

January 29, 2014

Mr. Marc Bumgarner, Vice President
and General Manager
Rosemount Nuclear Instruments, Inc.
8200 Market Blvd.
Chanhassen, MN 55317-9685

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION OF ROSEMOUNT
NUCLEAR INSTRUMENTS, INC. REPORT NO. 99900271/2013-201 AND NOTICE
OF NONCONFORMANCE

Dear Mr. Bumgarner:

On November 18 through 22, 2013, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Rosemount Nuclear Instruments, Inc. (RNII) facility in Chanhassen, MN. The purpose of the routine inspection was to assess RNII's compliance with the provisions of selected portions 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," and 10 CFR Part 21, "Reporting of Defects and Noncompliance."

This inspection specifically evaluated RNII's processes for corrective action, design control, commercial grade dedication, oversight of suppliers, and compliance with reporting requirements for defective parts. The enclosed report presents the results of the inspection. This NRC inspection report does not constitute NRC endorsement of your overall quality assurance (QA) or 10 CFR Part 21 programs.

During this inspection, NRC inspectors found that the implementation of your QA program failed to meet certain NRC requirements imposed on you by your customers. The finding involves technical evaluations that did not include requirements for verification of some of the critical characteristics that had been identified as essential to the safety-related functions. The specific finding and references to the pertinent requirements are identified in the enclosures to this letter.

Please provide a written statement or explanation within 30 days from the date of this letter in accordance with the instructions specified in the enclosed Notice of Nonconformance. We will consider extending the response time if you show good cause for us to do so.

In accordance with 10 CFR 2.390 of the NRC's Rules of Practice, a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system, 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, 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, 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 is 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 will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Sincerely,

/RA/

Richard A. Rasmussen, Chief
Electrical Vendor Inspection Branch
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Docket No.: 99900271

Enclosures:

1. Notice of Nonconformance
2. Inspection Report 99900271/2013-201
Attachment

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 is 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 will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Sincerely,

/RA/

Richard A. Rasmussen, Chief
Electrical Vendor Inspection Branch
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Docket No.: 99900271

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2. Inspection Report 99900271/2013-201
Attachment

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|---------------|---------------|---------------|---------------|------------|
| OFFICE | NRO/DCIP/EVIB | NRO/DCIP/EVIB | NRO/DCIP/MVIB | RII |
| NAME | GLipscomb | JJimenez | LMicewski | CJones |
| DATE | 01/15/2014 | 12/27/2013 | 01/16/2014 | 01/16/2014 |
| OFFICE | NRO/DCIP | NRO/DCIP/EVIB | | |
| NAME | TFrye | RRasmussen | | |
| DATE | 01/23/2014 | 01/29/2014 | | |

OFFICIAL RECORD COPY

NOTICE OF NONCONFORMANCE

Rosemount Nuclear Instruments, Inc.
Emerson Process Management
8200 Market Blvd.
Chanhassen, MN 55317-9685

Docket No. 99900271
Report No. 2013-201

Based on the results of a Nuclear Regulatory Commission (NRC) inspection conducted at the Rosemount Nuclear Instruments, Inc. (RNII) facility in Chanhassen, MN, on November 18 - 22, 2013, certain activities were not conducted in accordance with NRC requirements which were contractually imposed upon RNII by NRC licensees:

- A. Criterion V, "Instructions, Procedures, and Drawings," 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 "Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished."

Contrary to the above, as of November 22, 2013 RNII did not prescribe appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Specifically, RNII procedure Operations Procedure 0720, "Control of Purchased Safety-Related Components," and the following technical evaluations failed to include requirements or acceptance criteria sufficient to verify critical characteristics that were necessary to assure that dedicated items will perform their intended safety functions:

- (1) TE-Common-01-01, "Technical Evaluation of 3150 and 1150 Series Mounting Fasteners," did not establish requirements or acceptance criteria to verify critical characteristics of material elongation, yield strength, or tensile strength for mounting bolts for safety-related 3150 and 1150 Series pressure transmitters;
- (2) TE-315x-03-01, "Technical Evaluation of 3150 Series Pressure Retaining Flanges," did not establish requirements to verify identified critical characteristics of tensile strength or yield strength for pressure retaining flanges on safety-related 3150 series pressure transmitters; and did not identify criteria to determine acceptability of casting quality, hardness, or material for these flanges.

This issue has been identified as Nonconformance 99900271/2013-201-01.

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, Electrical Vendor Inspection 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 noncompliance; and (4) the date when your 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 so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request 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 will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Dated this the 29th day of January, 2014

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

Docket No.: 99900271

Report No.: 99900270/2013-201

Vendor: Rosemount Nuclear Instruments, Inc.
8200 Market Blvd.
Chanhassen, MN 55317

Vendor Contact: Duyen Pham
Duyen.Pham@emerson.com
952-949-5363

Nuclear Industry Activity: Rosemount Nuclear Instruments, Inc. (RNII) scope of supply for the nuclear industry includes design, engineering, manufacturing, and supply of pressure transmitters, differential pressure transmitters, trip/calibration systems, signal conditioners, spare and replacement parts and repair services. RNII is a supplier of analog and digital pressure transmitters for the Watts Bar Unit 2 completion project.

Inspection Dates: November 18-22, 2013

Inspection Team Leader: George Lipscomb, NRO/DCIP/EVIB

Inspectors: Jose Jimenez, NRO/DCIP/EVIB
Laura Micewski, NRO/DCIP/MVIB
Carl Jones, Region II

Approved by: Richard A. Rasmussen, Chief
Electrical Vendor Inspection Branch
Division of Construction Inspection
and Operational Programs
Office of New Reactors

EXECUTIVE SUMMARY

Rosemount Nuclear Instruments, Inc.
99900271/2013-201

The U.S. Nuclear Regulatory Commission (NRC) conducted this vendor inspection to verify that Rosemount Nuclear Instruments, Inc. (hereafter referred to as RNII), implemented an adequate quality assurance 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," and 10 CFR Part 21, "Reporting of Defects and Noncompliance." This inspection specifically evaluated RNII's corrective actions in relation to NRC inspection report 99900271/2012-201. The inspectors reviewed the correction actions, commercial grade dedication program, and 10 CFR Part 21 program for safety-related components. Some of the specific activities observed by the NRC inspection team included receipt inspection of circuit boards and pressure transmitter lower modules in support of the commercial grade dedication of the 1150 and 3150 pressure transmitter product lines and assembly, testing, and inspection of the manufacture of 1150 and 3150 pressure transmitter product lines in support of their dedication program. The NRC conducted this inspection at RNII's facility in Chanhassen, MN.

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

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

The inspectors used Inspection Procedure (IP) 43002, "Routine Inspections of Nuclear Vendors," dated July 15, 2013, IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated October 3, 2007, and IP 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance" dated February 13, 2012.

The information below summarizes the results of this inspection.

10 CFR Part 21 Program

The inspectors determined that RNII's corrective actions in the area of implementation of the requirements of 10 CFR Part 21 in response to Notices of Violation 99900271/2012-201-01 and 99900271/2012-201-02 were adequate. No findings of significance were identified.

Commercial Grade Dedication

With the exception of Nonconformance 990027/2013-201-01, the NRC inspection team determined that RNII is implementing its programs for Criterion III, "Design Control," Criterion IV, "Procurement Document Control," Criterion VII, "Control of Purchased Material, Equipment, and Services," and Criterion X, "Inspections" in accordance with the applicable regulatory requirements of Appendix B to 10 CFR Part 50. Based on the sample of documents reviewed and activities observed, the NRC inspection team also determined that RNII is implementing its policies and procedures associated with these programs. While no significant issues were identified, Nonconformance 99900271/2012-201-03 will remain open because at the time of inspection, RNII had not fully implemented the corrective action of developing technical evaluations for the printed circuit boards used in the pressure transmitters, which precluded inspector verification of program effectiveness.

The NRC inspection team issued a new finding, documented as Nonconformance 990027/2013-201-01, in association with RNII's failure to implement Criterion V, "Instructions, Procedures, and Drawings," of Appendix B to 10 CFR Part 50. Specifically, RNII failed to prescribe appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

Manufacturing Hazards

The NRC inspectors determined that RNII's corrective actions in the area of evaluation and control of potentially hazardous substances in the production area in response to Notice of Nonconformance 99900271/2012-201-04 were adequate. No findings of significance were identified.

Records Access Control

The inspectors determined that RNII's corrective actions and programmatic changes in the area of electronic records access control in response to NON 99900271/2012-201-03 were adequate. No findings of significance were identified.

Test Software Control

The inspectors determined that RNII's corrective actions and programmatic changes in the area of test software control in response to the Nonconformance 99900271/2012-201-03 were adequate. No findings of significance were identified.

REPORT DETAILS

1. 10 CFR Part 21 Program

a. Inspection Scope

The inspectors reviewed RNII's policies and implementing procedures that govern its Title 10 of the Code of Federal Regulations (10 CFR) Part 21 program to verify compliance with the requirements of 10 CFR Part 21. The inspectors also reviewed RNII's procedures that govern corrective actions and the control and correction of nonconforming items to verify an adequate link to the 10 CFR Part 21 process. Operations Procedure (OP) 1610, "Corrective Action," establishes the requirements for RNII's compliance with the requirements in 10 CFR Part 21. The inspectors reviewed RNII's 10 CFR Part 21 policy and procedures and related documentation, and interviewed the QA director and staff members of RNII. The team inspected a sample of RNII's Part 21 Review Committee Meeting Minutes for compliance with 10 CFR Part 21. The inspection team verified that OP 1610 provides adequate guidance for the different timing requirements for 10 CFR Part 21 evaluations, notification, and reporting activities. The inspectors reviewed RNII documented conditions adverse to quality such as Corrective Actions/Preventative Actions (CAPA), Nonconformance Records, and feedback from customers. In addition, the inspectors conducted several interviews with RNII's management and technical staff about the evaluation of nonconforming components and corrective actions. The inspectors also verified that RNII's nonconformance process provides guidance to evaluate nonconformances for reportability under RNII's 10 CFR Part 21 program.

The attachment to this inspection report lists the documents reviewed by the inspectors.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The inspectors determined that RNII appropriately translated the requirements of 10 CFR Part 21 into implementing procedures and, for those activities that the inspectors reviewed, implemented them as the applicable procedures required. No findings of significance were identified.

2. Commercial Grade Dedication

a. Inspection Scope

The NRC inspection team reviewed RNII's policies and implementing procedures that govern the commercial grade dedication (CGD) program to verify compliance with the regulatory requirements of Criterion III, "Design Control," Criterion IV, "Procurement Document Control," Criterion VII, "Control of Purchased Material, Equipment, and Services," and Criterion X, "Inspections" of Appendix B to 10 CFR Part 50. In addition, the inspectors examined RNII's actions to address deficient areas identified in a 2012

NRC inspection related to CGD (Agencywide Document Access and Management System (ADAMS) accession number ML12060A393).

The inspectors reviewed the revised CGD program. Various samples were selected to assess the different elements of the CGD program which consisted of technical evaluations, checklists, manufacturing reports, associated purchase orders, inspection points during assembly, and surveys for all commercial vendors on RNII's Approved Suppliers List. The inspectors evaluated 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 RNI's dedication process. The inspectors also discussed the conduct of CGD activities with RNII personnel involved in the development of the technical evaluations, the surveys, and in assessing the results from these activities.

The inspectors selected samples of technical evaluations prepared for safety-related components with emphasis on pressure transmitters and reactor trip units, conducted interviews with personnel responsible for quality and engineering, reviewed program documents and records, and conducted direct observations of inspection and manufacturing activities in order to assess the corrective actions taken to address previous CGD issues identified by the NRC.

The attachment to this Inspection Report (IR) lists the documents reviewed by the inspectors.

b. Observations and Findings

The inspectors found that RNII had revised their CGD program to address deficiencies identified by the NRC in Inspection Report (IR) 99900271/2012-201 (ADAMS ML12060A393). RNII revised and implemented procedure OP 0720, "Control of Purchased Safety-Related Components," to require the establishment of technical evaluations, which specify the requirements for verifying the acceptability of commercially purchased items. The technical evaluations provided guidance on how to identify the safety function of these items, as well as their "critical characteristics for design" and "critical characteristics for acceptance." While the revised elements of the CGD program addressed most of the concerns previously raised by the NRC, the inspectors determined that OP 0720 did not clearly delineate the requirements for evaluating and documenting how the identified "critical characteristics for design" were verified prior to accepting items manufactured under commercial controls.

During the review of technical evaluations, the inspectors identified two instances where specified requirements for verifying acceptability of commercial grade items did not provide discernible documentation or an evaluation for the verification (or lack of verification) of the critical characteristics identified by RNII staff in accordance with the CGD program and which were necessary for the basic components to perform their safety function. Specifically, 10 CFR Appendix B to Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," Criterion V, requires activities affecting quality to be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances. In addition, instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. The requirements of Appendix B have been contractually imposed upon the supplier by NRC

licensees. For example, the supplier has shipped numerous model series 1150 transmitters purchased for use in safety-related applications at the Watts Bar nuclear plant.

As described in the following examples, as of November 22, 2013, the implementation of procedure OP 0720 has not assured that critical characteristics as defined by 10 CFR 21.3 will be verified for items manufactured under commercial controls:

- TE-Common-01-01, "Technical Evaluation of 3150 and 1150 Series Mounting Fasteners," including supporting drawing N53315, did not provide requirements or acceptance criteria to verify critical characteristics of material elongation, yield strength, or tensile strength.
- TE-315x-03-01, "Technical Evaluation of 3150 Series Pressure Retaining Flanges," did not provide requirements to verify critical characteristics of tensile strength or yield strength, and did not provide criteria to determine acceptability of critical characteristics of casting quality, hardness, or material.

The identified failures to require verifications of critical characteristics were more than minor because they did not represent an isolated issue and have the potential to result in failures to provide reasonable assurance that the host structures, systems, and components affected by the dedicated basic components would perform their intended safety functions.

As a result of these deficiencies, the NRC inspection team identified Nonconformance 990027/2013-201-01 for a failure to establish appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

c. Conclusions

The NRC inspection team determined that RNII has adequately updated its process for control of commercial grade dedications in response to NRC's previously identified issues. However, the inspectors could not fully assess the effectiveness of the technical evaluations that were part of the corrective actions to address Nonconformance 99900271/2012-201-03 because at the time of the inspection RNII had not fully implemented them for all the commercially procured components (i.e. printed circuit board technical evaluations were drafted but not approved for use). For the limited samples that were reviewed no issues of significance were identified.

Nonconformance 990027/2013-201-01 was identified as an example of not establishing adequate procedural guidance to accomplish the verification of commercially manufactured items consistent with the regulatory requirements of Criterion V of Appendix B to 10 CFR Part 50.

3. Manufacturing Hazards

a. Inspection Scope

The NRC inspectors reviewed the corrective actions taken by RNII in response to nonconformance 99900271/2012-201-04. The vendor has implemented programmatic

changes requiring an engineering evaluation of all substances used in the production area. The inspectors reviewed the documentation for all evaluations performed since the program inception. The inspectors also verified, through multiple walkthroughs of the nuclear production area, that no potentially hazardous substances were present.

The attachment to this inspection report lists the documents reviewed by the inspectors.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspectors concluded that RNII has implemented procedures for control of substances in the production area that satisfy the regulatory requirements set forth in Criterion XIII, "Handling, Storage and Shipping" of Appendix B to 10 CFR Part 50. No findings of significance were identified.

4. Records Access Control

a. Inspection Scope

The inspectors reviewed the implementation of RNII's follow-up actions in response to the electronic records access control deficiency associated with NRC NON 99900271/2012-201-03. The inspectors reviewed the associated RNII CAPA reports and the resulting commitments to implement specific corrective actions. The inspectors reviewed procedural changes and training plans that RNII has established as a barrier to prevent recurrence. The inspectors also observed a demonstration of access controls for a sample of quality, procurement and design records stored in multiple network databases.

The attachment to this inspection report lists the documents reviewed by the inspectors.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

Based on the samples reviewed, the inspectors determined that RNII's corrective actions in response to the records access portion of NON 99900271/2012-201-03 and implementation of RNII's electronic records access control program were adequate and the related portion of the finding is closed. No findings of significance were identified.

5. Test Software Control

a. Inspection Scope

The inspectors reviewed the implementation of RNII's follow-up actions in response to the test software control deficiency associated with NRC NON 99900271/2012-201-03.

The inspectors reviewed the associated RNII CAPA reports and the resulting commitments to implement specific corrective actions. The inspectors reviewed procedural changes and training plans that RNII has established as a barrier to prevent recurrence. The inspectors also reviewed a sample of production software documentation related to the 3150 series of pressure transmitters to verify implementation of programmatic changes for control of software. Specifically, the inspectors assessed the software change request process, software documentation review and approvals, traceability of software requirements, and validation of production software.

The attachment to this inspection report lists the documents reviewed by the inspectors.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

Based on the samples reviewed, the inspectors determined that RNII's corrective actions in response to the software portion of NON 99900271/2012-201-03 and implementation of RNII's new production software controls were adequate and the related portion of the finding is closed. No findings of significance were identified.

6. Exit Meeting Summary

On November 22, 2013, the inspectors presented the inspection results during an exit meeting with Mr. Bumgarner and other RNII personnel. On December 18, 2013 the inspectors re-exited on a conference call with Mr. Bumgarner and other RNII personnel.

ATTACHMENT

1. ENTRANCE/EXIT MEETING ATTENDEES AND KEY POINTS OF CONTACT:

| Name | Title | Affiliation | Entrance | Exit | Interviewed |
|----------------|-------------------------------------|-------------|----------|------|-------------|
| M. Bumgarner | Vice President and General Manager | RNII | X | X | |
| J. Chivers | Director of Engineering | RNII | X | X | X |
| D. Flatten | Quality Engineer | RNII | X | X | X |
| D. Grey | Mechanical Inspector | RNII | | | X |
| S. Guttsen | Mechanical Inspector | RNII | | | X |
| G. Hanson | Value Chain Director | RNII | X | X | |
| C. Hunt | Senior Design Engineer | RNII | | X | |
| E. Irmiter | Manufacturing Engineering Manager | RNII | X | X | X |
| D. Jorissen | Receiving Inspector | RNII | | | X |
| T. Kaluzniak | Customer Care Manager | RNII | X | X | |
| B. Kocher | Principle Application Engineer | RNII | | X | |
| A. Larson | Supplier Quality Engineer | RNII | X | X | X |
| M. Mai | Instrument Builder 2 | RNII | | | X |
| M. McDonald | Operations Manager | RNII | X | X | |
| B. Miller | Software Project Manager | RNII | | | X |
| D. Pham | Quality Manager | RNII | X | X | X |
| M. Schaepekens | Supplier Quality Engineer | RNII | X | X | X |
| R. Schmit | Senior Technical Support Specialist | RNII | | | X |
| N. Shukei | Senior Quality Engineer | RNII | X | X | X |
| B. Sofer | Electrical Design Engineering | RNII | | X | |
| C. St. George | Materials Manager | RNII | X | X | |
| S. Stephenson | Corporate Counsel | RNII | X | X | |

| Name | Title | Affiliation | Entrance | Exit | Interviewed |
|--------------|------------------------|-------------|----------|------|-------------|
| G. Lipscomb | Inspection Team Leader | NRC | X | X | |
| J. Jimenez | Inspection Team Member | NRC | X | X | |
| C. Jones | Inspection Team Member | NRC | X | X | |
| L. Micewski | Inspection Team Member | NRC | X | X | |
| Hyo Jun Kim | Observer | KINS | X | | |
| Yeong Jin Yu | Observer | KINS | X | | |

2. INSPECTION PROCEDURES USED:

IP 43002, "Routine Inspections of Nuclear Vendors"

IP 43004, "Inspection of Commercial-Grade Dedication Programs"

IP 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance"

3. ITEMS OPENED, CLOSED, AND DISCUSSED:

| <u>Item Number</u> | <u>Status</u> | <u>Type</u> | <u>Description</u> |
|----------------------|---------------|-------------|--|
| 99900271/2012-201-01 | Closed | NOV | 10 CFR 21.21(a) |
| 99900271/2012-201-02 | Closed | NOV | 10 CFR 21.21(a) |
| 99900271/2012-201-03 | Discussed | NON | App. B, Criterion III (remains open due to incomplete corrective actions for commercial grade dedication) |
| 99900271/2012-201-04 | Closed | NON | App. B, Criterion XIII |
| 99900271/2013-201-01 | Opened | NON | App. B, Criterion V |

4. INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA:

The U.S. Nuclear Regulatory Commission (NRC) inspection team did not identify any inspections, tests, analyses, and acceptance criteria (ITAAC) related to components being fabricated, manufactured, and tested at Rosemount at the time of the inspection.

5. DOCUMENTS REVIEWED:

RNII Procedures

OP 0210, "Quality Management System," Revision AD, dated March 11, 2013

OP 0340, "Engineering Change Orders," Revision AJ, dated April 12, 2013

OP 0720, "Control of Purchased Safety-Related Components," Revision AM, dated September 23, 2013

OP 0730, "Receiving Inspection," Revision AF, dated January 25, 2012

OP 0740, "Service Agreements," Revision AG, dated July 25, 2013

OP 0910, "Special Processes," Revision AJ, dated September 20, 2013

OPS-0910-1, "Special Process Plans," Revision AP, dated September 20, 2013

OP 1120, "Production Software Controls," Revision AA, dated July 9, 2003

OP 1120, "Production Software Controls," Revision AJ, dated February 7, 2013

OP 1310, "Material Handling, Storage, and Shipping," Revision AG, dated January 18, 2013

OP 1510, "Nonconforming Material Control," Revision AH, dated August 26, 2013

OP 1610, "Corrective Action," Revision AG, dated August 8, 2013

OP 1620, "Implementation of 10CFR Part 21," Revision AH, dated May 4, 2012

DES-0720-F1, Technical Evaluation form

DES-1120-1, "Production Software Verification and Validation," Revision AA, dated October 23, 2012

QA-1010-1, "Sampling Plans," Revision AD, dated August 19, 2013

QA-0740-01, "Inter-Company Purchase Agreement (ICPA): Metrology," Revision AE, dated September 26, 2012

QA-0740-02, "ICPA: Welding," Revision AF, dated January 9, 2012

QA-0740-03, "ICPA: Remote Seal Fill," Revision AF, dated January 15, 2012

Procedure 03154-3307, "HP Aging and Air Entrapment Testing for 3152, 3153, and 3154 lower modules," Revision AA, dated February 27, 2012

Procedure 03154-3308, "Delta Ultrasonic Isolator Height Check," Revision AJ, dated February 27, 2012

RNII Nonconformance Reports and Corrective Actions

CAPA000063, "710 Tepro Resistor Reliability," dated April 4, 2011

NC000675, "During the NRC inspection, a follow-up action from a Special Part 21 meeting was incomplete," dated February 2, 2012

NC000677, "Clarification to Software Test Requirements in OP 1120," dated February 2, 2012

NC000682, "Improve the controls of the 115X Amplifier FCT software," dated February 2, 2012

NC000684, "During the NRC Inspection, more robust controls of files such as the NSL and PCL were suggested," dated February 2, 2012

QAP-3-002, "Computer Software Quality Assurance Procedure," Revision 4, August 24, 2012

NC000681, "Misalignment of the definition of discovery in 10CFR Pt21 and OP-1620," dated February 2, 2012

NC000678, "Procedural link between 10 CFR Part 21 program and CAPA system," dated February 2, 2012

NC000679, "During the NRC inspection, it was identified that there was a lack of justification for the use of Clorox wipes in production," dated February 2, 2012

NC001159, "Reworked 710 Master Trip Units & RTD Assemblies are missing epoxy under certain resistors," dated July 27, 2012

ACTION001714, "Review impact of the missing epoxy to the 710 seismic qualification," dated July 27, 2013

CAPA001193, "Potentiometer Failures," dated March 21, 2013

CAPA001358, "Internal Audit Findings related to Qual Report retrieval," dated July 19, 2013

CAPA001493, "Nortech has been using a different wire type than what is specified by RNII drawing N70007," dated October 23, 2013

ACTION002877, "Additional controls to prevent deletion of PCL and NSL files will be reviewed," dated November 20, 2013

CAPA001525, "Review alignment of NRC and EPRI Critical Characteristics definitions in OP 0720 & DES-0720-01," dated November 20, 2013

CAPA001525, "Review Alignment of NRC and EPRI Definitions for Critical Characteristics," dated November 20, 2013

Drawings

Drawing No. 01153-3335, "Inspection Welded Flange Assembly," Revision AK, dated June 13, 2013

Drawing No. 03154-0099, "Model 3150 Series CCA Functional Test Specification," Revision AE, dated April 18, 2013

Drawing No. 03154-0099, "Model 3150 Series CCA Functional Test Specification," Revision AB, dated December 21, 2004

Procurement Documents

Constellation Purchase Order No. 7734682, Revision 0, dated September 24, 2013

Florida Power & Light Purchase Order No. 02300717, Revision 50, dated October 29, 2013

Dominion Purchase Order No. 4500106248, dated November 20, 2013

PO 392703-1, "Clean/repair of Pressure Transmitters"

Technical Evaluations

TE-Common-01-01, "Technical Evaluation of 3150 and 1150 Series Mounting Fasteners," Revision AA, dated July 29, 2013

TE-115X-07-02, "Technical Evaluations of 1150 series cover," Revision AB, dated September 9, 2013

TE-3051-10-01, "Technical Evaluation of 3051N Pressure Transmitter," Revision AA, dated July 11, 2013

TE-315x-03-01, "Technical Evaluation of 3150 Series Pressure Retaining Flanges," Revision AA, dated July 11, 2013

TE-315X-04-06, "315x-series Lower module," Revision AB, dated November 11, 2013

Software Documents

Change Request Log for 601TT4000 Software, database query updated November 15, 2013

Summary of RNII Production Software, dated November 15, 2013

SW-TempCo-SRD, "System Requirements Document for TempCo Software," Revision AB, dated October 28, 2013

Requirements Test Matrix for TempCo Software, dated November 8, 2013

Verification Test Plan and Validation Test Results – TempCo Software, Revision 4.04.03, dated November 6, 2013

Software Validation Plan and Approval – Line Pressure Calibration, dated June 13, 2011

"System Requirements Document for 3150 Series Amplifier Functional Test," Revision AC, dated May 13, 2013

Verification Test Plan and Validation Test Results – 3150 Series CCA Functional Test Software, Revision 01.04.00, dated October 29, 2012

Verification Test Plan and Validation Test Results – 3150 Series Functional Test, Revision 1.06.00, dated September 24, 2013

Requirements Test Matrix for 3150 Series CCA Functional Test, Revision AC, dated November 1, 2013

Requirements Test Matrix for 3150 Series CCA Functional Test, Revision AD, dated December 5, 2013

“System Requirements Document for 611 MPxxx/3150 MPT Station,” Revision AA, dated July 17, 2013

Requirements Test Matrix for 3150 MPT, dated September 12, 2013

Verification Test Plan and Validation Test Results – 3150 Module Performance Test, Revision 1.09.0, dated September 6, 2013

Software Validation Plan and Approval (includes supporting data) – 611AT100, dated January 7, 2005

Supplemental Engineering Test Results – 611AT1030, Revision B, dated February 28, 2013

Miscellaneous Documents

D9000115, “RNII Quality Manual,” Revision AB, dated January 1, 2011

Form OP-1310-F1, “Nuclear Production Chemical Review Form,” Revision AB, dated October 1, 2012

CAR No. 12N-54, dated December 31, 2012

CAR No. 13N-03, dated March 4, 2013

Log book of Rosemount Nuclear Production Chemical Review Forms, dated May 10, 2012 to present

Form QA-1620-1, “Additional Part 21 Notifications,” Revision AC, dated June 3, 2010

Form QA-1620-2, “10CFR Part 21 Notification Checklist,” Revision AF, dated April 24, 2013

RNII Potential Deviation or Failure to Comply Issue Log, updated November 15, 2013

TE-Common-03-03, “Technical Evaluation of 3150 and 1150 Series Valve Stems,” Revision AA, dated August 29, 2013

SCA-2456, Supplier Corrective Action Form between RNII and Alpha Precision Turning and Engineering concerning Nonconformance of Part # 01153-0277-0001, dated November 12, 2012

Lab Analysis Report #13-0284 from The Specialty Lab, Inc. to RNII for BI Technologies potentiometer failure, dated June 24, 2013

FA #1200070455, Returned Material Authorization, dated July 27, 2012

Pham, D., Rosemount Nuclear Instruments, Inc., May 26, 2011, *Part 21 Review Committee Meeting minutes*, as amended on February 3, 2012

Pham, D., Rosemount Nuclear Instruments, Inc., January 6, 2012, *Part 21 Review Committee FY 12 Q1 Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., January 11, 2012, *Part 21 Review Committee Special Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., January 24, 2012, *Part 21 Review Committee Special Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., February 14, 2012, *Part 21 Review Committee Special Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., March 21, 2012, *Part 21 Review Committee Special Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., April 23, 2012, *Part 21 Review Committee Special Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., June 7, 2012, *Part 21 Review Committee Special Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., October 12, 2012, *Part 21 Review Committee FY 12 Q3_Q4 Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., November 29, 2012, *Part 21 Review Committee Special Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., January 11, 2013, *Part 21 Review Committee FY13 Q1 Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., April 8, 2013, *Part 21 Review Committee FY13 Q2 Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., May 2, 2013, *Part 21 Review Committee Special Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., July 22, 2013, *Part 21 Review Committee FY13 Q3 Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., September 6, 2013, *Part 21 Review Committee Special Meeting minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., October 11, 2013, *Part 21 Review Committee Special Meeting – Nortech Wire minutes*

Pham, D., Rosemount Nuclear Instruments, Inc., November 1, 2013, *Part 21 Review Committee FY13 Q4 Meeting minutes*

Bumgarner, Marc D., Vice President & General Manager, Rosemount Nuclear Instruments, Inc., "Reply to NRC Inspection Report NO. 99900271/2012-201 Notice of Violation and Notice." Letter to United States Nuclear Regulatory Commission, dated 11 May 2012

OPS-0910-1, "Fitting to Flange Weld Specification," for Employee # 30942, dated September 17, 2004

TE-Common-01-01, "Technical Evaluation of 3150 and 1150 Series Mounting Fasteners," Revision AA, dated July 29, 2013

TE-3051-10-01, "Technical Evaluation of 3051N Pressure Transmitter," Revision AA, dated July 11, 2013

TE-315x-03-01, "Technical Evaluation of 3150 Series Pressure Retaining Flanges," Revision AA, dated July 11, 2013,

Report D2000055, "3051 Commercial grade Dedication Report," Revision AG, dated January 22, 2013

Drawing N53315, "Bolt, Special; Alloy Steel. Dash no. 003, Revision AF, dated June 29, 2013

Report D2000055, "3051 Commercial grade Dedication Report," Revision AG, dated January 22, 2013

Departmental Procedure (DP) QA 0740-5 "Inter-company Purchase Agreements," Revision AH, dated June 25, 2013

Design Study Summary (DS)-RNII-2012-040, "Assessment of Commercial Grade Dedication of 1150 series Sensor Fill Fluid," dated August 12, 2012

Engineer Change Order (ECO) RNII050876, "Creation of Flange Assemblies with welded ¼" Swagelok Fittings"

6. ACRONYMS USED:

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| ADAMS | Agencywide Documents Access and Management System |
| ASL | Approved Supplier List |
| CGD | commercial grade dedication |
| CFR | <i>Code of Federal Regulations</i> |
| DCIP | Division of Construction Inspection and Operational Programs |
| EVIB | Electrical Vendor Inspection Branch |
| IP | inspection procedure |
| ITAAC | inspections, tests, analyses, and acceptance criteria |
| KINS | Korea Institute of Nuclear Safety |

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|------|--------------------------------------|
| M&TE | measuring and test equipment |
| MVIB | Mechanical Vendor Inspection Branch |
| NON | Notice of Nonconformance |
| NRC | (U.S.) Nuclear Regulatory Commission |
| NRO | Office of New Reactors |
| PO | purchase order |
| QA | quality assurance |
| RNII | Rosemount Nuclear Instruments, Inc. |
| SRD | System Requirements Document |
| SSC | structures, systems and components |
| U.S. | United States (of America) |