job No. N5215, Report No. 12-871, date signed August 28, 2012
DMP Form No. Q10204-N5215 (Revision 0 - January 5, 2011), Dimensional Inspection Report, Job No. N5215, Report No. 12-995, date signed October 3, 2012
DMP NDE Procedure No. NDE-LT-6-0, Helium Leak Testing (Detector Probe Technique), Revision 4, dated February 22, 2012
DMP NDE Procedure No. NDE-MT-1.0, Magnetic Particle Examination (Yoke Technique), Revision 11, dated July 29, 2011
DMP QW-483 Procedure Qualification Record (PQR), PQR No. SS 2.0, WPS No. SS 2.0, Welding Process GTAW, dated June 26, 1998
DMP QW-482 Welding Procedure Specification (WPS) No. SS 2.0G GTAW, Revision 7, dated October 28, 2010
DMP QW-483 Procedure Qualification Record (PQR), PQR No. SS 4.1, WPS No.SS 4.0, Welding Process GMAW-Pulse Spray, dated August 4, 2004
DMP QW-482 Welding Procedure Specification (WPS) No. SS 4.0 GMAW, Revision 8, dated October 28, 2010
DMP Welding Repair Procedure No. WP-P 5.0, Revision 3, Including Addenda to WP-P 5.0 Revision 0, dated December 17, 2010
DMP QA/QC Inspector Certification Record for Kelley Archibald MT Level II, dated September 3, 2010
DMP QW-484 Welder Performance Qualification Record (WPQR) for Jesus Lopez, WPS No. Used SS2.0G, dated May 15, 2012
DMP QW-484 WPQR for Jesus Lopez, WPS No. Used SS4.0, dated May 15, 2012
DMP QW-484 WPQR for Marty Lopez, WPS No. Used SS2.0G, dated January 25, 2012
DMP QW-484 WPQR for Marty Lopez, WPS No. Used SS2.0G, dated September 5, 2012
DMP QW-484 WPQR for Marty Lopez, WPS No. Used SS4.0, dated January 25, 2012
DMP QW-484 WPQR for Vance Avery, WPS No. Used SS2.0, dated November 17, 2010
DMP QW-484 WPQR for Vance Avery, WPS No. Used SS2.0G, dated November 17, 2010
QISI Radiographic Inspection Report, Job No. N5215, Drawing No. WM-NDD-NOM-01003-SHW, dated radiographed November 28, 2011
QISI Radiographic Inspection Report, Job No. N5215, Glovebox No. GB2000, dated radiographed August 4, 2011
Shaw AREVA MOX Services Statement of Work DCS01-KKJ-AG-SOW-M-50212-0, Purification Cycle Units and Acid Recovery Unit KPA (*GB2000, *GB2010, *GB3000, *GB8000 and *GB8510)/KPC*GB7000, QL-1 Glovebox Shell, Ventilation and Associated Equipment, Revision 0, dated June 30, 2011
2012 Schedule of Shop Inspectors/Surveillance as of October 15, 2012
Audit Checklist, I-QAP-01, Revision 2, Jun. 8, 2011
Auditor Qualifications for F. Blanks
Auditor Qualifications for L. Taggart
Auditor Training Matrix Annual Review Log, September 18, 2012
Contracts Training Matrix, April 5, 2012
Engineering Group Training Matrix, June 8, 2012
List of M&TE Issued to Field, October 17, 2012
MOX Construction Training Matrix, June 5, 2012
MOX Services Project Inspection Plan No. Q455, Receipt Inspection Plan, Revision 8

NIAC Audit 16129, May 19, 2011
Procurement Training Matrix, April 27, 2012
Project Assurance Organization Charts, October 2, 2012
Project Assurance Training Matrix, 26 June 2012
SA-12-A01, Audit Checklist, Jun. 17, 2012
SA-12-A01, Construction Audit Plan, Jun. 12, 2012
Set 45 and Set 45 HW Chemical-action Repair Mortar Product Data Sheet
Supplier Audit Checklist, Revision 3, Feb 13, 2009
Test Record & Calibration Report for S&ME Scale No. 25816
DCSOI-AAJ-DS-DOB-E-40111-4 Basis of Design for Electrical Systems
DCSO1-AAJ-DS-TRD-D-40122-4 Functional Classification List
DCSOI-EEJ-DS-SPE-E-25134-2 Procurement Specification for Batteries, Battery Disconnect Switches and DC Distribution Switchboards
DCSOI-EEJ-DS-SPE-E-25232-2 Three Phase Static Uninterruptible Power Supplies
Temperature and Humidity Report for Document Control Vault 01Oct2012
Welding Technique Sheets: D1.6-GT-A-B-01 Revision 3; D9.1-GM-SS-01 Revision 1
Procedure Qualification Records: D9.1-GM-3-SG-4G-16, D9.1-GM-3-SG-4G-10

Drawings

DMP Drawing No. EGF-TK-2500A/B, Revision 2, dated January 12, 2012
DMP Drawing No. EGF-TK-2500A/B Instl, Revision 2, dated January 12, 2012
Shaw AREVA MOX Services Drawing No. DCS01-KPA-MG-PLD-M-20200, BAP Level 4 Room C-407 Purification Cycle Unit Pulsation Valves Glovebox – KPA*GB2000/2010 Glovebox with Equipment Shell Detail, Revision 1, dated April 6, 2011
Shaw AREVA MOX Services Drawing No. DCS01-KPA-MG-PLD-M-20209, BAP Level 4 Room C-407 Purification Cycle Unit Pulsation Valves Glovebox – KPA*GB2000/2010 Glovebox with Equipment Welded Glovebox Detail, Revision 1, dated May 11, 2011

Training Records

MOX Services Certification of Qualification – Quality Level I for Receipt Inspection/ Preventative Maintenance for A. Parker, July 27, 2012
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for E. Green, April 19, 2012
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for A. Parker, October 21, 2010
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for B. Spires, December 3, 2009
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for D. Ford, June 13, 2011
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for R. Lebkuecher, March 6, 2012
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for B. Roberts, August 5, 2011
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for S. Peace, January 11, 2010
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for R. Boyers, November 14, 2011
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for E. Radford, February 7, 2012

MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for D. Livernois, September 25, 2012
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for A. Holloway, May 23, 2011
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for G. Allen, August 4, 2011
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for K. Simmons, June 11, 2012
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for J. Yon, February 7, 2012
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for A. Brack, July 13, 2010
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for R. Merriweather, May 9, 2011
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for J. Hall, March 16, 2010
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for G. Thomas, October 8, 2012
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for J. Lance, June 9, 2011
MOX Services Certification of Qualification – Quality Level II for Receipt Inspection/ Preventative Maintenance for C. Knight, June 29, 2011
MOX Services Certification of Qualification – Quality Level II for Shop Inspection for R. Cliatt, January 21, 2011
MOX Services Certification of Qualification – Quality Level II for Shop Inspection for David Wise, December 19, 2011
Student Training History for A. Brack, October 16, 2012
Student Training History for T. Anspaugh, October 16, 2012

Other Documents

Part 21 Evaluation Form 2008-01
Part 21 Evaluation Form 2012-02
Part 21 Evaluation Form 2012-03
Part 21 Evaluation Form 2012-05
DMP Quality Procedure 12-1, Control of Measuring and Test Equipment, Revision 11, August 19, 2011
Calibration certificate for Holloway Houston load cell LLX-25T, Serial Number 604038
Western States calibration certificate for torque wrench TW-007, Asset Number 77157419
Check in/out Log for Digital Caliper DC-011, November 7, 2012
Certificate of Calibration for Digital Caliper DC-011 (and accurate calibration sticker), April 12, 2012
Check in/out Log for Digital Caliper DC-012, November 6, 2012

Standards

IEEE 344-1987: Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations. Institute of Electrical and Electronics Engineers, Inc. (IEEE). June 11, 1987.

IEEE 382-1996: Standard for Qualification of Actuators for Power-Operated Valve Assemblies with Safety Related Functions for Nuclear Power Plants. Institute of Electrical and Electronics Engineers, Inc. (IEEE), March 21, 1996.

IEEE 323-1983: IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations. Institute of Electrical and Electronics Engineers, Inc. (IEEE). June 23, 1983.

ASME NQA-1-1994: Quality Assurance Requirements for Nuclear Facilities, as revised by ASME NQA-1a-1995. American Society of Mechanical Engineers (ASME). January 19, 1996.

ACI156-2010: Acceptance Criteria for Seismic Certification by Shake-Table Testing of Nonstructural Components. American Concrete Institute (ACI). November 1, 2010.

SMANCA: Rectangular Industrial Duct Construction Standards. Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMANCA). January 1997.

SMANCA: Round Industrial Duct Construction Standards. Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMANCA). September 1999.