

April 22, 2013

Mr. John Kerr, Quality Assurance Manager  
Dresser Masoneilan  
85 Bodwell Street  
Avon, MA 02322

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION REPORT  
NO. 99901420/2013-201, NOTICE OF VIOLATION AND NOTICE OF  
NONCONFORMANCE

Dear Mr. Kerr:

From March 4–8, 2013, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Dresser Masoneilan facility in Avon, MA. The purpose of this limited-scope routine inspection was to assess Dresser Masoneilan's compliance with provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, "Reporting of Defects and Noncompliance," and selected portions of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR 50, "Domestic Licensing of Production and Utilization Facilities."

This technically focused inspection evaluated the implementation of Dresser Masoneilan's quality assurance activities associated with the design, fabrication, assembly, and testing of safety-related valves and valve parts for U.S. nuclear power plants. The enclosed report presents the results of this inspection. The enclosed report presents the results of this inspection, which resulted in the issuance of one Notice of Violation (NOV) and eight Notices of Nonconformance (NON). These examples indicate that Dresser Masoneilan has not adequately established and implemented controls to consistently implement its quality program. This NRC inspection report does not constitute the NRC's endorsement of your overall QA or 10 CFR Part 21 programs.

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

The enclosed NOV cites the violation, and the subject inspection report details the circumstances surrounding it. The NOV cites Dresser Masoneilan for failing to adopt appropriate procedures to evaluate deviations and failures to comply associated with substantial safety hazards as required by 10 CFR Part 21.

You are required to respond to this letter and to follow the instructions specified in the enclosed NOV when preparing your response. If you have additional information that you believe the NRC should consider, you may provide it in your response to the NOV. The NRC's review of your response to the NOV also will determine if further enforcement action is necessary to ensure compliance with regulatory requirements. In addition, the NRC inspection team found

that the implementation of your quality assurance program did not meet certain regulatory requirements imposed on you by your customers or NRC licensees. The enclosed NON to this letter identifies the specific findings and references to the pertinent requirements, and the enclosed inspection report describes in detail the circumstances surrounding it.

Please provide a written explanation or statement within 30 days of this letter in accordance with the instructions specified in the enclosed NON. The NRC will consider extending the response time if you show good cause for the agency to do so.

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

Sincerely,

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

Docket No. 99901420

Enclosures:

1. Notice of Violation
2. Notice of Nonconformance
3. Inspection Report No. 99901420/2013-201  
and Attachment

that the implementation of your quality assurance program did not meet certain regulatory requirements imposed on you by your customers or NRC licensees. The enclosed NON to this letter identifies the specific findings and references to the pertinent requirements, and the enclosed inspection report describes in detail the circumstances surrounding it.

Please provide a written explanation or statement within 30 days of this letter in accordance with the instructions specified in the enclosed NON. The NRC will consider extending the response time if you show good cause for the agency to do so.

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

Sincerely,

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

Docket No. 99901420

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**ADAMS Accession No.: ML13099A112 \*via e-mail**

**NRO-001**

<b>OFFICE</b>	NRO/DCIP/CEVB	NRO/DCIP/CQAB	NRO/DCIP/CQAB	NRO/DCIP/CMVB	NRO/DCIP/CMVB
<b>NAME</b>	GNewman	AKeim	TKendzia (GNewman for)	AArmstrong	PCoco (GNewman for)
<b>DATE</b>	04/17/2013	04/17/2013	04/17/2013	04/17/2013	04/17/2013
<b>OFFICE</b>	NRO/DE/EMB	NRO/DCIP/CMVB	NRO/DCIP/CAEB:BC	NRO/DCIP/CMVB:BC	
<b>NAME</b>	TLe*	JOrtega-Luciano	TFrye	ERoach	
<b>DATE</b>	04/17/2013	04/18/2013	04/18/2013	04/22/2013	

## NOTICE OF VIOLATION

Dresser Masoneilan  
85 Bodwell St  
Avon, MA 02322

Docket No. 99901420  
Report No. 2013-201

During a U.S. Nuclear Regulatory Commission (NRC) inspection conducted at the Dresser Masoneilan facility in Avon, MA, from March 4, 2013 through March 8, 2013, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Title 10 of the *Code of Federal Regulation* (10 CFR) Part 21, Section 21.21(a), "Notification of failure to comply or existence of a defect and its evaluation," states in part that, "each individual, corporation, partnership, or other entity subject to 10 CFR Part 21 shall adopt appropriate procedures to evaluate deviations and failures to comply associated with substantial safety hazards."

Contrary to the above, as of March 8, 2013, Dresser Masoneilan failed to adopt appropriate procedures to evaluate deviations and failures to comply associated with substantial safety hazards. Specifically:

1. Dresser Masoneilan's procedure Nuclear Quality System Procedure (NQSP) 2.1, Revision D, "Reporting Requirements Concerning Defects and Noncompliance 10 CFR Part 21," dated October 25, 2012 did not contain guidance on how to evaluate deviations in accordance with 10 CFR Part 21 requirements.
2. Dresser Masoneilan's Part 21 procedure NQSP 2.1, Revision D, "Reporting Requirements Concerning Defects and Noncompliance 10 CFR Part 21," did not contain requirements to screen and evaluate deviations reported through Quality Management Systems Work Instruction 08 (QMS-WI-08), "Customer Complaints Process," dated March 12, 2009.

These issues have been identified as Violation 99901420/2013-201-01.

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

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

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

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

In accordance with 10 CFR 19.11, "Posting of Notices to Workers," you may be required to post this notice within 2 working days of receipt.

Dated this 22nd day of April 2013.

## NOTICE OF NONCONFORMANCE

Dresser Masoneilan  
85 Bodwell St  
Avon, MA 02322

Docket No. 99901420  
Report No. 2013-201

Based on the results of a U.S. Nuclear Regulatory Commission inspection conducted at the Dresser Masoneilan facility in Avon, MA from March 4, 2013, through March 8, 2013, it appears that Dresser Masoneilan did not conduct certain activities in accordance with NRC requirements that were contractually imposed upon Dresser Masoneilan by its customers or NRC licensees:

- A. Criterion III, "Design Control", of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," states, in part, that "Design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless the applicant designates another responsible organization."

Dresser Masoneilan Quality Assurance Manual Section (QAMNUC) 4.0, "Design Control," Revision A, dated July 2010, Subsection 2.7, states, in part, that "Where changes to previously verified designs have been made, design verification shall be required for the changes, including evaluation of the effects of those changes on the overall design and on any design analyses upon which the design is based that are affected by the change to previously verified design."

Contrary to the above, as of March 8, 2013, Dresser Masoneilan failed to establish adequate design control measures for design changes commensurate with those applied to the original design and did not have approval by the organization that performed the original design. Specifically:

1. Dresser Masoneilan failed to provide objective documented evidence of design review and verification for technical changes for nuclear design revisions 0010317, 0009985, 0012208, 0013036, and 0012669, which changed machining details, lubricants, parts kits, and torque values for safety-related valves.
2. Dresser Masoneilan did not provide objective evidence of an engineering evaluation to provide justification for the change in material for lock nuts for a valve actuator housing. The original design requirements for the material specification required the part to be made of A307 carbon steel; Dresser Masoneilan fulfilled the purchase order with A194 carbon steel.

These issues have been identified as Nonconformance 99901420/2013-201-02.

- B. Criterion III, "Design Control," of Appendix B to 10 CFR 50 states, in part, that "Measures shall also be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems, and components."

Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B, to 10 CFR 50 states, in part, "Measures shall be established to assure that purchased

material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents.”

Nuclear Quality System Procedure (NQSP) 4.2, “Procedure for Dedication of Parts and Subassemblies,” Revision A, dated May 22, 2007, Section 3.1, states, in part, that “For parts, the critical characteristics to be verified include as a minimum part number, dimensions and material.” NQSP 4.2, Section 3.1, later states that, “material of construction can be verified and documented by a number of methods depending on the part. Certified Material Test Reports (CMTR), manufacturer’s markings and material analysis test results are acceptable for confirming that the material of construction is as required by the part number material designation.”

Contrary to the above, as of March 8, 2013, Dresser Masoneilan failed to adequately review materials and parts essential to the safety-related functions of structures, systems, and components for suitability of application and assure that purchased material conformed to the procurement documents. Specifically:

1. Dresser Masoneilan failed to adequately verify the material of bolts, screws, washers, and nuts during critical characteristic acceptance. Dresser Masoneilan did not use a verification method allowed by NQSP-4.2, but performed a magnetism check instead.
2. Dresser Masoneilan did not evaluate the suitability and complexity of items prior to verifying physical and dimensional critical characteristics of commercial-grade items by sampling and did not evaluate the suppliers’ controls over traceability of the parts to batches, lots, or heats.

These issues have been identified as Nonconformance 99901420/2013-201-03.

- C. Criterion V, “Instructions, Procedures, and Drawings,” of Appendix B to 10 CFR 50, states, in part, that “Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.”

QAMNUC 2.0, “Quality System,” Revision A, dated July 2010, Subsection 2.3, states, in part, that “Written procedures, standards, instructions and/or drawings shall be use as required, to implement the quality assurance program.”

Contrary to the above, as of March 8, 2013, Dresser Masoneilan failed to prescribe activities that affect quality in appropriate procedures and to accomplish activities that affect quality in accordance with instructions and procedures. Specifically:

1. Dresser Masoneilan failed to develop documented instructions or procedures that prescribe the process to evaluate and accept third party audits to place a supplier on its approved suppliers list.

2. Dresser Masoneilan failed to develop documented instructions or procedures that prescribe appropriate foreign material exclusion controls or inspections as required by purchase orders from customers.
3. Dresser Masoneilan failed to discuss items' safety function and failure modes in technical evaluations for the dedication of commercial-grade items as required by NSQP 4.1, "Procedure for Preparation of Critical Component Evaluation Sheets," Revision A, dated May 22, 2007, which states, in part, "Briefly describe the function of the part. Include the overall functions of the part as well as any specific functions that are performed when the assembled equipment is performing its safety related function." and "Describe the various failure modes of the part. The failure mode should be evaluated based on the safety function of the equipment." Dresser Masoneilan also excluded material as a critical characteristic for multiple parts as required by NQSP-4.2, "Procedure for Dedication of Parts and Subassemblies," Revision A, dated May 22, 2007, Section 3.1, which states, in part, that "Critical characteristics to be reviewed for each part are part number, dimensions and material."
4. Dresser Masoneilan failed to generate corrective actions in accordance with QAMNUC 14.0, "Corrective Action," Revision A, dated July 14, 2010, Subsection 2.6, which states that "Supplier non-conformances including audit findings, and nonconformance trends shall require corrective action in accordance with the above." Dresser Masoneilan did not open corrective actions for seven open findings identified in an audit of Deloro Stellite.
5. Dresser Masoneilan did not obtain Manufacturing Engineering approval of Material Review Board decisions for nonconformance reports (NCRs), such as rework NCRs 7224, 7394, 7440, 7510, and 7517, as required by procedure NQSP-13.0, "Nonconformance Identification & Disposition Procedure," Revision D, dated October 4, 2011, Section, 8.0 which states, in part, that "Permanent members of the MRB shall be representatives from...Manufacturing Engineering."

These issues have been identified as Nonconformance 99901420/2013-201-04.

- D. Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR 50, states, in part, that "The effectiveness of the control of quality by contractors and subcontractors shall be assessed by the applicant or designee at intervals consistent with the importance, complexity, and quantity of the product or services."

QAMNUC 17.0, "Quality Audits," Revision A, dated July 2010, Subsection 2.1, states in part, that "Audits shall include examination of program elements and shall verify by objective evidence, compliance with the quality program."

Contrary to the above, as of March 8, 2013, Dresser Masoneilan failed to verify its suppliers' compliance with Dresser Masoneilan and the suppliers' quality programs. Specifically:

1. Dresser Masoneilan did not provide objective evidence of the evaluation of Iron Mountain quality assurance manual and implementing procedures to verify that



they are in accordance with the requirements established in 10 CFR 50, Appendix B.

2. Dresser Masoneilan failed to perform an adequate assessment of a third-party audit for Deloro Stellite. The third-party audit had significant open findings and the supplier's quality assurance program was developed to comply with ISO 9001 and did not appear to meet the requirements of 10 CFR 50, Appendix B.

These issues have been identified as Nonconformance 99901420/2013-201-05.

- E. Criterion X, "Inspection," of Appendix B to 10 CFR 50, states, in part, that, "a program for inspection of activities affecting quality shall be established and executed by or for the organization performing the activity to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity."

QAMNUC 10.0, "Inspection and Testing," Revision A, dated July 2010, Subsection 3.1 states, "The Quality Control Technicians examine production work within assigned areas. All pieces shall be checked with Production Work Orders and detail drawings to verify quantities, revisions, part, heat/lot numbers as well as dimensions."

Dresser QMS Work Instruction 39, "Nuclear Part Order Release Process," Revision A, Section 2.1 states, "Verify critical dimensions (those that are +/- 0.005"), including verification of machining of flats, product coatings or other surface requirements using Engineering drawing."

Contrary to the above, as of March 8, 2013, Dresser Masoneilan failed to establish and execute an adequate program for inspection of activities affecting quality. Specifically, Dresser Masoneilan inspection procedures did not adequately provide guidance for which critical dimensions are to be inspected and recorded for a 6-inch Class 2 pilot-operated valve pilot seat and guide intended for Susquehanna Unit 2.

This issue has been identified as Nonconformance 99901420/2013-201-06.

- F. Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR 50 states that measures shall be established to assure that tools, gages, instruments, and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within necessary limits.

Criterion XV, "Nonconforming Materials, Parts, or Components," states, in part, that "Measures shall be established to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation. These measures shall include, as appropriate, procedures for identification, documentation, segregation, disposition, and notification to affected organizations. Nonconforming items shall be reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures."

QAMNUC 11.0, "Control of Inspection, Test, and Measuring Equipment," Revision A, dated July 2010, Subsection 2.8 states, "Equipment found out of calibration or of unknown calibration status shall be identified on a Nonconformance report and removed from service."

Contrary to the above, as of March 8, 2013, Dresser Masoneilan did not adequately control measuring and test equipment found to be nonconforming. Specifically, Dresser Masoneilan did not generate NCRs for two transducers that were found out of calibration, and therefore did not document an evaluation of the validity of previous measurement, inspection, or test results, and the acceptability of items previously inspected.

This issue has been identified as Nonconformance 99901420/2013-201-07.

- G. Criterion XV, "Nonconforming Materials, Parts, or Components," of Appendix B to 10 CFR 50, states, in part, that "Nonconforming items shall be reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures."

NQSP-13.0, "Nonconformance Identification & Disposition Procedure," Revision D, dated October 4, 2011, states, in part that, "repair" dispositions shall include technical justification from Nuclear Product Engineering or the original design organization, to ensure the design integrity of the item."

Contrary to the above, as of March 8, 2013, Dresser Masoneilan failed to review and accept NCRs 7224, 7394, 7440, 7510, and 7517, which were dispositioned as "repair" in accordance with documented procedures. Specifically, Dresser Masoneilan did not include technical justifications from Nuclear Product Engineering for the five items as required by NQSP-13.0. Dresser Masoneilan only included repair instructions on the NCRs but did not document consideration of impacts to the design that would require a design change.

This issue has been identified as Nonconformance 99901420/2013-201-08.

- H. Criterion XVI, "Corrective Action," of Appendix B to 10 CFR 50, states, in part, that, "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management."

QAMNUC 14.0, "Corrective Action," Revision A, dated July 14, 2010, Subsection 2.3 states that "Corrective Action shall be taken by an individual assigned by the applicable department manager, who shall determine cause, actions needed to prevent recurrence and record on the [corrective action report] (CAR). Within 15 working days, unless extended by the Quality Manager, the CAR with schedule for completion shall be submitted to the Quality Manager." QAMNUC 14.0, Subsection 2.5, states that "The Quality Manager shall follow up to verify corrective actions within thirty days of the scheduled completion date and document this follow up on the CAR."

Contrary to the above, as of March 8, 2013, Dresser Masoneilan failed to promptly identify and correct conditions adverse to quality. Specifically:

1. Dresser Masoneilan failed to promptly identify and correct internal audit findings documented in CAR 11-47, which identified that the QA manual was not current with the Dresser Masoneilan organization and plant practices, on September 26, 2011. Dresser Masoneilan's corrective action to review and revise the Nuclear Quality Program had not been completed as of March 8, 2013.
2. Dresser Masoneilan failed to verify corrective actions had been completed prior to closing CAR 12-07, which documented that a Dresser Masoneilan welder improperly welded an actuator steam creating a nonconforming condition. Dresser Masoneilan's corrective action required retraining of all welders on the proper set up, use of drawings, and part orientation. The CAR was closed on July 17, 2012, with no verification that the corrective actions had been accomplished within the required timeframe.

These issues have been identified as Nonconformance 99901420/2013-201-09.

Please provide a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Chief, Construction Mechanical Vendor Branch, Division of Construction Inspection and Operational Programs, Office of New Reactors, within 30 days of the date of the letter transmitting this Notice of Nonconformance. This reply should be clearly marked as a "Reply to a Notice of Nonconformance" and should include for each noncompliance: (1) the reason for the noncompliance or, if contested, the basis for disputing the noncompliance; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further noncompliance; and (4) the date when the corrective action will be completed. Where good cause is shown, the NRC will consider extending the response time.

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

Dated this 22nd day of April 2013.

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

Docket No.: 99901420

Report No.: 99901420/2013-201

Vendor: Dresser Masoneilan  
85 Bodwell St  
Avon, MA 02322

Vendor Contact: Mr. John Kerr  
Quality Assurance Manager  
Telephone: 508-941-5430  
E-mail: john.a.kerr@ge.com

Nuclear Industry Activity: Dresser Masoneilan is an ASME Nuclear Stamp Holder currently manufacturing ASME Class 1, 2, and 3 valves, and valve parts for the operating nuclear power fleet and new international plants. The Dresser Masoneilan brand is owned by GE Energy.

Inspection Dates: March 4–8, 2013

Inspectors:	Garrett Newman	NRO/DCIP/CEVB	Team Leader
	Jonathan Ortega-Luciano	NRO/DCIP/CMVB	
	Aaron Armstrong	NRO/DCIP/CMVB	
	Paul Coco	NRO/DCIP/CMVB	
	Thomas Kendzia	NRO/DCIP/CQAB	
	Tuan Le	NRO/DE/EMB	
	Andrea Keim	NRO/DCIP/CQAB	Trainee

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

## EXECUTIVE SUMMARY

Dresser Masoneilan  
99901420/2013-201

The U.S. Nuclear Regulatory Commission (NRC) conducted this inspection to verify that Dresser Masoneilan implemented an adequate quality assurance (QA) program that complies with the requirements of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities." In addition, the NRC inspection also verified that Dresser Masoneilan implemented a program under 10 CFR Part 21, "Reporting of Defects and Noncompliance," that met the NRC's regulatory requirements. The NRC inspection team conducted the inspection at the Dresser Masoneilan facility in Avon, MA, from March 4–8, 2013.

This technically focused inspection evaluated the implementation of Dresser Masoneilan's QA program activities associated with the design, fabrication, assembly, and testing of replacement valves and associated parts for operating nuclear power plants.

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

- assembly of a 2-inch control valve
- nondestructive examination (liquid penetrant test) of the hard-faced portion of a pilot seat and guide of a 6-inch Class 2 pilot-operated valve
- dimensional inspection of the pilot seat and guide of a 6-inch Class 2 pilot-operated valve
- final quality control inspection of a valve
- hydrostatic and seat leakage testing of a 2-inch control valve
- calibration of a dial caliper
- daily Material Review Board meetings for the disposition of nonconforming items

In addition to observing these activities, the NRC inspection team verified that personnel properly identified, marked, calibrated and used within its calibrated range the measuring and test equipment. Also, the NRC inspection team walked down Dresser Masoneilan's assembly floor and verified that nonconforming components were properly identified, marked, and segregated, when practical, to ensure that they were not reintroduced into the manufacturing processes.

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

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

During the course of this inspection, the NRC inspection team implemented Inspection Procedure (IP) 43002, "Routine Inspections of Nuclear Vendors," dated April 25, 2011, IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated April 25, 2011, and IP 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance," dated February 13, 2012.

The NRC inspection team determined that, in general, that the activities performed by Dresser Masoneilan in support of manufacturing safety-related valves and associated parts occurred in accordance with the Commission's rules and regulations and the technical and quality requirements passed to Dresser Masoneilan from NRC licensees or its contractors. However, the NRC inspection resulted in the issuance of one Notice of Violation and eight Notices of Nonconformance based on this limited scope inspection. These examples indicate that Dresser Masoneilan has not adequately established and implemented controls to consistently implement its quality program.

#### 10 CFR Part 21 Program

The NRC inspection team issued Violation 99901420/2013-201-01 in association with Dresser Masoneilan's failure to implement the regulatory requirements of 10 CFR Part 21. Violation 99901420/2013-201-01 cites Dresser Masoneilan for failure to adopt appropriate procedures to evaluate deviations and failures to comply associated with substantial safety hazards. Specifically, Dresser Masoneilan's procedure Nuclear Quality System Procedure (NQSP)-2.1, Revision D, "Reporting Requirements Concerning Defects and Noncompliance 10 CFR Part 21," dated October 25, 2012, did not contain appropriate guidance on how to evaluate deviations in accordance with 10 CFR Part 21 requirements and Quality Management Systems Work Instruction-08 (QMS-WI-08), "Customer Complaints Process," dated March 12, 2009 procedure did not address evaluating and reporting of defects reported through the customer complaint process.

#### Design Control and Commercial-Grade Dedication

The NRC inspection team issued Nonconformance 99901420/2013-201-02 in association with Dresser Masoneilan's failure to implement the regulatory requirements of Criterion III, "Design Control," of Appendix B to 10 CFR 50. Nonconformance 99901420/2013-201-02 cites Dresser Masoneilan for failing to establish adequate design control measures for a design change commensurate with those applied to the original design and for not having approval by the organization that performed the original design. Specifically, Dresser Masoneilan (1) failed to perform design review and verification for the technical changes to nuclear design revision packages 0010317, 0009985, 0012208, 0013036, and 0012669, and (2) failed to perform engineering evaluation to provide justification for the changes of the material for lock nuts of an actuator for Indian Point purchase order (PO)632877.

The NRC inspection team also issued Nonconformance 99901420/2013-201-03 in association with Dresser Masoneilan's failure to implement the regulatory requirements of Criterion III, "Design Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR 50. Nonconformance 99901420/2013-201-03 cites Dresser Masoneilan for failing to adequately review materials and parts essential to the safety-related functions of structures, systems, and components for suitability of application and to ensure that purchased material conformed to the procurement documents. Specifically, Dresser Masoneilan used inadequate methods for the verification of material, which was a critical characteristic. Dresser Masoneilan performed a magnetism check, which is inadequate to identify material, as opposed to the verification methods allowed by NQSP 4.2, when accepting purchased material. Additionally, Dresser Masoneilan did not evaluate the suitability and complexity of items prior to verifying physical and dimensional critical characteristics of commercial-grade items by sampling and did not evaluate the suppliers' controls over traceability to the parts to batches, lots, or heat number.

The NRC inspection team also identified an example of Nonconformance 99901420/2013-201-04 in association with Dresser Masoneilan's failure to implement the regulatory requirements of Criterion V, "Instructions, Procedures, and Drawings," of Appendix B to 10 CFR 50. Nonconformance 99901420/2013-201-04 cites Dresser Masoneilan for failing to prescribe activities that affect quality in appropriate procedures and to accomplish activities that affect quality in accordance with instructions and procedures. Specifically, Dresser Masoneilan technical evaluations for the dedication of commercial-grade items for Enertech POs 632877, 632517, 632370, 436251, 682615, 632225 did not discuss items' safety function and failure modes as required by NSQP 4.1, "Procedure for Preparation of Critical Component Evaluation Sheets," Revision A, dated May 22, 2007. Dresser Masoneilan excluded material as a critical characteristic for multiple parts as required by NSQP 4.2, "Procedure for Dedication of Parts and Subassemblies," Revision A, dated May 22, 2007.

#### Oversight of Contracted Activities

The NRC inspection team issued Nonconformance 99901420/2013-201-05 in association with Dresser Masoneilan's failure to implement the regulatory requirements of Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR 50. Nonconformance 99901420/2013-201-05 cites Dresser Masoneilan for failing to verify two suppliers' compliance with Dresser Masoneilan's and the suppliers' quality program by objective evidence. Specifically, Dresser Masoneilan did not adequately assess the effectiveness of the control of quality by its suppliers, Iron Mountain and Deloro Stellite.

The NRC inspection team also identified two examples of Nonconformance 99901420/2013-201-04 in association with Dresser Masoneilan's failure to implement the regulatory requirements of Criterion V, "Instructions, Procedures, or Drawings," of Appendix B to 10 CFR 50. Nonconformance 99901420/2013-201-04 cites Dresser Masoneilan for failing to prescribe activities that affect quality in appropriate procedures and to accomplish activities that affect quality in accordance with instructions and procedures. Specifically, Dresser Masoneilan failed to develop documented instructions or procedures that prescribe the process to evaluate and accept third-party audits to place a supplier on its approved suppliers list. Dresser Masoneilan also failed to generate corrective actions in accordance with Dresser Masoneilan Quality Assurance Manual Section (QAMNUC) 14.0 for seven open findings identified in a third party audit report.

#### Control of Special Processes

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

#### Inspection

The NRC inspection team issued Nonconformance 99901420/2013-201-06 in association with Dresser Masoneilan's failure to implement the regulatory requirements of Criterion X, "Inspection," of Appendix B to 10 CFR 50. Nonconformance 99901420/2013-201-06 cites Dresser Masoneilan for failing to establish and execute an adequate program for inspection of

activities affecting quality. Dresser Masoneilan inspection procedures did not provide adequate guidance for which dimensions are to be inspected and recorded.

The NRC inspection team also identified an example of Nonconformance 99901420/2013-201-04 in association with Dresser Masoneilan's failure to implement the regulatory requirements of Criterion V, "Instructions, Procedures, or Drawings," of Appendix B to 10 CFR 50.

Nonconformance 99901420/2013-201-04 cites Dresser Masoneilan for failing to prescribe appropriate foreign material exclusion controls or inspections as required by purchase orders from customers. Dresser Masoneilan procedures did not adequately describe how to prevent, identify, and remove foreign material from inaccessible areas.

### Test Control

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

### Control of Measuring and Test Equipment

The NRC inspection team issued Nonconformance 99901420/2013-201-07 in association with Dresser Masoneilan's failure to implement the regulatory requirements of Criterion XII, "Control of Measuring and Test Equipment," and Criterion XV, "Nonconforming Materials, Parts, or Components," of Appendix B to 10 CFR 50. Nonconformance 99901420/2013-201-07 cites Dresser Masoneilan for failing to control measuring and test equipment found to be nonconforming. Specifically, Dresser Masoneilan did not generate NCRs for two transducers that were found out of calibration, and therefore did not document an evaluation of the validity of previous measurement, inspection, or test results, and the acceptability of items previously inspected.

### Nonconforming Material, Parts, or Components

The NRC inspection team issued Nonconformance 99901420/2013-201-08 in association with Dresser Masoneilan's failure to implement the regulatory requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," of Appendix B to 10 CFR 50.

Nonconformance 99901420/2013-201-08 cites Dresser Masoneilan for failing to review and accept nonconforming NCRs 7224, 7394, 7440, 7510, and 7517, which were dispositioned as "repair" in accordance with documented procedures. Specifically, Dresser Masoneilan did not include technical justifications from Nuclear Product Engineering for the five items as required by NQSP 13.0. Dresser Masoneilan only included repair instructions on the NCRs but did not document consideration of impacts to the design that would require a design change.

The NRC inspection team also identified an example of Nonconformance 99901420/2013-201-04 in association with Dresser Masoneilan's failure to implement the regulatory requirements of Criterion V, "Instructions, Procedures, or Drawings," of Appendix B to 10 CFR 50.

Nonconformance 99901420/2013-201-04 cites Dresser Masoneilan for failing to obtain Manufacturing Engineering approval of Material Review Board decisions for NCRs, such as rework NCRs 7224, 7394, 7440, 7510, and 7517, as required by procedure NQSP 13.0, "Nonconformance Identification & Disposition Procedure," Revision D, dated October 4, 2011.



NQSP 13.0 requires that Manufacturing Engineering participate as a permanent member for the Material Review Board.

#### Corrective Action

The NRC inspection team issued Nonconformance 99901420/2013-201-09 in association with Dresser Masoneilan's failure to implement the regulatory requirements of Criterion XVI, "Corrective Action," of Appendix B to 10 CFR 50. Nonconformance 99901420/2013-201-09 cites Dresser Masoneilan for failing to promptly identify and correct conditions adverse to quality. Specifically, Dresser Masoneilan failed to promptly correct Nuclear Industry Assessment Committee and internal audit findings documented in Corrective Action Reports (CAR) 11--7. Dresser Masoneilan also closed CAR 12-07 prior to verifying that corrective actions had been implemented.

#### Internal Audits

The NRC inspection team concluded that Dresser Masoneilan's internal audit program is consistent with the regulatory requirements of Criterion XVIII, "Audits," of Appendix B to 10 CFR 50. Based on the limited sample of documents reviewed, the NRC inspection team concluded that Dresser Masoneilan adequately implemented its internal audit program. No findings of significance were identified.

## REPORT DETAILS

The U.S. Nuclear Regulatory Commission (NRC) inspection team observed various activities related to Dresser Masoneilan's quality assurance activities associated with the design, fabrication, assembly, and testing of valves and associated parts for operating nuclear power plants. Some of the specific activities observed by the NRC inspection team include:

- assembly of a 2-inch control valve
- nondestructive examination (liquid penetrant test) of the hard-faced portion of a pilot seat and guide of a 6-inch Class 2 pilot-operated valve
- dimensional inspection of the pilot seat and guide of a 6-inch Class 2 pilot-operated valve
- final quality control inspection of a valve
- hydrostatic and seat leakage testing of a 2-inch control valve
- calibration of a dial caliper
- daily Material Review Board meetings for the disposition of nonconforming items

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

### 1. 10 CFR Part 21 Program

#### a. Inspection Scope

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

#### b. Observations and Findings

##### b.1 10 CFR Part 21 Policies and Procedures

The NRC inspection team reviewed Dresser Masoneilan procedure Nuclear Quality System Procedure 2.1 (NQSP 2.1), "Reporting Requirements Concerning Defects and Noncompliance 10 CFR PART 21," Revision D, dated October 24, 2012, to verify that it provides the guidance and organizational structure necessary to implement the requirements of 10 CFR Part 21 and other regulations associated with timely identification, evaluation, and reporting of defects and failures to comply that could create a substantial safety hazard such as Criterion XVI, "Corrective Action," of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and

Fuel Reprocessing Plants,” to 10 CFR 50, “Domestic Licensing of Production and Utilization Facilities.” The NRC inspection team verified that the procedures define applicable terms consistent with the terminology defined in 10 CFR 21.3, “Definitions,” and provide the necessary guidance to evaluate deviations and failures to comply in an effective and timely manner in accordance with 10 CFR 21.21(a)(1), (a)(3), (b), and (d), as well as provide appropriate guidance for interim reports in accordance with 10 CFR 21.21(a)(2).

The NRC inspection team reviewed NQSP 2.1 to verify the procedure provides the guidance to implement the requirements of 10 CFR Part 21. NQSP-2.1 establishes the process for evaluating deviations, defects, or failures to comply and reporting to customers and the Nuclear Regulatory Commission (NRC) as required. This procedure also defines the requirements for notification, communication, records, and postings as per 10 CFR 21. The NRC inspection team noted that NQSP-2.1, Section 4.3, states that, “Deviations or failures to comply are evaluated by the Nuclear Quality manager and the Nuclear Engineer Manger to determine if they result in a defect that could create a substantial safety hazard.” The NRC inspection team discussed the documented evaluation criteria used for Dresser Masoneilan’s Part 21 evaluation process. The inspection team noted that the current Nuclear Quality Manager and Nuclear Engineering Manager make up Dresser Masoneilan’s Nuclear Safety Committee (NSC) and are responsible for identification of potential deviations or failure to comply and the performance and documentation of such evaluations in accordance with NQSP-2.1. In addition, NQSP-2.1 states that the Dresser Masoneilan’s QA Manager (or designee) shall act as the NSC Chairman and is responsible for the overall evaluation and defect and failure to comply for responsibilities to the NRC. The NRC inspection team noted that evaluations for the past three years were documented on form QAF 40, Revision 2, “10 CFR Part 21 Evaluation.” The NRC inspection team noted procedure NQSP-2.1 did not mention or include this form in the evaluation process. The NRC inspection team discussed the current Part 21 evaluation process being implemented by NQSP-2.1 evaluation process with the QA manager, who stated that there are not documented procedures in place to explain the process used by the NSC to perform the Part 21 evaluations. The NRC inspection team confirmed that there was no guidance to direct the QA Manager’s designee through a Part 21 evaluation and completion of Form QAF 40. The NRC inspection team determined that Dresser Masoneilan failed to adopt appropriate procedures to ensure evaluations of deviations and failures to comply associated with substantial safety hazards. Specifically, Dresser Masoneilan’s procedure NQSP-2.1 did provide guidance for who should evaluate deviations in accordance with 10 CFR Part 21 requirements, but did not contain guidance on how to evaluate deviations in accordance with 10 CFR Part 21 requirements. The NRC inspection team identified this issue as an example of Violation 99901420/2013-201-01. Dresser Masoneilan generated CAR 13-08 to address this issue.

The NRC inspection team reviewed QAMNUC 14.0, “Corrective Action,” Revision A, dated July 14, 2010, and NQSP-13.0, “Nonconformance Identification & Disposition Procedure,” Revision D, dated October 4, 2011, and determined that they adequately link the corrective action and nonconformance programs to the Part 21 program for evaluation of deviations and failures to comply. The NRC inspection team reviewed Dresser Masoneilan procedure Quality Management Systems Work Instruction (QMS-WI)-08, “Customer Complaints Process,” dated March 12, 2009. QMS-WI 08 describes Dresser Masoneilan’s process to insure customer complaints are reviewed, analyzed and are responded to. The NRC inspection team noted customer services, project manager, or senior staff members complete the top section of the online complaint form and then send it the Quality Assurance department. The Quality Assurance department completes the form and then posts the form. The QA manager notifies the project manager or manager of customer complaints of the issue. The responsible individuals then review the posted form and then works the issues until the resolution or

corrective action is completed. Dresser Masoneilan's then notifies the customer of resolution or the completed corrective action. The NRC inspection team noted that the QMS-WI-08 procedure did not contain guidance or instructions for customer complaints to determine Part 21 applicability. The NRC inspection team and Dresser Masoneilan discussed potential for customer complaints having Part 21 applicability (i.e., deviations). Dresser Masoneilan stated that there were other processes used for customer feedback of Part 21 applicability nuclear grade products, but agreed that nothing prevented deviations in nuclear grade products from being reported using the QMS-WI-08 process. The NRC inspection team determined that Part 21 procedures were inadequate because they did not address evaluating deviations that are reported through customer complaint process in QMS-WI-08. This issue was identified as an example of Violation 99901420-2013-201-01.

#### b.2 10 CFR Part 21 Evaluations

The NRC inspection team reviewed applicable nonconformance and corrective action reports to verify that Dresser Masoneilan adequately screened issues for evaluation within the 10 CFR Part 21 program. The NRC inspection team reviewed a sample of 10 CFR Part 21 evaluations and verified that Dresser Masoneilan adequately completed the evaluations within the required timeframes and that there was sufficient technical justification to support the conclusion of the evaluation. The NRC inspection team reviewed past correspondence to verify that Dresser Masoneilan made appropriate and timely notifications to inform its management, customers, and the NRC.

#### b.3 Purchase Documents

The NRC inspection team reviewed the Dresser Masoneilan procurement procedures as well as a sample of POs and verified that the procurement process and each procurement document specified, when applicable, that the provisions for reporting of defects and noncompliances were required in accordance with 10 CFR 21.31, "Procurement Documents."

#### b.4 10 CFR Part 21 Postings

The NRC inspection team verified the content of Dresser Masoneilan's 10 CFR Part 21 postings, as well as the location of each posting. The NRC inspection team verified that the information required by 10 CFR 21.6 was included on the postings distributed throughout the Ipswich, MA, complex in conspicuous locations consistent with the requirements of 10 CFR 21.6(2).

#### c. Conclusion

The NRC inspection team issued Violation 99901420/2013-201-01 for Dresser Masoneilan's failure to adopt appropriate procedures to evaluate deviations and failures to comply associated with substantial safety hazards. Specifically, Dresser Masoneilan's procedure Nuclear Quality System Procedure (NQSP)-2.1, Revision D, "Reporting Requirements Concerning Defects and Noncompliance 10 CFR Part 21," dated October 25, 2012, did not contain appropriate guidance on how to evaluate deviations in accordance with 10 CFR Part 21 requirements and Quality Management Systems Work Instruction-08 (QMS-WI-08), "Customer Complaints Process," dated March 12, 2009 procedure did not address evaluating and reporting of defects reported through the customer complaint process.

## 2. Design Control and Commercial Grade Dedication

### a. Inspection Scope

The NRC inspection team reviewed Dresser Masoneilan's policies and implementing procedures that govern the design control program to verify compliance with the regulatory requirements of Criterion III, "Design Control," of Appendix B to 10 CFR 50. It also considered the applicable requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC) Section III, "Rules for Construction of Nuclear Facility Components." The NRC inspection team reviewed several POs, design reports, and design changes to verify effective implementation of Dresser Masoneilan's design control process. In addition, the NRC inspection team reviewed Dresser Masoneilan's program for the dedication of commercial-grade items (CGI) for use in safety-related applications to verify compliance with the applicable regulatory requirements. The NRC inspection team reviewed several dedication packages, including dedication plans, the criteria for the selection of critical characteristics, the basis for sampling plan selection, and the selection of verification methods to verify effective implementation of Dresser Masoneilan's CGI dedication process. Furthermore, the NRC inspection team discussed the design control program with Dresser Masoneilan's management and technical staff. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

### b. Observations and Findings

#### b.1 Design Control

The NRC inspection team reviewed two POs for replacement ASME BPVC Section III Class 2 valves for Crystal River Unit 3. The NRC inspection team reviewed the PO amendments, design specification, and work order packages to verify that the design information, design inputs, and subsequent changes the customer were correctly translated to the production documents. The NRC inspection team confirmed that the procurement specification was properly translated into Dresser Masoneilan's bills of materials, drawings, specifications, procedures, instructions and that work order packages supported this information. The NRC inspection team reviewed material specifications, applicable ASME BPVC construction requirements, qualification reports, test requirements, and test reports. All documents reviewed contained the appropriate technical details and met the procurement requirements.

The NRC inspection team reviewed five nuclear design revisions (NDR) to verify that Dresser Masoneilan's implementation of its design control process, including the design changes, design inputs, technical evaluation of design changes, design verification, and identified the applicable procedures, analyses, reports, drawings, and components affected by the design changes. It also verified that the revised design documentation continued to meet Criterion III, "Design Control," and Quality Assurance Manual (QAM) NUC 4.0, "Design Control." The NRC inspection team reviewed the following NDR packages:

- NDR 0010317 changed gasket surface finish on the body and bonnet and changed lubricants for a Class 900 control valve.
- NDRs 0009985 and 0012208 changed parts for the remote mounting kits for air set solenoid valves and transducers.
- NDR 0013036 changed machining on a Class 600 bonnet.

- NDR 0012669 changed surface finish, part dimensions, and torque values for a Class 900 bonnet.

The NRC inspection team found that there was no objective evidence of technical justification or design verification for the above design changes. QAMNUC 4.0, "Design Control," Subsection 2.7 requires that where "changes to previously verified designs have been made, design verification shall be required for the changes, including evaluation of the effects of those changes on the overall design and on any design analyses upon which the design is based that are affected by the change to previously verified design."

In addition to the above NDRs, PO 632877 for lock nuts used in a valve for Job J30638-1, dated May 25, 2012, sent to Indian Point Unit had original design requirements for the material for the parts to be made of ASTM A307 carbon steel. Dresser Masoneilan fulfilled the order with ASTM A194 carbon steel parts. ASTM A194 has approximately 10 percent higher carbon content than ASTM A307, which should have been evaluated to determine if there was any impact on the maximum temperature requirements of about 500 degrees Fahrenheit, according to design drawings. Dresser Masoneilan could not provide objective evidence justify that the new material ASTM A194 is equal or better than ASTM A307 and that the valve would be able to perform its safety function.

The NRC inspection team determined that the above examples were contrary to Criterion III, "Design Control", of Appendix B to 10 CFR 50 in that Dresser Masoneilan failed to establish adequate design control measures for design changes commensurate with those applied to the original design. The NRC inspection team identified these issues as Nonconformance 99901420/2013-201-02. Dresser Masoneilan initiated CAR 13-17 to address this issue.

#### b.2 Technical Evaluations and Identification of Critical Characteristics

The NRC inspection team reviewed a sample of completed commercial-grade dedication packages, including dedication plans, the criteria for the selection of critical characteristics, the basis for sampling plan selection, and the selection of verification methods to verify effective implementation of its CGI dedication process, in accordance with the requirements of 10 CFR Part 21 and Criteria III, "Design Control," and Criteria VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR 50. The NRC inspection team reviewed the packages listed below:

- Enertech PO 632877 for Indian Point Unit 2 lock nuts (P/N 971514-002-110J) used in valve reference in Job J30638-1
- Enertech PO 632517 for Byron Exelon Generation for model 77N-4 air filter regulators (P/N 802077401-040-J00)
- Enertech PO 632370 for North Anna for washers (P/N 010287001-105-J00) used in valve referenced in DWG A-8457
- Enertech PO 436251 for Calvert Cliffs for Actuator Stem (P/N 011875039-117-J000) used in valve referenced in DWG-011875005D

- Energetech PO 682615 for Cook Nuclear Power Plant for packing gland and packing box (P/Ns 010209011-410-J000 and 010211002-457-J000) used in valve referenced in DWG 010211-003A
- Energetech PO 632225 for Turkey Point for Model 8005N ElectroPneumatic Transducer (P/N 080051209-999-0000)

NQSP-4.1, "Procedure for Preparation of Critical Component Evaluation Sheets," defines the requirements for conducting technical evaluations and documenting critical characteristics in a critical component evaluation sheet (CCES) for each of the parts that make a safety-related component. NQSP-4.1 further describes that completed CCES contain a part number, part name, drawing number, function, evaluation, critical characteristics, acceptance methods, and signatures. The evaluation is required to contain various failure modes of the part to include, for example, a generic classifications that the safety function of the equipment if it is to fail open or close (depending on the type of actuator) on loss of air supply. If possible, it should also describe the effects of the failure mode for various safety functions (e.g., operability during and after a seismic event), in order to assist in determining critical characteristics.

NQSP-4.2, "Procedure for Dedication of Parts and Subassemblies," defines the requirements for ensuring that commercial-grade parts can be dedicated for installation in a safety-related component. This procedure further describes in the completion of the CCES that "the critical characteristics to be verified include as a minimum part number, dimensions and material," and states that material "of construction can be verified and documented by a number of methods depending on the part, Certified Material Test Reports (CMTR), manufacturer's markings and material analysis test results are acceptable for confirming that the material of construction is as required by the part number material designation."

The NRC inspection team reviewed a sample of completed CCESs for the POs above, and determined that the CCES did not provide complete evaluations in accordance with NQSP-4.1. Of the samples reviewed, most of the CCESs used over the past 3 years did not discuss the parts' safety function and failure modes, as required by procedure. The NRC team also observed that there were a number of examples of CCES that did not include material as a critical characteristic, contrary to NQSP-4.2. Specifically, from the commercial-grade dedication packages reviewed, CCES for parts and parts in components that were metallic in nature did not specify material to be a critical characteristic. The NRC inspection team determined that the failure follow procedures NQSP 4.1 and NQSP 4.2 was contrary to the requirements of Criterion V, "Instructions, Procedures, and Drawings," of Appendix B to 10 CFR 50. The NRC inspection team identified this as an example of Nonconformance 99901420/2013-201-04. Dresser Masoneilan generated CAR 13-09 to address this issue.

### b.3 Acceptance of Commercial Grade Items

As a part of the commercial-grade dedication package for POs, the CCES is attached for each part, and a Critical Characteristics Records Sheet (CCRS) documents the actual verification of the critical characteristics. The NRC inspection team noted that Dresser Masoneilan only performs some inspections and tests on a sample of the commercial parts procured. Procedure QSP 20.0, "Sampling Inspection Procedures," Revision 0, outlines Dresser Masoneilan's plan for sampling. This procedure follows MIL STD-105E, "Sampling Procedures and Tables for Inspection by Attributes," a nationally recognized industry standard for sampling. QSP-20.0 requires Dresser Masoneilan to verify supplier performance through one of the following methods to sample: audit of the supplier, independent laboratory verification, quality system certification, or history

of supplier's performance. The NRC inspection team determined that Dresser Masoneilan had not adequately verified its commercial suppliers' ability to provide consistent lots, batches, or heats. The NRC inspection team also noted that QSP-20.0 did not require an item-specific basis for providing assurance of the items' suitability for sampling considering complexity of the item and homogeneity of batches, lots, and heats. For the sample of commercial-grade dedication packages reviewed, Dresser Masoneilan did not performed an engineering evaluation of the items' suitability for sampling, nor the lot, batch, or heat number controls for safety-related parts such as bolts, screws, washers, and nuts. For example, for a set of lock nuts for PO 632877, there were eight lock nuts ordered, but Dresser Masoneilan only sampled three. The sampling verified the critical characteristic of the three lock nuts, but Dresser Masoneilan failed to establish assurance that the remaining lock nuts were from the same controlled lot or heat and, therefore, would reasonably be able to perform their safety function. The NRC inspection team identified this issue as an example of Nonconformance 99901420/2013-201-03.

According to NQSP-4.2, "the critical characteristics to be verified include as a minimum part number, dimensions and material." NQSP-4.2 further states that material "of construction can be verified and documented by a number of methods depending on the part, CMTR, manufacturer's markings and material analysis test results are acceptable for confirming that the material of construction is as required by the part number material designation." The NRC inspection team reviewed approximately twenty commercial-grade dedication packages that identified material as a critical characteristic but failed to adequately verify the material specifications, as required by NQSP-4.2. In around ten cases, Dresser Masoneilan tested material properties of metallic parts and corrosive characteristics by means of a magnetism check. The NRC inspection team noted where precise material specifications, such as a certain grade or type of metal, were required for various parts in the original design specifications. The NRC inspection team interviewed Dresser Masoneilan's engineering staff, and both determined that the magnet test did not meet NQSP-4.2 and was not adequate to verify the critical characteristics of the material to provide reasonable assurance that the purchased material would be able to perform its safety function. One example of this was for PO 632370 for washers. The design specification of the washers was for material to be made of ASTM A36 carbon steel. The CCRS documented that the critical characteristic was satisfied by a magnet to determine if the material was austenitic (a non-magnetic allotrope of iron). Dresser Masoneilan performed a similar test for PO 682615 for a packing gland and packing box to verify that metal bolts were not corrosive. The NRC inspection team did identify an example in which material properties of a bar stock for an actuator stem for PO 436251 was verified by a CMTR as required for NQSP-4.2. However, a commercial supplier provided the CMTR, and Dresser Masoneilan had not conducted a commercial survey of that vendor to verify its controls over material or that the CMTR generation was adequate to control the critical characteristic. The NRC inspection team identified this issue as an example of Nonconformance 99901420/2013-201-03.

### c. Conclusion

The NRC inspection team issued Nonconformance 99901420/2013-201-02 for Dresser Masoneilan's failure to establish adequate design control measures for a design change commensurate with those applied to the original design and for not having approval by the organization that performed the original design. Specifically, Dresser Masoneilan (1) failed to perform design review and verification for the technical changes to nuclear design revision packages, (2) failed to perform engineering evaluation to provide justification for the changes of the material for lock nuts of an actuator for Indian Point PO 632877. The NRC inspection team also issued Nonconformance 99901420/2013-201-03 for Dresser Masoneilan's failure to



adequately review materials and parts essential to the safety-related functions of structures, systems, and components for suitability of application and to ensure that purchased material conformed to the procurement documents. Specifically, Dresser Masoneilan used inadequate methods for the verification of material, which was a critical characteristic. Dresser Masoneilan performed a magnetism check, which is inadequate to identify material, as opposed to the verification methods allowed by NQSP 4.2, when accepting purchased material. Additionally, Dresser Masoneilan did not evaluate the suitability and complexity of items prior to verifying physical and dimensional critical characteristics of commercial-grade items by sampling and did not evaluate the suppliers' controls over traceability to the parts to batches, lots, or heat number. In addition, the NRC inspection team identified an example of Nonconformance 99901420/2013-201-04 for Dresser Masoneilan's failure to prescribe activities that affect quality in appropriate procedures and to accomplish activities that affect quality in accordance with instructions and procedures. Specifically, Dresser Masoneilan technical evaluations for the dedication of commercial-grade items for Enertech POs 632877, 632517, 632370, 436251, 682615, 632225 did not discuss items' safety function and failure modes as required by NSQP 4.1. Dresser Masoneilan excluded material as a critical characteristic for multiple parts as required by NSQP 4.2.

### 3. Oversight of Contracted Activities

#### a. Inspection Scope

The NRC inspection team reviewed Dresser Masoneilan's policies and implementing procedures that govern the implementation of Dresser Masoneilan's oversight of contracted activities to verify compliance with the requirements of Criterion IV, "Procurement Document Control," Criterion VII, "Control of Purchased Material, Equipment, and Services," and Criterion XVIII, "Audits," of Appendix B to 10 CFR 50. The NRC inspection team reviewed a sample of POs, external audits (including those conducted by third-parties), and receipt inspection records to evaluate compliance with Dresser Masoneilan's program and technical requirements. In addition, the NRC inspection team reviewed the disposition of corrective actions to resolve deficiencies that audit findings identified for adequacy and timeliness. Furthermore, the NRC inspection team discussed the oversight of contracted activities with Dresser Masoneilan's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

#### b. Observations and Findings

##### b.1 Procurement Document Control

The NRC inspection team reviewed a sample of five POs that Dresser Masoneilan issued to determine if the requirements identified in the procedures were imposed on the applicable purchasing documents. The NRC inspection team found that the sample of POs adequately documented the procurement requirements as established by Dresser Masoneilan's governing policies and implementing procedures, which include (1) imposition of appropriate quality, technical, and regulatory requirements, and (2) identification of the applicable codes and standards. The NRC inspection team also found that these POs adequately defined contract deliverables, instructions for the disposition of nonconformances, access rights, and provisions for the extension of contractual requirements to subcontractors. The NRC inspection team verified that when changes to approved procurement documents were necessary, Dresser Masoneilan applied the same level of review and approval to these documents as it did to the original documents. In addition, the NRC inspection team confirmed that all the safety-related

POs reviewed included clauses that invoke the provisions of 10 CFR Part 21 and that require the vendor or supplier to conduct safety-related work under its approved QA program.

### b.2 Maintenance of the Approved Suppliers List

The NRC inspection team reviewed the approved suppliers list (ASL) to ensure that qualified and approved suppliers were listed; that the lists were maintained, distributed, and periodically updated by authorized personnel; and that any revisions to the lists were implemented following the applicable procedures. The NRC inspection team confirmed that the suppliers performing work for Dresser Masoneilan were appropriately listed on the ASL. In addition, the NRC inspection team confirmed that the scope of supply was documented and consistent for the activities contracted. However, the NRC inspection team identified one example of a supplier that was inappropriately placed on the ASL based on a third party audit.

Dresser Masoneilan is a member of NIAC, which consists of companies that supply goods and services to the nuclear industry based on a quality program that meets the requirements in Appendix B to 10 CFR 50 and that accept 10 CFR Part 21. NIAC develops and maintains procedures and processes necessary to plan, guide, and share supplier evaluations (audits) with its members. Dresser Masoneilan uses NIAC audits to support the qualification and maintenance of suppliers. Dresser Masoneilan NQSP-6.12, "Control of Purchased Items and Services," Section 5.H, "NIAC Auditors," states that "Masoneilan is a member of the Nuclear Industry Assessment Committee (NIAC) and uses third party (NIAC) audits to supplement Masoneilan auditing of suppliers. NIAC Audits and NIAC Auditors are reviewed and approved in accordance with Dresser Masoneilan procedures." The QA Manager reviews NIAC audits and approves the audit report to include the vendor on the ASL. The NRC inspection team discussed the current process of evaluating third party audits with the QA Manager and noted that the current process Dresser Masoneilan implements by to review and approve third party audits is not documented in any documented instructions or procedures. The NRC inspection team identified this issue as Nonconformance 99901420/2013-201-04. Dresser Masoneilan generated CAR 13-10 to address this issue.

The inspection team reviewed the Dresser Masoneilan evaluation of NIAC audit performed on Deloro Stellite, a hard-facing overlay alloy supplier. The NRC inspection team reviewed the checklist used by NIAC and the quality assurance manual for Deloro Stellite and determined that the quality assurance manual for Deloro Stellite did not address all of the appropriate criteria of 10 CFR 50, Appendix B. The Deloro Stellite quality assurance manual was developed to comply with ISO 9001:2008, "Quality management systems." Additionally, the NIAC audit had significant open findings at the time of acceptance by Dresser Masoneilan. The NRC inspection team determined that Dresser Masoneilan's failure to adequately assess the effectiveness of the control of quality by its supplier was contrary to the requirements of Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR 50. The NRC inspection team identified this issue as an example of Nonconformance 99901420/2013-201-05.

### b.3 External Audits

The NRC inspection team reviewed a sample of external audits to verify the implementation of Dresser Masoneilan's external audit program. With the exception of the example below, the NRC inspection team verified that Dresser Masoneilan had prepared and approved plans that identify the audit scope, focus, and applicable checklist criteria before the initiation of the audit activity. The NRC inspection team also confirmed that the audit reports contained a review of

the relevant QA criteria in Appendix B to 10 CFR 50 for the activities that individual suppliers performed and documentation of pertinent supplier guidance associated with each criterion. For audits that resulted in findings, the NRC inspection team verified that the supplier had established a plan for corrective action and that Dresser Masoneilan had reviewed and approved the corrective action and verified its satisfactory completion and proper documentation.

The NRC inspection team noted that the audit report for a supplier providing offsite records management, Iron Mountain, was inadequate. The audit report did not provide objective evidence of the supplier's ability to furnish quality in accordance with an approved quality assurance program and implementing procedures that meet the requirements of 10 CFR Part 50, Appendix B. The audit only verified that various requested documents could be retrieved and produced upon request. The NRC inspection team identified this issue as an example of Nonconformance 99901420/2013-201-05. Dresser Masoneilan initiated CAR 13-11 to address this issue.

The NRC inspection team reviewed a sample of the training and qualification records of Dresser Masoneilan's lead auditors and auditors and confirmed that auditing personnel had completed all required training and had maintained qualification and certification in accordance with Dresser Masoneilan's policies and procedures. The NRC inspection team also verified that audit teams that Dresser Masoneilan selected were sufficiently qualified to evaluate areas within the scope of the audit.

#### c. Conclusion

The NRC inspection team issued Nonconformance 99901420/2013-201-05 for Dresser Masoneilan's failure to verify two suppliers' compliance with the quality program by objective evidence. Specifically, Dresser Masoneilan did not adequately assess the effectiveness of the control of quality by its suppliers, Iron Mountain and Deloro Stellite. The NRC inspection team also identified two examples of Nonconformance 99901420/2013-201-04 for Dresser Masoneilan's failure to prescribe activities that affect quality in appropriate procedures and to accomplish activities that affect quality in accordance with instructions and procedures. Specifically, Dresser Masoneilan failed to develop documented instructions or procedures that prescribe the process to evaluate and accept third-party audits to place a supplier on its approved suppliers list. Dresser Masoneilan also failed to generate corrective actions in accordance with QAMNUC Section 14.0 for seven open findings identified in a third party audit report.

#### 4. Control of Special Processes

##### a. Inspection Scope

The NRC inspection team reviewed Dresser Masoneilan's policies and implementing procedures that govern the control of special processes to verify compliance with the regulatory requirements of Criterion IX, "Control of Special Processes," of Appendix B to 10 CFR 50, Section III, "Rules for Construction of Nuclear Facility Components," Section V, "Nondestructive Examination," and Section IX, "Welding and Brazing Qualification," of the ASME Code edition and addenda cited in the purchase orders. The NRC inspection team also observed nondestructive testing and reviewed a sample of welding and nondestructive examination records. In addition, the NRC inspection team discussed the control of special processes

program with Dresser Masoneilan's management and technical staff. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

b. Observations and Findings

b.1 Welding Process

At the time of the inspection, Dresser Masoneilan did not perform any welding activities. Therefore, the NRC inspection team reviewed a sample of welding records associated with welding performed during the fabrication of replacement parts for Millstone and Salem in POs 693298 and 709816, respectively. Specifically, the NRC inspection team verified that Welding Procedure Specification (WPS) No. ES-267, "GTAW Stellite 6 Hardfacing of P8 SS and P43 Hastelloy C276," Revision AB, dated October 3, 2010, and its accompanying procedure qualification record (PQR) ASME IX QW-483, PQR-55, "GTAW Hardfacing Using Stellite #6," Revision C, dated October 7, 2010, were prepared in accordance with the requirements in Section IX of the ASME BPVC and the applicable Dresser Masoneilan policies and procedure NQSP 9.3, "Welding Procedures and Procedures Qualifications," Revision A, dated May 22, 2007.

The NRC inspection team determined that qualified welders perform welding on ASME BPVC materials and fabrication of ASME BPVC items in accordance with approved WPSs. The NRC inspection team reviewed a sample of training and qualification records for welding personnel and confirmed that they had met all the required training and had maintained qualification and certification in accordance with Dresser Masoneilan's policies and procedures and that the welding personnel were qualified in accordance with the applicable requirements in Sections III and IX of the ASME BPVC.

The NRC inspection team walked down the welding material storage and welding material issue areas and verified that welding material was adequately controlled and that ovens were maintained to control moisture, as applicable, in accordance with Section IX of the ASME BPVC. The NRC inspection team also confirmed that, for a sample of certified material test reports, the reports complied with the chemical composition and mechanical properties, as required by Subsection NC of Section III of the ASME BPVC.

b.2 Nondestructive Examination

The NRC inspection team observed a liquid penetrant examination on the hard-faced portion of a pilot of a 6-inch Class 2 pilot-operated valve intended for Susquehanna Unit 2. The NRC inspection team confirmed that Dresser Masoneilan performed the liquid penetrant testing using qualified procedures, certified nondestructive examination (NDE) inspectors, approved NDE materials, and calibrated M&TE. Specifically, the NRC inspection team verified that WES 193, "Liquid Penetrant Examination Procedure Color contrast (Visible Dye) for All Applications," Revision P, dated July 1, 2010, and its accompanying demonstration record, "Demonstration of Nondestructive Examination Procedure ES 193 Revision P," dated July 1, 2010, were prepared in accordance with the requirements in Section V of the ASME BPVC. The NRC inspection team also verified that, for a sample of NDE procedures and liquid penetrant test reports for the fabrication of replacement parts for Millstone and Salem in POs 693298 and 709816, respectively, that the procedures and reports complied with the applicable requirements in Section V of the ASME BPVC.

The NRC inspection team selected a sample of training and qualification records for Dresser Masoneilan's Level II NDE personnel. The NRC inspection team confirmed that Dresser Masoneilan's personnel were trained and qualified in accordance with American Society for Nondestructive Testing SNT-TC-1A, "Personnel Qualification and Certification in Nondestructive Testing," and the applicable requirements of Section V of the ASME BPVC.

c. Conclusion

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

5. Inspection

a. Inspection Scope

The NRC inspection team reviewed Dresser Masoneilan's policies and implementing procedures that govern the inspection program to verify compliance with the requirements of Criterion X, "Inspection," of Appendix B to 10 CFR 50. The NRC inspection team reviewed the Dresser Masoneilan's policies and implementing procedures related to the inspection program. The NRC inspection team witnessed quality control (QC) personnel performing dimensional inspection of a nuclear part and observed assembly of a valve and observed the final QC inspection of a valve. In addition, the NRC inspection team discussed the inspection program with Dresser Masoneilan's management and technical staff. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

b. Observations and Findings

The NRC inspection team witnessed QC personnel performing dimensional inspection of a pilot 6-inch 41,000 HF seat and guide machined from bar stock intended for Susquehanna Unit 2 (Job 115706). A Job Routing Sheet provided directions to the QC inspector that listed the appropriate drawing and a blank Dimensional Inspection Report, Form QAF 20. The NRC inspection team witnessed the QC inspector check 8 of 10 dimensions that went to 1/1,000-inch, excluding two dimensions associated with the hole for pinning the stem to the seat that had not yet been drilled. The QC inspector checked three dimensions that went to 1/100-inch and one machined radius curve, but did not check one 1/100-inch dimension, another machined radius curve, and did not check two chamfered edge dimensions. When questioned as to what dimensions were required to be checked, the QC inspector stated he was to check all dimensions specified to 1/1,000-inch and other critical dimensions based on knowledge and experience. The NRC inspection team discussed the lack of specific direction for dimension checks with the QC supervisor. The QC supervisor asked two qualified QC inspectors which dimensions would be checked for the same Job Routing Sheet and drawing. One inspector stated he would check every dimension, including the chamfered edges, and the other stated he would only check the dimensions that were specified to 1/1000-inch.

The NRC inspection team reviewed procedure QMS Work Instruction 39, "Nuclear Part Order Release Process," Revision A, dated May 11, 2011, which controls fabrication and QC activities. QMS Work Instruction 39 states that, "Verify critical dimensions (those that are +/-0.005),

including verification of machining of flats, product coatings or other surface requirements using Engineering drawing.” The NRC inspection team discussed the critical dimension criteria with QA management since the standard drawing tolerance was listed on the drawings as +/- 0.010 inches for 1/1000-inch dimensions, +/- 0.030 inches for 1/100-inch dimensions, and +/- 0.1 inches for 1/10-inch dimensions. QA management confirmed that the drawing tolerance stated on the drawing was typical of Dresser Masoneilan drawings and that QMS Work Instruction 39 did not align with that practice.

The NRC inspection team determined that Dresser Masoneilan failed to establish and execute an adequate program for inspection of activities affecting quality as required by Criterion X, “Inspection,” to Appendix B to 10 CFR 50. Specifically, Dresser Masoneilan inspection procedures do not adequately provide guidance for which dimensions are to be inspected and recorded. The NRC inspection team identified this issue as an example of Nonconformance 99901420/2013-201-06. Dresser Masoneilan initiated CAR 13-14 to address this issue.

The NRC inspection team noted during the manufacturing facility tour that the majority of valves being worked on and awaiting final QC inspection did not have any coverings over the open ends of the valves for foreign material exclusion (FME) or to protect the flange sealing surfaces from damage. The NRC inspection team reviewed two purchase orders from Florida Power and Light (FP&L) (PO 02305178) and Exelon (PO 695499) that both had extensive FME requirements specified. The FP&L PO specified that, “Supplier is responsible for ensuring through inspection or other means that no foreign material or contaminants are present, including in internal surfaces and cavities of the equipment.” The Exelon PO used similar language. The NRC inspection team reviewed the Dresser Masoneilan procedures for visual examination, nuclear pre-assembly, assembly, and assembly final inspection and found they all had steps to inspect for cleanliness, but did not include guidance on what to inspect for or how to inspect. Dresser Masoneilan did not have any nuclear valves to inspect, therefore the NRC inspection team observed the final QC inspection of a commercial valve, which they used the same procedure and process as the nuclear valve orders. The NRC inspection team observed the QC inspector used a flashlight and looked in both ends of the valve, but did not use any other equipment such as a boroscope or mirror. The NRC inspection team and QA manager looked inside the valve and verified that the inspection team could not see the entire inside of the valve due to valve internals. The NRC inspection team noted in another case, that foreign material (wood shaving from a wedging tool) was left on the body to bonnet gasketing surface of a commercial valve. In addition to these observations, the NRC inspection team noted that Dresser Masoneilan nuclear procedures required no final QC cleanliness inspection or other effective controls at the end of the work process or before closing up inaccessible areas. The NRC inspection team determined that Dresser Masoneilan had not prescribed appropriate foreign material exclusion controls or inspections as required by purchase orders from customers and Criterion V, “Instructions, Procedures, and Drawings,” of Appendix B to 10 CFR 50. The NRC inspection team identified this issue as an example of Nonconformance 99901420/2013-201-04. Dresser Masoneilan initiated CAR 13-15 to address this issue.

### c. Conclusion

The NRC inspection team issued Nonconformance 99901420/2013-201-06 for Dresser Masoneilan’s failure to establish and execute an adequate program for inspection of activities affecting quality. Dresser Masoneilan inspection procedures did not provide adequate guidance for which dimensions are to be inspected and recorded. The NRC inspection team also identified an example of Nonconformance 99901420/2013-201-04 for Dresser Masoneilan’s failure to prescribe appropriate foreign material exclusion controls or inspections as required by

purchase orders from customers. Dresser Masoneilan procedures did not adequately describe how to prevent, identify, and remove foreign material from inaccessible areas.

## 6 Test Control

### a. Inspection Scope

The NRC inspection team reviewed Dresser Masoneilan's policies and implementing procedures that govern the test control program to verify compliance with the requirements of Criterion XI, "Test Control," of Appendix B to 10 CFR 50. In addition, the NRC inspection team discussed the test control program with Dresser Masoneilan management and technical staff. The NRC inspection team also observed a hydrostatic test and reviewed the documentation for hydrostatic testing and air operator performance testing. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

### b. Observations and Findings

The NRC inspection team observed hydrostatic testing of a 2-inch ASTM class 900# valve, serial number A-13-20717, Model #88-18463, Job # 116363. The NRC inspection team verified that the technician had the Job Routing Sheets and adequate test procedure and followed the procedure. The NRC inspection team verified that the acceptance criteria were specified in the job package, which also included the test parameters, such as pressure to be tested at and hold times. The test pressures and hold times were implemented as required. The technician confirmed the M&TE tools and instrumentation used for the test was within its required range and calibration frequency. The NRC inspection team verified that these items were within their calibration date. The technician ensured the test parameters were met and recorded the test results. The technician reviewed the results and determined the hydrostatic testing (which included closed valve seat leakage) meet the criteria, and recorded the results in the job package. The NRC inspection team also reviewed the technician's qualification record and verified that he was qualified to perform the hydrostatic test.

The NRC inspection team also reviewed a sample of hydrostatic and air operator performance test documentation for Exelon PO 695499. The NRC inspection team verified that the tests were performed as specified, including specifying the acceptance criteria, recording of the test results, and evaluation of the test results. The NRC inspection team confirmed that the test results recorded met the acceptance criteria specified.

### c. Conclusion

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

## 7. Control of Measuring and Test Equipment

### a. Inspection Scope

The NRC inspection team reviewed Dresser Masoneilan's policies and implementing procedures that govern the program for the control of M&TE to verify compliance with the requirements of Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR 50. The NRC inspection team also observed use of M&TE equipment by a QC inspector performing inspection by assembly technicians during hydrostatically testing and valve assembly, and calibration of M&TE equipment by QC inspector. The NRC inspection team reviewed documentation in the electronic database for specific M&TE equipment to verify records were accurate, maintained, and met regulatory requirements. In addition, the NRC inspection team discussed the M&TE program with Dresser Masoneilan's management and technical staff. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

### b. Observations and Findings

The NRC inspection team observed the use of M&TE equipment—including hydrostatic test machine, pressure gauges, dial calipers, hole-size gauges, thread gauges, radius gauges, and a torque wrench—during fabrication, inspection, and testing by QC and assembly technicians. The NRC inspection team noted that the equipment appeared to be in good condition and was used correctly by the QC technician and assembly technicians. The NRC inspection team observed the technicians check the M&TE equipment calibration date and recorded the equipment serial number and calibration date in the form for the work he was performing. The NRC inspection team reviewed the M&TE equipment database for five items of M&TE equipment used and found all the items were in the database, with the same calibration date and the history and other information required by the Dresser Masoneilan procedure. The NRC inspection team observed a QC inspector calibrate a dial caliper. The NRC inspection team verified that the QC inspector followed the appropriate procedural requirements, completed the calibration check using a qualified standard, with no readings out of tolerance and entered the results in the M&TE database and updated the calibration due date in accordance with the Dresser Masoneilan procedure QSP 11.3, "Quality Assurance Calibration Procedure – Caliper," Revision 0.

The NRC inspection team reviewed the calibration records for two transducers that were found to be out of calibration. The QC supervisor conferred with engineering and determined that the transducers were not used in the scale range that was out of calibration, so they adjusted the transducers and returned them to service. When questioned about how the evaluation was documented and whether an NCR was initiated, the QC supervisor said it was documented in the M&TE computer database but no NCRs were submitted. The QC inspectors similarly indicated that they would adjust M&TE into specification and scrap M&TE they could not recalibrate without submitting an NCR. The NRC reviewed QAMNUC 11.0, Subsection 2.9, which requires Dresser Masoneilan to submit a NCR for M&TE equipment out of calibration. The NRC inspection team determined that Dresser Masoneilan's failure to generate NCRs for the transducers found out of calibration and evaluate the validity of previous measurements, inspections, or test results was contrary to Criterion XII, "Control of Measuring and Test Equipment," and Criterion XV, "Nonconforming Materials, Parts, or Components," of Appendix B to 10 CFR 50. This issue has been identified as an example of Nonconformance 99901420/2013-201-07. Dresser Masoneilan initiated CARs 13-16 and 13-18 to address this



issue. The QC supervisor also submitted NCR -F&PT-Avon Request #86987726 and #86983779 to track the two transducers.

c. Conclusion

The NRC inspection team issued Nonconformance 99901420/2013-201-07 for Dresser Masoneilan's failure to control measuring and test equipment found to be nonconforming. Specifically, Dresser Masoneilan did not generate NCRs for two transducers that were found out of calibration, and therefore did not document an evaluation of the validity of previous measurement, inspection, or test results, and the acceptability of items previously inspected.

8. Nonconforming Materials, Parts, or Components

a. Inspection Scope

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

b. Observations and Findings

The NRC inspection team verified that Dresser Masoneilan's processes and procedures provide for the identification, documentation, segregation, evaluation, and disposition of nonconforming items. These processes also apply the principles of accepted, rework, scrap, on-hold, or use as-is and provide for the applicable engineering justifications that will be adequately supported and properly documented. Because Dresser Masoneilan performs work under Section III of the ASME BPVC, the nonconformance authorizes the ANI to review work performed under the ASME BPVC. The NRC inspection team also verified that Dresser Masoneilan's nonconformance process provides guidance to evaluate nonconformances for reportability under Dresser Masoneilan's 10 CFR Part 21 program and for corrective action under QAMNUC 14.0, "Corrective Action."

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

The NRC inspection team reviewed a sample of nonconformances to verify that Dresser Masoneilan had (1) dispositioned identified nonconformances in accordance with Dresser Masoneilan's approved procedures, (2) presented an appropriate technical justification for each disposition, and (3) taken adequate action in regard to the nonconforming material or item. The NRC inspection team noted that for five items dispositioned as repair, Dresser Masoneilan did not include technical justifications from Nuclear Product Engineering for each item as required by NQSP-13.0, "Nonconformance Identification & Disposition Procedure," Revision D, dated October 4, 2011. NQSP-13.0 states, in part that, "repair' dispositions shall include technical

justification from Nuclear Product Engineering or the original design organization, to ensure the design integrity of the item.” Contrary to NQSP-13.0, Dresser Masoneilan only included repair instructions but did not document consideration of impacts to the design that would require a design change. This issue has been identified as an example of Nonconformance 99901420/2013-201-08. Dresser Masoneilan generated CAR 13-19 to address this issue.

NQSP-13.0, “Nonconformance Identification & Disposition Procedure,” also states Manufacturing Engineering is a permanent member of the Material Review Board (MRB). However, the NRC inspection team noted during its review of NCRs, Manufacturing Engineering did not approve the MRB decisions. The NRC inspection team asked the QA manger whether Manufacturing Engineering was represented at each MRB. The QA manager stated that Manufacturing Engineering was only needed for NCRs that required repair but acknowledged that practice was inconsistent with NQSP-13.0 and that Manufacturing Engineer did not approve any of the eleven NCRs that the NRC inspection team reviewed, even the five requiring repair. The NRC inspection team determined that the failure to follow procedure NQSP-13.0 for the conduct of the MRB was contrary to Criterion V, “Instructions, Procedures, or Drawings,” of Appendix B to 10 CFR 50. This issue has been identified as an example of Nonconformance 99901420/2013-201-04.

#### c. Conclusion

The NRC inspection team issued Nonconformance 99901420/2013-201-08 for Dresser Masoneilan’s failure to review and accept nonconforming NCRs 7224, 7394, 7440, 7510, and 7517 dispositioned as “repair” in accordance with documented procedures. Specifically, Dresser Masoneilan did not include technical justifications from Nuclear Product Engineering for the five items as required by NQSP 13.0. Dresser Masoneilan only included repair instructions on the NCRs but did not document consideration of impacts to the design that would require a design change. The NRC inspection team also identified an example of Nonconformance 99901420/2013-201-04 for Dresser Masoneilan’s failure to obtain Manufacturing Engineering approval of Material Review Board decisions for NCRs, such as rework NCRs 7224, 7394,7440, 7510, and 7517, as required by procedure NQSP 13.0.

### 9. Corrective Action

#### a. Inspection Scope

The NRC inspection team also reviewed Dresser Masoneilans policies and implementing procedures that govern the corrective action program to verify compliance with the requirements of Criterion XVI, “Corrective Action,” of Appendix B to 10 CFR 50. The NRC inspection team reviewed a sample of 24 CARs to verify that the CARs’ disposition and control provide adequate documentation and description of conditions adverse to quality, and specify the cause of these conditions and the corrective actions taken to prevent recurrence. In addition, the NRC inspection team discussed the corrective action program with Dresser Masoneilan’s management and technical staff. The attachment to this inspection report lists the documents that the NRC inspection team reviewed

#### b. Observations and Findings

Dresser Masoneilan Quality Assurance Manual Procedure QAMNUC 14.0, “Corrective Action,” states, that “Action shall be taken by an individual assigned by the applicable department manager, who shall determine cause, actions needed to prevent recurrence and record on the

CAR. Within 15 working days, unless extended by the Quality Manager, the CAR with schedule for completion shall be submitted to the Quality Manager. The Quality Manager reserves the right to approve or disapprove the submitted schedule or plan.” The NRC inspection team noted 15 working days was allowed for the assigned individual to determine the cause, plan the action needed to prevent recurrence, and record this plan on the CAR, however, QAMNUC 14.0 did not discuss the time allowed for the resolution of specific corrective actions and closure of the CARs.

During the review of a sample of CARs, the NRC inspection team noted that CAR 11-47, dated September 26, 2011, “Internal Audit of Nuclear Quality manual,” identified that the QA manual was not current with Dresser Masoneilan plant practices. The CAR also identified that management and department responsibilities were not current and that the added positions for Material Manager, Quality Manger, and Customer Solution Manger needed to be updated. CAR 11-47 also identified out of date organizational data and forms that needed to be updated. CAR 11-47 also noted that Section 9.1 of the QAM needed to be updated to reflect current practices of welding procedure specification (WPS) and procedure qualification record (PQR) review for approval currently used at Dresser Masoneilan. The last dated entry for this CAR was on November 11, 2011, when the permanent corrective action was begun. The permanent corrective action required reviewing the entire Nuclear Quality Program and revising the program to implement the current way Masoneilan is doing business. The NRC inspection team noted that the status of this corrective action was listed as “ongoing” as of November 1, 2011, but as of March 8, 2013, the CAR was still open and the QA manual had not been updated. The NRC inspection team determined that Dresser Masoneilan failed to promptly identified and corrected conditions adverse to quality. This issue has been identified as an example of Nonconformance 99901420/2013-201-09. Dresser Masoneilan generated CAR 13-20 to address this issue.

The inspection team noted that QAMNUC 14.0 states, that “The Quality Manager shall follow up to verify corrective actions within thirty days of the scheduled completion date and document this follow up on the CAR.” The inspection team noted that CAR 12-07, dated February 16, 2012, “Welder reverse the direction of weld,” identified that a Dresser Masoneilan drawing requires that an actuator and collar diaphragm be welded in a specific fashion. During the welding operation, the welder reversed the direction of the stem resulting in a nonconforming condition. The corrective action was completed to conduct training for all welders for proper set up, use of drawings and part orientation. Dresser Masoneilan engineering also changed the process to machine the part from bar stock. Prior to verifying that these corrective actions had been implemented as required by QAMNUC 14.0, CAR 12-07 was closed on July 14, 2012, without verifying the implementation and adequacy of the proposed corrective action. This issue is identified as an example of Nonconformance 99901420/2013-201-09. Dresser Masoneilan generated CAR 13-20 to address this issue.

### c. Conclusion

The NRC inspection team issued Nonconformance 99901420/2013-201-09 for Dresser Masoneilan’s failure to promptly identify and correct conditions adverse to quality. Specifically, Dresser Masoneilan failed to promptly correct Nuclear Industry Assessment Committee and internal audit findings documented in Corrective Action Reports (CAR) 11-47. Dresser Masoneilan also closed CAR 12-07 prior to verifying that corrective actions had been implemented.

## 10. Internal Audits

### a. Inspection Scope

The NRC inspection team reviewed the Dresser Masoneilan policies and implementing procedures that govern its internal audit program to verify compliance with the requirements of Criterion XVIII, "Audits," of Appendix B to 10 CFR 50. Specifically, the NRC inspection team reviewed a sample of internal audit reports to evaluate compliance with the Dresser Masoneilan program requirements and adequate implementation of those requirements. In addition, the NRC inspection team reviewed the disposition of audit findings and observations for adequacy and timeliness. Furthermore, the NRC inspection team discussed the internal audit program with Dresser Masoneilan management. The attachment to this inspection report lists the documents that the NRC inspection team reviewed.

### b. Observations and Findings

The NRC inspection team reviewed the Dresser Masoneilan internal audit for 2012 and verified that it was planned and performed using the applicable procedures, documented with objective evidence, and distributed to the appropriate management within the timeframes that the applicable Dresser Masoneilan procedures prescribe. The NRC inspection team verified that the audit team was appropriately qualified. The NRC inspection team confirmed that the audit reports contained a review of the relevant QA criteria in Appendix B to 10 CFR 50, as well as the applicable Dresser Masoneilan procedures and policies associated with each area. With the exception of Nonconformance 99901420/2013-201-09 in Section 9 of this report, the NRC inspection team verified that Dresser Masoneilan took appropriate corrective actions for the identified audit findings.

### c. Conclusion

The NRC inspection team concluded that Dresser Masoneilan's internal audit program is consistent with the regulatory requirements of Criterion XVIII, "Audits," of Appendix B to 10 CFR 50. Based on the limited sample of documents reviewed, the NRC inspection team concluded that Dresser Masoneilan adequately implemented its internal audit program. No findings of significance were identified.

## 11. Entrance and Exit Meetings

On March 4, 2013, the NRC inspection team discussed the scope of the inspection with Mr. John Kerr, Dresser Masoneilan's Quality Assurance Manager, and other members its management and technical staff. On March 8, 2012, the NRC inspection team presented the inspection results and observations during an exit meeting with Mr. John Kerr, Dresser Masoneilan's Quality Assurance Manager, and other members of the company's management and technical staff. The attachment to this report lists the entrance and exit meeting attendees, as well as those individuals whom the NRC inspection team interviewed.

## **1. ENTRANCE/EXIT MEETING ATTENDEES**

<b>Name</b>	<b>Title</b>	<b>Affiliation</b>	<b>Entrance</b>	<b>Exit</b>	<b>Interviewed</b>
Garrett Newman	Lead Inspection	NRC	X	X	
Jonathan Ortega-Luciano	Inspector	NRC	X	X	
Aaron Armstrong	Inspector	NRC	X	X	
Paul Coco	Inspector	NRC	X	X	
Thomas Kendzia	Inspector	NRC	X	X	
Andrea Keim	Inspector	NRC	X	X	
Tuan Le	Inspector	NRC	X	X	
John Kerr	Nuclear QA Manager	GE	X	X	X
Prem Singh	Plant Manager	GE		X	
Michael Sabin	Sourcing Manager	GE	X		
Taric Kabir	Inst. Manager	GE	X	X	
Amy Andres	QA Manager	GE	X	X	X
William Comeau	Commercial Manager	GE	X		
Halle Melcher	Commercial Manager	GE	X	X	
Susan Edenberg	QA	GE	X	X	
David Donaweg	Sales Applications Egr	GE	X	X	
Christopher Vaughan	Project Mgt. Leader	GE	X	X	
Alan Hoadley	Nuclear Buyer/Planner	GE	X		
David Smith	Assembly Supervisor	GE	X		
David Litchfield	Machine Shop Supervisor	GE	X		X
Chris Vandervoort	Product Engineer	GE	X		X
Joshua Boisclair	Product Engineer	GE	X		
Kim Hidgon	Traditional Quality Mgr.	GE	X	X	
Donna Minroe	Avon Req. Egr. Mgr.	GE	X		
Paul Loecini	Product Engineer	GE	X		
Kevin McManus	Nuclear Engineering Mgr.	GE	X	X	X

Peter Moore	Quality Technician A	GE	X
Jason Willey	Tool Keeper	GE	X
Mike Stanislovitis	Inspection Dep. Sup.	GE	X
Ken Young	Welder	GE	X
Josh Bilslair	Engineer	GE	X
Ted Markee	Project Planner	GE	X
Tony Cardoso	QC Technician A	GE	X
Denise Drainville	QC Technician A	GE	X
Peter Hillstrom	QC Technician A	GE	X
Gilbert Ferreira	QC Technician B	GE	X
Jim Curran	QC Technician A	GE	X
Brian Odell	Packer	GE	X
Joe Bartucca	Valve Assembly Class A	GE	X
Dominic Bartucca	Assembly Technician 2	GE	X

**2. INSPECTION PROCEDURES USED**

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

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

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

**3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

<b>Item Number</b>	<b>Status</b>	<b>Type</b>	<b>Description</b>
99901420/2013-201-01	Opened	NOV	10 CFR Part 21
99901420/2013-201-02	Opened	NON	Criterion III
99901420/2013-201-03	Opened	NON	Criteria III and VII
99901420/2013-201-04	Opened	NON	Criterion V
99901420/2013-201-05	Opened	NON	Criterion VII
99901420/2013-201-06	Opened	NON	Criterion X
99901420/2013-201-07	Opened	NON	Criteria XII and XV
99901420/2013-201-08	Opened	NON	Criterion XV
99901420/2013-201-09	Opened	NON	Criterion XVI

#### 4. DOCUMENTS REVIEWED

- “2012 Nuclear Internal Audit Review and Evaluation of Dresser-Masoneilan Avon Operations,” October 25, 2012
- “Audit Review and Evaluation of Rotork Controls,” February 1, 2011
- “Deloro Stellite Quality System Manual,” Revision E, January 26, 2012
- “Dresser Masoneilan Audit of Iron Mountain,” June 11, 2010
- “Dresser Masoneilan Audit Review and Evaluation of Deloro Stellite,” May 1, 2012
- “Dresser Masoneilan Quality Assurance Manual for ASME Section III Div 1 Nuclear Valves, Valve Parts & Instruments, Twelfth Issue,” Revision A, dated July 14, 2010
- “NIAC Assessment of American Foundry,” April 30, 2012
- “NIAC Assessment of Trentec,” March 17, 2012
- “NIAC Assessment Results of Deloro Stellite,” March 1, 2012
- “NIAC Assessment Results of N.O.W. & Associates,” December 17, 2010
- “NIAC Audit of Rotork Controls Inc.,” September 21, 2010
- 10 CFR Part 21 Evaluation # 12-03, “Effective Diaphragm (EDA) for Model 37/38 Actuator report of conflicting data,” 9/27/12
- 10 CFR Part 21 Evaluation# 10-01, “77N40AIR filter regulator leakage issue reported by PSE&G Salem,” 8/23/10
- 10 CFR Part 21 Evaluation# 12-01, “ Flexitallic gasket in pressure class greater than 300 not conforming to value requirements,” 6/22/12
- 10 CFR Part 21 Evaluation# 12-01, “ Flexitallic gasket in pressure class greater than 300 sold as part not conforming to value requirements,” 7/2/12
- 10 CFR Part 21 Evaluation# 12-04, “Effective Diaphragm (EDA) for Model 37/38 Actuator report of conflicting data for customer with modulating applications,” 11/30/2012
- CAR 10-55, “dated August 6, 2011
- CAR 10-59, dated October 14, 2011
- CAR 11-08, dated February 16, 2011
- CAR 11-47, dated September 26, 2011
- CAR 11-49, dated October 4, 2011

- CAR 11-50, dated October 4, 2011
- CAR 11-61, dated October 4, 2011
- CAR 12-04, "dated February 8, 2012
- CAR 12-07, dated February 16, 2012
- CAR 12-10, dated March 7, 2012
- CAR 12-11, dated March 9, 2012
- CAR 12-13, dated April 6, 2012
- CAR 12-14, dated April 6, 2012
- CAR 12-15, dated April 17, 2012
- CAR 12-16, dated April 30, 2012
- CAR 12-19, dated February 24, 2012
- CAR 12-20, dated August 16, 2012
- CAR 12-26, dated September 4, 2012
- CAR 12-33, dated October 19, 2012
- CAR 12-34, dated October 19, 2012
- CAR 12-35, dated October 19, 2012
- CAR 12-36, dated October 19, 2012
- CAR 12-36, dated October 19, 2012
- CAR 12-41, dated November 15, 2012
- CAR 12-42, dated November 15, 2012
- CAR 13-08, dated March 7, 2013
- CAR 13-09, dated March 7, 2013
- CAR 13-10, dated March 7, 2013
- CAR 13-11, dated March 7, 2013
- CAR 13-12, dated March 7, 2013



- CAR 13-13, dated March 7, 2013
- CAR 13-14, dated March 7, 2013
- CAR 13-15, dated March 7, 2013
- CAR 13-16, dated March 7, 2013
- CAR 13-17, dated March 8, 2013
- CAR 13-18, dated March 8, 2013
- CAR 13-19, dated March 8, 2013
- CAR 13-20, dated March 8, 2013
- Electronic records for M&TE equipment, SN2580, SN2893, SN8040, SN2893, SN6698, SN4234, SN4236, SN1462
- ES-193, Liquid Penetrant Examination Procedure,” Revision P, dated July 1, 2010
- Letter from Crane Nuclear to Deloro Stellite, December 26, 2012
- Letter from Crane Nuclear to Deloro Stellite, July 31, 2012
- Masoneilan Examination Report, for Part No. 011470002-3H7U0000, Heats B3V4-1-1 and -2, Pilot 41K 6, dated March 3, 2013
- Masoneilan Examination Report, for Part No. 013436192-2M7U0000, Heats 152577-1-1 and -2, Plug 20K 3, dated August 27, 2012
- Masoneilan Examination Report, for Part No. 013436192-2M7U0000, Heats 152577-1-1 and -2, Plug 20K 3, dated August 27, 2012
- Masoneilan Nonconformance Tag, NCR No 7224, dated August 29, 2012
- Masoneilan Nonconformance Tag, NCR No 7584, dated March 5, 2013
- NCR-F&PT-Avon Request #86983779, Transducer out of calibration, dated March 7, 2013
- NCR-F&PT-Avon Request #86987726, Transducer out of calibration, dated March 7, 2013
- NQSP 17.0, “Training, Examination, and Certification of Auditors,”
- NQSP 4.2, “Procedure for Dedication of Parts and Subassemblies,” Revision A, dated May 22, 2007
- NQSP 6.5, “Supplier Approval: Approved Suppliers List,” Revision A, May 22, 2007

- NQSP 6.1, "Purchase Requisition Approval," Revision A, May 22, 2007
- NQSP 6.12, "Control of Purchased Items and Services," Revision A, October 14, 2011
- NQSP 6.14, "Procurement Controls of Commercial Grade Calibration Services," Revision A, January 7, 2013
- NQSP 6.2, "Purchase Order Review," Revision B, June 20, 2007
- NQSP-10.2, "Assembly Procedure," Revision A, dated May 22, 2007
- NQSP-10.3, "Assembly Final Inspection," Revision A, dated May 22, 2007
- NQSP-10.4, "Visual Examination Procedure," Revision A, dated May 22, 2007
- NQSP-10.5, "Nuclear Pre-Assembly Inspection," Revision A, dated May 22, 2007
- NQSP-13.0, "Nonconformance Identification & Disposition Procedure," Revision D, dated October 4, 2011
- NQSP-18.1, "Standard Practice Non-Destructive Examination Personnel Qualification and Certification," Revision B, dated April 13, 2010
- NQSP-18.2, "Qualification and Certification of Inspection Examination & Testing Personnel," Revision A, dated May 22, 2007
- NSQP 4.1, "Procedure for Preparation of Critical Component Evaluation Sheets," Revision A, dated May 22, 2007
- NUP.0228, "Valve Hydrostatic Shell Test (with and without bellows)," Revision A, dated May 4, 2011
- NUP.0229, "Valve Hydrostatic Closure and Seat leakage Test," Revision A, dated May 4, 2011
- PO 5062941, Stellite Coatings Division, February 13, 2012
- PO 5063237, Essco Calibration Laboratory, February 17, 2012
- PO 5067497, Stellite Coatings Division, May 3, 2012
- PO 5074534, Stellite Coatings Division, September 27, 2012
- PO 5080427, Stellite Coatings Division, January 14, 2013
- Procedure Qualification Record ASME IX QW-483, PQR-55, "GTAW Hardfacing Using Stellite #6," Revision C, dated October 7, 2010

- QAF 137, "Procurement Controls of Commercial Grade Calibration Services for Essco Calibration Laboratory," Revision A, January, 2013
- QAF 20, "Dimensional Inspection Report," Revision 4
- QAF 20.1, "Assembly Test Data Sheet," Revision C
- QAF 30, "Nuclear Valve Assembly Build-Up Sheet," Revision 3
- QAF 4, "Examination Report," Revision K
- QAF 5, "Characteristic Record Card," Revision 1
- QAF 50, "Visual Examination Report," Revision 5
- QAF 7.7, "Inspection Certification of Wall Thickness," Revision 6
- QMS Work Instruction 39, "Nuclear Part Order Release Process," Revision A, dated May 11, 2011
- QSP-10.7, "Visual Examination Procedure," Revision 2
- QSP-11.0, "Control of Inspection, Test, and Measuring Equipment," Revision 7
- QSP-11.20, "Quality Assurance Calibration Procedure for Ovens – Including Weld Rod Ovens," Revision 1
- QSP 11.3, "Quality Assurance Calibration Procedure – Caliper," Revision 0
- QSP-11.4, "Quality Assurance Calibration Procedure – Dial Indicator," Revision 0
- QSP 20.0, "Sampling Inspection Procedures," Revision 0
- Records for Peter Moore, Level II PT certification, Peter Moore Level II VT certification, Tony Cardoso Level II VT certification, Denise Drainville Level II VT certification, Dominic Bartucca Hydrostatic Test Certification
- Sales Order 109079, from Enertech PO 632056, for Dominion Millstone PO 45908041, for plugs, disc springs, seat rings, dated December 10, 2012
- Sales Order 709816, from Enertech PO 633499, for PSEG Salem PO 4500710909, for plugs, disc springs, seat rings, dated December 10, 2012
- Sales Order 719883, from Enertech PO 63425, for PSEG Salem PO 4500727805, for 10 Plug & Stem Assemblies, dated December 10, 2012
- Weld Record, #6 Stellire for Order 109079, Part # 013436192-21474000, dated August 16, 2012
- WPS No. ES-267, GTAW Stellite 6 Hardfacing of P8 SS and P43 Hastelloy C276, Revision AB, dated October 3, 2010