

August 22, 2017

Mr. Samuel B. Mummert
Quality Assurance Manager
Vigor Works, LLC
9700 SE Lawnfield Road
Clackamas, OR 97015

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION REPORT OF VIGOR
WORKS LLC NO. 99901448/2017-201

Dear Mr. Mummert:

On July 17-21, 2017, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Vigor Works LLC (formerly Oregon Iron Works) facility in Clackamas, Oregon. The purpose of this limited-scope routine inspection was to assess Vigor'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 Part 50, "Domestic Licensing of Production and Utilization Facilities." The enclosed report presents the results of this inspection.

This technically-focused inspection specifically evaluated Vigor's implementation of the quality activities associated with the fabrication, assembly, and testing activities of CB20 Passive Containment Cooling Water Tank L modules being supplied to the Westinghouse Electric Company (WEC) AP1000 reactor design. This NRC inspection report does not constitute NRC endorsement of Vigor's overall quality assurance (QA) or Part 21 programs.

In addition, the inspection assessed Vigor's corrective actions to close previous NRC identified nonconformances in NRC Inspection Reports (IR) 99901448/2014-201 and 99901449/2014-201 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14308A463).

Within the scope of this inspection, no violations or nonconformances were identified.

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 (ADAMS), accessible at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response, (if applicable), 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.

Sincerely,

/RA/

John P. Burke, Chief
Quality Assurance Vendor Inspection Branch-2
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Docket No.: 99901448

Enclosure:
Inspection Report No. 99901448/2017-201
and Attachment

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION REPORT OF VIGOR WORKS LLC NO. 99901448/2017-201

Dated: August 22, 2017

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

Docket No.: 99901448

Report No.: 99901448/2017-201

Vendor: Vigor Works, LLC
9700 SE Lawnfield Road
Clackamas, OR 97015

Vendor Contact: Samuel B. Mummert
Quality Assurance Manager
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Nuclear Industry Activity: Vigor Works LLC, is under contract to WECTEC to fabricate, assemble, inspect, transport, and deliver CB20 Passive Containment Cooling Water Tank L modules for the Westinghouse Electric Company AP1000 reactor design.

Inspection Dates: July 17-21, 2017

Inspectors: Jonathan Ortega-Luciano NRO/DCIP/QVIB-2, Team Leader
Raju Patel NRO/DCIP/QVIB-2
Jermaine Heath NRO/DCIP/QVIB-1
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Approved by: John P. Burke, Chief
Quality Assurance Vendor Inspection Branch-2
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Enclosure

EXECUTIVE SUMMARY

Vigor Works LLC.
99901448/2017-201

The U.S. Nuclear Regulatory Commission (NRC) staff conducted a vendor inspection at the Vigor Works LLC (formerly Oregon Iron Works) at Clackamas, Oregon, to verify that it had 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 Vigor 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 from July 17-21, 2017.

This technically-focused inspection specifically evaluated Vigor's implementation of QA activities related with the fabrication, assembly, and testing of the CB20 Passive Containment Cooling Water Tank L module for the Westinghouse Electric Company (WEC) AP1000 reactor design.

Specific activities observed by the NRC inspection team included:

- Set-up and performed stud welding on Submodule CB20-040 Flat Bottom Ring Module 0300, SV3 [Southern Vogtle 3]
- Set-up and performed Magnetic Particle Examination of Shield Building Roof Area 8 Module CB20
- Set-up and perform liquid penetrant testing of weld repair area of angle splice for on Shield Building Roof Area 8 Module CB20
- Set-up and perform visual testing (VT) examination of fillet welds of Full-Bridge of CB20 submodule, SV3
- VT of stud welds on Flat Bottom Rings Module CB20-040, SV3
- Stud welder qualification in accordance with the American Welding Society (AWS) D1.1 standard
- Set-up and perform semi-automatic robotic flux core arc welding (FCAW) process of fillet welds on submodule CB20 bridge, SV3

In addition to observing these activities, the NRC inspection team verified that measuring and test equipment (M&TE) was properly identified, marked, calibrated, and used within its calibrated range.

These regulations served as the bases for the NRC inspection:

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

During the course of this inspection, the NRC inspection team implemented the following Inspection Procedures (IP):

- IP 36100, “Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance”, dated February 13, 2012
- IP 43002, “Routine Vendor Inspections”, dated January 27, 2017
- IP 43004, “Inspection of Commercial-Grade Dedication Programs”, dated January 27, 2017

This was the second NRC inspection of Vigor’s facility in Clackamas, Oregon. The last NRC inspection was conducted in September 2014 and the results are documented in Inspection Report (IR) No. 99901448/2014-201 and 99901449/2014-201, dated November 18, 2014. The NRC inspection team concluded that Vigor’s QA policies and procedures comply with the applicable requirements of 10 CFR Part 21 and Appendix B to 10 CRF Part 50, and that Vigor’s personnel are implementing these policies and procedures effectively.

The results of this inspection are summarized below.

Corrective Action

The NRC inspection team reviewed the corrective actions that Vigor had taken to address nonconformances identified during the NRC 2014 inspection. The NRC inspection team reviewed the documentation that provided the objective evidence that all corrective actions were completed and adequately implemented. Based on this review, the NRC inspection team closed all of the nonconformances documented in the 2014 IR.

Inspection Areas

The NRC inspection team determined that Vigor is implementing its programs for commercial-grade dedication, training and qualification of personnel; manufacturing control; special process; inspection; M&TE, nonconformance of material, parts or components; corrective action; and audits in accordance with the applicable regulatory requirements of Appendix B to 10 CFR Part 50. Also, the NRC inspection team concluded that Vigor is implementing its 10 CFR Part 21 program in accordance with the regulatory requirements. Based on the limited sample of documents reviewed and activities observed, the NRC inspection team also determined that Vigor is implementing its policies and procedures associated with these programs. No findings of significance were identified.

REPORT DETAILS

1. 10 CFR Part 21 Program

a. Inspection Scope

The NRC inspection team reviewed Vigor's policies and implementing procedures that govern Vigor's 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 Vigor's purchase orders (PO) for compliance with the requirements of 10 CFR 21.21, "Notification of Failure to Comply or Existence of a Defect and its Evaluation," and 10 CFR 21.31, "Procurement Documents." The NRC inspection team also verified that Vigor's nonconformance and corrective action procedures provide a link to the 10 CFR Part 21 program. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that Vigor is implementing its 10 CFR Part 21 program in accordance with the regulatory requirements of 10 CFR Part 21. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Vigor is implementing its policies and procedures associated with the 10 CFR Part 21 program. No findings of significance were identified.

2. Commercial-Grade Dedication

a. Inspection Scope

The NRC inspection team reviewed Vigor's policies and implementing procedures that govern the commercial-grade dedication (CGD) program to verify their compliance with the regulatory requirements of Criterion III, "Design Control," of Appendix B to 10 CFR Part 50.

The NRC inspection team selected a sample of items and services that were dedicated by Vigor for use in safety-related applications to verify compliance with the applicable technical and regulatory requirements. Specifically, the NRC inspection team evaluated Vigor's technical evaluations and verified that the evaluations appropriately identified the critical characteristics and verified the technical attributes necessary to provide reasonable assurance that the components being dedicated would perform their intended safety function. The NRC inspection team also evaluated the criteria for the selection of critical characteristics, the basis for the selection of the sampling plan, and the selection and implementation of verification methods to verify effective implementation of Vigor's CGD process.

The NRC inspection team also discussed the CGD program with Vigor's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that Vigor is implementing its CGD program in accordance with the regulatory requirements of Criterion III of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Vigor is implementing its policies and procedures associated with the CGD program. No findings of significance were identified.

3. Material Traceability

a. Inspection Scope

The NRC inspection team reviewed Vigor's policies and implementing procedures that govern material traceability to verify compliance with the regulatory requirements of Criterion VIII, "Identification and Control of Material, Parts, and Components," of Appendix B to 10 CFR Part 50.

The NRC inspection team observed that all materials were marked with unique lot number traceable to procurement records. This lot number is unique and assigned once the receipt inspection is completed. For a sample of the CB20 submodules, the NRC inspection team observed that identification markings were: (1) traceable to design and shop drawings, (2) carried and remained legible through the manufacturing process, and (3) applied using materials and methods that provided a clear and legible identification that did not adversely affect the function or service life of the modules. Also, the NRC inspection team verified the controls that Vigor have in place for traceability and storage of material between the multiple storage locations. As part of those controls Vigor uses Fab-Trol-MRP, an internal computer database system, to track material locations per project. This system is also used to track the location of materials between the two Vigor facilities.

The NRC inspection team discussed the material traceability program with Vigor's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team determined that Vigor is implementing its material traceability program in accordance with the regulatory requirements of Criterion VIII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Vigor is implementing its policies and procedures associated with the material traceability program. No findings of significance were identified.

3. Manufacturing Control/Special Process

a. Inspection Scope

The NRC inspection team reviewed Vigor's policies and implementing procedures that govern the control of special processes to verify compliance with the regulatory requirements Criterion IX, "Control of Special Processes," of Appendix B to 10 CFR Part 50, American Welding Society (AWS) D1.1 Structural Welding Code – Steel, 2000 Edition and AWS D1.6, Structural Welding Code – Stainless Steel, 1999 Edition, the American Society for Nondestructive Testing (ASNT) SNT-TC-1A, "Standard Practice for Personnel Qualification and Certification in Nondestructive Testing," 1996 Edition, and the American Society of Mechanical Engineer Boiler and Pressure Vessel Code, Code Section IX, "Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators," 2017 Edition.

The NRC inspection team reviewed a sample of welding and nondestructive examination (NDE) documents associated with the fabrication and inspection of the CB20 submodules. The NRC inspection team verified that the applicable welding data; such as weld material identification number, welding procedure specifications (WPS), inspection procedures, and the final inspection results were properly recorded on weld travelers.

The NRC inspection team witnessed semi-automatic Flux Cored Arc Welding (FCAW) on submodules 11, 15, and 17 for CB20 module, and machine stud welding for submodule CB20_0100 Type 1. The NRC inspection team verified that WPS used for these submodules were qualified in accordance with the requirements of AWS D1.1 and the applicable Vigor procedures. The NRC inspection team also reviewed an additional sample of WPSs and procedure qualification records (PQR) to verify that the documents were in accordance with the requirements of ASME Section IX, and the applicable Vigor procedures.

The NRC inspection team observed Vigor's weld filler wire control storage and issuance areas to ensure that the weld filler metal was adequately controlled at all times until its consumption, and reviewed records associated with the storage, issuance, and return of weld filler wires. Also, the NRC inspection team verified that the weld filler metal was kept in sealed containers and the environmental condition of the storage facility were controlled and monitored daily using calibrated instrument in accordance with the requirements of AWS D1.1 and ASME Section IX.

The NRC inspection team witnessed in-process visual testing (VT), and magnetic particle (MT) inspection of robotic fillet welds on submodule Shielding Building Roof Area 8 Module CB20. The NRC inspection team also observed VT of the fillet welds on Full Bridge Type 03/04 to Type 01/02 on submodule CB20-55B for Vogtle Unit 3 (SV3), and stud welds on submodule SV3 Flat Bottom Ring Module 0300, Vigor Piece Mark 0300A-05, submodule serial number CB30-040. Further, the NRC inspection team observed liquid penetrant examination (PT) of non-safety-related splicing angle sub module CB20 after repair on nonconformance report No. 6003-17-NCR-01. No safety-related PT was available to inspect. The NRC inspection team selected this non-safety related PT because the PT inspection process was implemented by Vigor using the same inspection techniques and processes used during Vigor's PT inspection of safety-related modules.

During VT, PT, and MT, the NRC inspection team witnessed and verified that the NDE Level II performed the examinations in accordance with the Vigor procedures and appropriate acceptance criteria using calibrated instruments. The NRC inspection team also reviewed qualification records for a sample of three Level II non-destructive inspectors and Vigor's third-party Level III non-destructive examiner and confirmed that they were qualified in accordance with the requirements in ASNT SNT-TC-1A.

The NRC inspection team discussed the special processes program with Vigor's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team determined that Vigor is implementing its program to control the use of special processes in accordance with the regulatory requirements of Criterion IX of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Vigor is implementing its policies and procedures associated with the control of special processes program. No findings of significance were identified.

4. Inspection

a. Inspection Scope

The NRC inspection team reviewed Vigor's policies and implementing procedures that govern the inspection program to verify compliance with the regulatory requirements of Criterion X, "Inspection," of Appendix B to 10 CFR Part 50.

For a sample of inspection documents, the NRC inspection team verified that these documents included the appropriate information as required by Vigor's procedures such as the inspection date, type of observation, results of examinations and tests, the initials of the quality control (QC) inspector, and mandatory hold points were indicated and work did not proceed without appropriate approval.

The NRC inspection team verified that Vigor had a process in place to initiate a nonconformance report when a counterfeit, fraudulent, and suspect item (CFSI) was suspected. The NRC inspection team interviewed QC inspectors to assess their understanding of controlling and documenting when CFSI is suspected. The NRC inspection team noted that the QC inspectors were knowledgeable on the use of documents to verify, document, and report CFSI.

The NRC inspection team evaluated Vigor's receipt inspection area to determine if Vigor had adequate material control. The NRC inspection team observed that accepted materials were adequately identified, and that rejected materials segregated in a nonconformance hold area were properly marked with hold tags.

The NRC inspection team discussed the inspection program with Vigor's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team determined that Vigor is implementing its inspection program in accordance with the regulatory requirements of Criterion X of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Vigor is implementing its policies and procedures associated with the inspection program. No findings of significance were identified.

5. Control of Measuring and Test Equipment

a. Inspection Scope

The NRC inspection team reviewed Vigor's policies and implementing procedures that govern the Measuring and Test Equipment (M&TE) program to verify compliance with the requirements of Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR Part 50.

The NRC inspection selected a sample of M&TE, and determined that they had the appropriate calibration stickers with the respective calibration service and current calibration dates including the calibration due date. The NRC inspection team also verified that the M&TE had been calibrated, adjusted, and maintained at prescribed intervals. In addition, the calibration records reviewed by the NRC inspection team indicated the "as-found" or "as-left" conditions, accuracy required, calibration results, calibration dates, owner of the calibration services, and the due date for recalibration. The NRC inspection team verified that the selected M&TE was calibrated using standards traceable to known industry standards including those outsourced for calibration. All M&TE equipment was traceable with a unique ID number. The number is traced and can be retrieved using an M&TE log which contains all of the information regarding the calibration of the item.

The NRC inspection team performed a walk down to ensure that equipment located in the M&TE storage area, the M&TE hold area, and the fabrication shop were labeled, handled, and stored in a manner that indicated the calibration status of the instrument and ensured its traceability to calibration test data.

The NRC inspection team discussed the M&TE program with Vigor's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team determined that Vigor is implementing its M&TE program in accordance with the regulatory requirements of Criterion XII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Vigor is implementing its policies and procedures associated with the control of M&TE. No findings of significance were identified.

6. Supplier Oversight and Internal Audits

a. Inspection Scope

The NRC inspection team reviewed Vigor's policies and implementing procedures that govern the implementation of its procurement document control, oversight of contracted activities and internal audits programs to verify compliance with the requirements of Criterion VII, "Control of Purchased Material, Equipment, and Services," and Criterion XVIII, "Audits," of Appendix B, to 10 CFR Part 50.

The NRC inspection team reviewed a sample of POs, external and internal audits, and receipt inspection records to evaluate compliance with the applicable regulatory and technical requirements. The NRC inspection team also reviewed the disposition of audit findings to resolve for adequacy and timeliness. The NRC inspection team confirmed that external and internal audit reports contained objective evidence of the review of the relevant QA criteria of Appendix B to 10 CFR Part 50. The NRC inspection team also verified that external and internal audits were performed by qualified auditors. In addition, the NRC inspection team also reviewed a sample of training and qualification records of Vigor's auditors and confirmed that auditing personnel had completed all the required training and had maintained qualification and certification in accordance with Vigor's policies and procedures.

The NRC inspection team also discussed the procurement document control, oversight of contracted activities and internal audits programs with Vigor's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that Vigor is implementing its oversight of contracted activities and internal audits in accordance with the regulatory requirements of Criterion VII, and Criterion XVIII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Vigor is implementing its policies and procedures associated with its oversight of contracted activities and internal audits programs. No findings of significance were identified.

7. Nonconforming Materials, Parts, or Components and Corrective Actions

a. Inspection Scope

The NRC inspection team reviewed Vigor's policies and implementing procedures that govern the control of nonconformances and corrective action programs to verify compliance with the requirements of Criterion XV, "Nonconforming Materials, Parts and Components," and Criterion XVI, "Corrective Action" of Appendix B to 10 CFR Part 50 respectively.

The NRC inspection team reviewed Vigor's nonconformance report (NCR) log and reviewed a sample of NCRs to ensure that Vigor implemented an adequate program to assess and control of nonconforming items, including appropriate identification, segregation, documentation, evaluation, and disposition. Furthermore, the NRC inspection team performed a walk down of the nonconformance segregation areas to verify that nonconforming materials were properly identified, marked and segregated.

In addition, the NRC inspection team selected a sample of corrective actions reports (CAR) to verify that condition adverse to quality (CAQ) were being promptly identified and corrected. The NRC inspection team observed a corrective and preventive action meeting held by Vigor staff from the Quality, Engineering and Production departments. The purpose of the meeting was to discuss and classify several CAQ identified during the fabrication phase.

The NRC inspection team also reviewed the corrective actions that Vigor had taken to address the previously identified nonconformances identified in NRC Inspection Report (IR) 99901448/2014-201 and 99901449/2014-201.

The NRC inspection team also discussed the nonconformance and corrective actions programs with Vigor's management and technical staff. The attachment to this inspection report list includes the documents reviewed and the personnel interviewed by the NRC inspection team.

b. Observations and Findings

b.1 Corrective Action Associated with Nonconformances 99901448/2014-201-01 and 99901449/2014-01

Nonconformance 99901448/2014-201-01 and 99901449/2014-01 was issued for Vigor's failure to ensure that CAQ, such as deficiencies and nonconformances were promptly documented and corrected. In addition, Vigor's did not always document the current status, plan of action, or commitments for work progress to correct problems and prevent recurrence. Specifically, (1) Vigor's corrective actions (NPD-CAR-14-34) failed to identify for the evaluation scope of supply and method of verification to establish Cal-Cert (third party vendor) as an appropriate provider of weight measurement services to verify the density of rebar installed in CA20 module, (2) Corrective Action (NPD-CAR-13-31) did not identify any proposed corrective actions to address the temporary storage of M&TE and that no objective evidence was found to demonstrate the actions taken to correct this issue, and finally, Vigor's CAR (NPD-CAR-14-33) did not identify any proposed corrective actions to address the inadequate procurement of commercial-grade calibration services used for a light meter and that no objective evidence was found to demonstrate the actions taken by Vigor to correct this issue.

In its response to the NRC dated December 17, 2014, Vigor stated several actions to correct Nonconformance 99901448/2014-201-01 and 99901449/2014-01 were being taken. For example, new instructions were developed for root cause analysis (RCA), Nonconformance Report (NCR) control, and Corrective Actions. Training classes for NCR Instruction, Corrective Action Instruction and RCA Instruction were offered to all employees. A complete re-write of the Corrective Actions Form was established which includes specific sections for documenting immediate corrective actions, extent of conditions, extent of cause, and requirements for objective evidence. Vigor's Corrective Action Manager and all RCA personnel completed TapRoot training, which is the program implemented for corrective action. Logs of all of those training classes were presented as objective evidence to demonstrate that the staff completed the training.

The NRC inspection team reviewed CARs; NPD-CAR-14-086, NPD-CAR-14-098, NPD-CAR-14-099, NPD-CAR-14-034, NPD-CAR-14-041, NPD-CAR-14-086; that Vigor initiated to address Nonconformance 99901448/2014-201-01 and 99901449/2014-01. The NRC inspection team reviewed the documentation that provided objective evidence for the completion of the proposed corrective actions. Specifically, the NRC inspection team verified that all materials calibrated with Cal-Cert have been retested and no issues were identified. In addition, the NRC inspection team reviewed the extent of condition performed for M&TE, the evaluation performed to validate that all unsatisfactory conditions were addressed, and that the objective evidence were submitted to the customer for review and acceptance. Finally, the NRC inspection team verified that all light meters were calibrated using an accredited laboratory and objective evidence of the extent of condition performed by Vigor. No issues with were identified with the utilization of affected light meters. Based on its review, the NRC inspection team closed Nonconformance 99901448/2014-201-01 and 99901449/2014-01.

b.2 Corrective Action Associated with Nonconformances 99901448/2014-201-02 and 99901449/2014-201-02

The NRC also issued Nonconformances 99901448/2014-201-02 and 99901449/2014-201-02 for: (1) Vigor's failure as a dedication entity to perform a technical evaluation to justify that the selection of critical characteristics for dedication of various components such as plates, rebar, weld wires, and metallurgical testing services used as basic components installed in CA20 module assemblies; (2) Vigor's failure to perform a technical evaluation to identify additional technical requirement such as tolerances, accuracies, ranges over which the item is to be calibrated, specific industry standards to be used, etc., to be included in the purchase order of commercial calibration services.; (3) Vigor's failure to perform and document adequate engineering justification to support their determination of the dedicating sampling plan; (4) Finally, Vigor's failure to conduct a commercial-grade survey or source surveillance to verify that American Steel Portland, Industrial Welding Services, Inc., and Professional Service Inc.'s quality programs included the requisite processes for the control of critical characteristics necessary to provide reasonable assurance that commercial-grade materials and services to be used as basic components will perform their intended safety function.

In its response to the NRC, Vigor stated several actions were taken to address Nonconformance 99901448/2014-201-02 and 99901449/2014-02. Specifically, all dedication packages for CA20 components were reviewed for appropriate technical identification of critical characteristics. Procedure QP-2785-07-10 was revised by Vigor to clarify roles and responsibilities with regards to technical evaluations. This revision also clarifies engineering justification required for creating and conducting sampling plans, commercial-grade surveys, and source surveillances. The CGD Plan Form was modified to more clearly identify evaluation of technical requirements and address dedicating services. Vigor provided objective evidence to demonstrate that each dedication package was revised to include the engineering justification of the sampling plan methodology and document the survey, audit or surveillance employed to justify the sampling. Third party reviews of all technical evaluations for the CA20 module project and for Vigor's new dedication plan were performed to assure they were conducted in accordance with Vigor's policies and procedures.

The NRC inspection team reviewed 3 Vigor CARs that addressed the failures issued in Nonconformance 99901448/2014-201-02 and 99901449/2014-02. NPD-CAR-14-046 contain objective evidence that demonstrate the revision of the QP-2785-07-10 procedure, the new CGD Plan Form, and the log of training conducted. The NRC inspection team reviewed the objective evidence of the third party reviews of the technical evaluation for the CA20 module and Vigor's new dedication plan that were conducting to support the corrective action documented in CARs NPD-CAR-14-083 and NPD-CAR-14-101 respectively. The NRC inspection team reviewed the documentation that provided the objective evidence for the completion of the corrective actions and confirmed that all corrective actions were completed and adequately implemented as stated in the response. Based on its review, the NRC inspection team closed Nonconformance 99901448/2014-201-02 and 99901449/2014-02.

b.3 Corrective Action Associated with Nonconformances 99901448/2014-201-03 and 99901449/2014-201-03

Nonconformances 99901448/2014-201-03 and 99901449/2014-201-03 was issued for Vigor's failure to demonstrate objective evidence in the evaluation of usage, extent of condition, or dispositioning the item identified as nonconforming, of nonconformance reports issued during the recalibration of the "as found" condition of four calibrated tools that has been identified as being outside of their specified tolerances. In addition, Vigor's could not retrieve the associated nonconformance reports (NPD-NCR-14-032, NPD-NCR-14-033, and NPD-NCR-14-236) when the NRC inspectors requested them for review.

In its response to the NRC, Vigor presented the corrective actions taken to address Nonconformance 99901448/2014-201-03 and 99901449/2014-03. Vigor developed and implemented new instructions to report NCRs and the appropriate staff was trained on the new instructions. An extent of condition was performed to address the M&TE used on the CA20 module and procedure QI-NPD-15-01 was revised to clarify the roles and responsibilities with regard to technical evaluations. Finally, a review of all NCRs resulting in a "use as is" or "repair" was performed to validate their disposition.

The NRC inspection team reviewed the CARs that Vigor initiated to address the findings in Nonconformance 99901448/2014-201-03 and 99901449/2014-03. NPD-CAR-14-100 provided the objective evidence that demonstrate the revision of the new instructions for the NCRs and the log of the training conducted to the employees. Procedure QI-NPD-15-01 was revised to include provisions for addressing issues identified in the nonconformance. The NRC inspection team reviewed the documentation in NPD-CAR-14-84 for the extent condition conducted to address the M&TE and determined that review conducted by Vigor was adequate. Finally, objective evidence were presented that confirmed that all NCRs were evaluated for completeness of documentation, proper storage and retrieval. Based on its review, the NRC inspection team closed Nonconformance 99901448/2014-201-03 and 99901449/2014-03.

c. Conclusion

The NRC inspection team concluded that Vigor is implementing its nonconforming materials, parts, or components, and corrective action programs in accordance with the regulatory requirements of Criterion XV and Criterion XVI of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Vigor is implementing its policies and procedures associated with the control of nonconforming materials, parts, or components and corrective action. No finding of significance were identified.

In addition, the NRC inspection team concluded that the corrective actions taken by Vigor to address the issues identified in NCR IR 99901448/2014-201 and 99901449/2014-201, were properly implemented. The NRC inspection team closed Nonconformances 99901448/2014-201-01 and 99901449/2014-201-01, 99901448/2014-201-02 and 99901449/2014-201-02, 99901448/2014-201-03 and 99901449/2014-201-03.

8. Entrance and Exit Meetings

On July 17, 2017, the NRC inspection team discussed the scope of the inspection with Mr. Samuel B. Mummert, Quality Assurance Manager, and other members of the Vigor management and staff. On July 21, 2017, the NRC inspection team presented the inspection results and observations during an exit meeting to Ms. Nicole Coons, Nuclear Division Manager, Mr. Mummert and other members of Vigor management and technical staff. The attachment to this report lists the attendees at the entrance and exit meetings, as well as those individuals whom the NRC inspection team interviewed.

ATTACHMENT

1. ENTRANCE/EXIT MEETING ATTENDEES

Name	Title	Affiliation	Entrance	Exit	Interviewed
Jonathan Ortega-Luciano	Inspector, Team Leader	NRC	X	X	
Jermaine Heath	Inspector	NRC	X	X	
Raju Patel	Inspector	NRC	X	X	
Ramón L. Gascot	Inspector	NRC	X	X	
Kerri Kavanagh	Chief	NRC		X	
Sam Mummert	Quality Assurance Manager	Vigor	X	X	X
Nate Lindell	Director of Quality	Vigor	X	X	
Powell McLean	Project Manager	Westinghouse	X		
Gil Pearson	Corrective Action Specialist	Vigor	X	X	
Shelly Casson	Quality Records System Manager	Vigor	X		
Chris Palmer	Director of Operations	Vigor	X		
Roger S. Young	Inspector	SCE&G	X		
Nathan Dimmock	Corrective Action Specialist	Vigor	X	X	X
Cody Zuercher	Quality Control Manager	Vigor	X	X	
Warren Washburn	Program Manager	Vigor	X	X	
Jennie Cushman	QAE Supervisor	Vigor	X	X	X
Nicole Coons	Nuclear Division Manager	Vigor		X	
Alex Berlin	Project Manager	Vigor		X	
Jenifer Kluhe	M&TE Custodian	Vigor			X
Isaiah Crittendon	Robotic Supervisor	Vigor			X
Dan Teas	Quality Control Inspector	Vigor			X
Kathy O'Donnell	Level II Q.C. Inspector	CB&I			X
James Ford	Level II Q.C. Inspector	Vigor			X
Shawn Ward	Fabricator Welder	Vigor			X
Tim Ward	Foreman	Vigor			X
James Neigel	Maintenance Manager	Vigor			X
Jeff Burgess	Maintenance Manager	Vigor			X

Oded Mamman*	Robotic Engineering Integrator	Vigor			X
Dan Walsh	Robotic Program Manager	Vigor			X
Graeson Brown	Robotic Lead	Vigor			X
Josh Sturges	Swing Robotic Lead	Vigor			X
Dave Johnson	Nondestructive Examiner Level III	NDE Professional			X

*Teleconference call

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 January 27, 2017
- IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated January 27, 2017

3. LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Item Number	Status	Type	Description	Applicable ITAAC
99901448/2014-201-01	Closed	NON	Criterion XVI	N/A
99901449/2014-201-01	Closed	NON	Criterion XVI	N/A
99901448/2014-201-02	Closed	NON	Criterion III	
Criterion VII	N/A			
99901449/2014-201-02	Closed	NON	Criterion III Criterion VII	N/A
99901448/2014-201-03	Closed	NON	Criterion XV Criterion XVII	N/A

4. DOCUMENTS REVIEWED

Policies and Procedures

- Vigor Quality Manual (QM), "ASME NQA-1 10 CFR 50, Appendix B," Revision 0 dated June 30, 2017
- NDP-GDC-2786-005, "Commercial Grade Dedication Plan A276 Material," Revision 1 dated March 26, 2014
- NPD-CGD-2786-007, "Commercial Grade Dedication Form Arcelor Mittal Steel," Revision 4 dated April 4, 2014

- NPD-CGD-2786-028, "Commercial Grade Dedication Plan Calibration," Revision 1 dated March 25, 2014
- NPD-CGD-2786-029, "Concrete Reinforcement Bar Mechanical Splice Testing," Revision 2 dated April 7, 2014
- NPD-CGD-2786-061, "Commercial Grade Dedication Plan Machining and Milling Services," Revision 1 dated September 17, 2015
- NPD-CGD-VWN-001, "Commercial Grade Dedication Plan Calibration," Revision 1 dated July 28, 2016
- QI-NPD-15-01, "Nonconformance Control", dated October 29,2014
- QM Section 10, "Inspection," Revision 00 dated June 30, 2017
- QM Section 9, "Control of Special Process," Revision 00 dated June 30, 2017
- VWN-CGD-6003-009, "Commercial Grade Dedication Technical Evaluation/Plan Nondestructive Examination and UT Services," Revision 2 dated April 4, 2017
- VWN-CGD-6003-010, "Commercial Grade Dedication Technical Evaluation/Plan ASTM A240-S32101-2011a Edition," Revision 1 dated April 3, 2017
- VWN-1.09-50, "Magnetic Particle Testing," Revision 4 dated January 20, 2017
- VWN-1-08-01, "Material and Item Identification System," Revision 1 dated March 3, 2017
- VWN-1.16.02, "Reporting of Defects, Deficiencies, or Hazards," Revision 0 dated January 6, 2017
- VWN-1.12-01.01, "Calibration of Welding Equipment," Revision 1 dated November 22, 2016
- VWN-1.12-01, "Control of M&TE," Revision 2 dated January 6, 2017
- VWN-1.18-01, "Qualification and Certification of Audit Personnel," Revision 3 dated June 28, 2017
- VWN-1.02-02, "Qualification and Certification of NDE Personnel," Revision 4 dated January 26, 2017
- VWN-1.04-01, "Procurement of Materials, Items, and Services", Revision 0 dated June 14, 2016
- VWN-1.07-05, "Receiving Inspection Control," Revision 6 dated March 23, 2017
- VWN-1.07-05, "Receiving Inspection Control," Revision 7 dated July 10, 2017
- VWN-1.09-30.01, "MP/PT Acceptance Criteria AWS D1.1," Revision 0 dated August 25, 2016
- VWN-1.09-30.04, "PT Acceptance Criteria AWS D1.6, " Revision 0 dated September 30, 2016
- VWN-1.09-01, "Production Control Procedure," Revision 2 dated March 21, 2017
- VWN-1.09-02, "Welding Control Procedure," Revision 4 dated February 6, 2017
- VWN-1.09-06, "General Welding Supplement," Revision 2 dated March 21, 2017
- VWN-1.09-30, "Liquid Penetrant Examination," Revision 4 dated November 16, 2016
- VWN-1.10-02, "Dimensional Inspection," Revision 1 dated October 22, 2016
- VWN-1.07-02, "Vendor Qualification," Revision 1 dated March 17, 2017

WPS and PQRs

- PQR No. CS-754, "PQR for 3G qualification for welding A572-50 with GMAW and FCAW for CJP in accordance with ASME Section IX," Revision 0, dated December 17, 2016
- PQR No. DS-615, "PQR for 3G qualification for welding A240-304L to ASTM A36 with GMAW and FCAW for CJP in accordance with ASME Section IX," Revision 0 dated January 31, 2016

- PQR No. DS-619, "PQR for 3G qualification for welding UNS S321011 to A240-304L with GMAW and FCAW for CJP in accordance with ASME Section IX," Revision 0 dated February 1, 2017
- PQR No. DS-611, "PQR for 3G qualification for welding UNS S321011 to A36 with gas metal arc welding (GMAW) for CJP using ER309LSi weld wire in accordance with ASME Section IX," Revision 0 dated January 4, 2017
- WPS 01-CS-F01.0, "Prequalified WPS for welding specified Carbon Steel using flux core arc welding (FCAW) per AWS D1.1-00," for complete joint penetration (CJP), partial joint penetration (PJP) and fillet welds, Revision 0 dated September 2, 2016
- WPS-09-DS-G01, "Welding Duplex Stainless Steel to Carbon or Austenitic Stainless Steels with ER309LSi," Revision 2 dated March 21, 2017

Design/Drawing Documents

- Drawing 6718003-0700A, "Shield Building Roof Area 8 Module CB20," Revision 3 dated May 17, 2017
- Weld Map Drawing No. 6716003-SV3-0100A-024-Robo Weld, "Shield Building Roof Area 8 Module CB20," Revision 4 dated April 18, 2017
- Weld Map drawing 06716003WM100, "Submodule Type 01 Inner Cone Weld Map," Revision 4 dated April 27, 2017

Calibration, Heat Treatment, Non-Destructive Examination, Inspection and Material Reports

- Cal-Cert calibration certificate report No. 59456-V-01, dated March 15, 2017, for temperature/humidity data logger S/N 15036194/15028024, model No. FH625/R200, calibrated to Vigor 30CLK-N1124 with as-found and as-left condition calibrated using standards traceable to nationally recognized standards
- Cal-Cert calibration certificate report No. 59456-V-02, dated March 21, 2017, for temperature/humidity data logger S/N 15036195/15035006, model No. FH625/R200, calibrated to Vigor PO 30CLK-N1124 with as-found and as-left condition calibrated using standards traceable to nationally recognized standards
- Circle System Inc., C of C dated April 19, 2016, for magnetic particle dry powder 63, verified and accepted to meet ASME SE-709, Section V, Article 7, and PO N976, and assigning Lot No. N976-1-1 on February 1, 2017
- Independent Welding Supply LLC., C of C for 924 pounds Lincoln Ultracore 712C-H E71T-1C JH4 0.045x33SP, Q2, Lot 14114589, to Vigor PO 30CLK-N870, received and accepted by Vigor assigning lot No. N870-1-1 on December 30, 2016
- Indiana Standards Laboratory calibration certificate report No. 164197, dated May 26, 2017, for radiometer S/N 131376A, model No. DLM-1000, calibrated using national recognized standards with as-found as-left condition to Vigor PO 30CLK N1251
- Indiana Standards Laboratory calibration certificate report No. 164198, dated May 26, 2017, for light meter S/N 131376C, model No. DLM-1000, calibrated to Vigor PO 30CLK N1251 using standards traceable to nationally recognized standards
- Lincoln Electric Company C of C dated November 8, 2016, for 924 pounds of 0.045-inch Ultracore 712C-H Plus 33SP weld wire traceable to Heat/Lot 14114589
- Lincoln Electric Company certified material test report (CMTR) dated December 23, 2016, for 12 pounds of 0.045 blue max MIG 309LSI 500AD weld wire, lot No. 1309T, to meet AWS A5.9 to Vigor PO 30CLK-N820, receipt, accepted and assigned lot No. N820-2-2 on January 19, 2017, on RIR No. N820-1/19/2017
- Lincoln Electric Company certified material test report (CMTR) dated

- December 19, 2016, for 60 pounds of 0.045 Ultracore FCP 309L 25SP weld wire, lot No. 1308S, to meet AWS A5.9 to Vigor PO 30CLK-N820, receipt, accepted and assigned lot No. N820-3-1 on January 17, 2017 on RIR No. N680-1/4/2017
- Lincoln Electric Company CMTR dated December 5, 2016, for 180 pounds of 0.045 Blue Max MIG 309LSi 25SP weld wire, lot No. 1308R, to meet AWS A5.9 to Vigor PO 30CLK-N820, receipt, accepted and assigned lot No. N820-1-1 on January 17, 2017, on RIR No. N820-12/27/2016
 - Magnetic Particle (MP) Examination Report No. MT-17-238, dated July 17, 2017, using dry powder Yoke method on Vigor Order No. 3016716003-40220V Release 2, Job No. 676003 (CB20), traveler No. 676003-SV3-0100A-024 ROBO Weld, on CB20 Bottom Cone, piece 0106/arc strike adjustment to weld WT05b13, accepted per VWN 1.09-90-.01 Revision 0
 - Nelson Stud Welding certified of compliance (C of C) dated October 18, 2016, for 9000 studs H4L 5/8 x 4 3/16-inch heat No. 10453060, ASTM A108 Gr. 1015, to Vigor purchase order (PO) 30CLK N754, Vigor reviewed and accepted assigning trace lot No. N754-2-1 on November 29, 2016
 - Ray-Check Manufacturing C of C for ultrasonic machine calibration standard ultrasonic DS Reference block S/N 17-2050 calibrated on May 16, 2017
 - Ultrasonic Angle Beam Examination report No. UT-17-071, "A577 Angle Beam UT Examination," dated February 18, 2017, acceptance of ½-inch duplex plate (A240-532101) UT on 9-inch grid pattern for WECTEC Plate 862402-3A, per VWN-1-09-16, Revision 01, using Epoch 600 serial No. 140645402
 - Vigor calibration log for Fluke clamp meter S/N 25880094WS, model No. 375, calibrated on November 22, 2016, due November 22, 2017
 - Vigor calibration log for Fluke clamp meter S/N 31620528WS, model No. 374, and S/N 32490012WS, model No. 374, both calibrated on May 12, 2017
 - Vigor calibration record for weld machine serial number (S/N) C-234 in bay 2 C6W robot calibrated on July 11, 2017, due October 11, 2017
 - Vigor calibration records for Weld machine S/N C-170 calibrated on July 11, 2017, due October 11, 2017
 - Weldstar C of C with ARCOS CMTR dated March 23, 2017, for 100 pounds of 3/32 X 36-inch ER309/309L weld wire traceable to Heat No. CF0245-543055 in accordance with ASME Section III & IX, assigned Vigor Lot No. N1149-1-1 on PO N1149

Commercial Grade Dedication Packages

- VIGOR Commercial Grade Dedication Report (CGDR) No. NDP-CGD-VWN-001-057, Revision 0 dated July 14, 2017, PO 30CLK N1251 Line items 1, 2, & 3, for S/N 131376A, 131376C, KT10604 radiometer/white light calibrated by Indiana Standards Laboratory
- CGDR No. NDP-CGD-VWN-001-021, Revision 0 dated July 28, 2016, for PO 30CLK-N917, line item 1 for seven stop watches S/N DPA05230, 0111600627, 29370108, OIW-AG011 and 122688018, calibrated by Cal-Cert
- CGDR No. NDP-CGD-VWN-001-044, Revision 2 dated July 28, 2016, for PO 30CLK-N1124, Line Items 1, for S/N15036194/150280254, temperature/humidity datalogger calibrated by Cal-Cert
- CGDR No. NDP-CGD-VWN-001-046, Revision 0 dated April 6, 2017, for PO 30CLK-N1124, Line Items 1, for S/N15036195/15035006, and 15036198/15035005, temperature/humidity datalogger calibrated by Cal-Cert
- CGDR No. NDP-CGD-VWN-001-058, Revision 0 dated June 9, 2017, for PO N1236

Line items 11, & 23, Fluke clamp meters S/N 31620528WS and 32490012WS, calibrated by Cal-Cert

- CGDR No. NPD-CGD-VWN-001-015, Revision 0 dated December 13, 2016, for PO 30CLK-N887, Revision 1, for Fluke clamp meter S/N 25880094WS, calibrated by Cal-Cert
- CGDR No. NPD-CGD-VWN-001-052, Revision 0 dated June 8, 2017, for PO 30CLK-F2976 Revision 01, Line item 1 for surface plate S/N X-93-06, calibrated by JJ Calibration Inc.
- CGDR No. VWN-CGD-6003-010Q, Revision 0 dated June 23, 2017, for PO N648 Line item 1,2 & 3 plates of different sizes to ASTM A240-S32101, heat No. 9020-E161426
- CGDR No. VWN-CGD-6003-002C, "CB20 Structural Modules Commercial Grade Dedication Package," Revision 2 dated February 24, 2017, for PO 30EXT-N651, Line item 2, for wide flange beams W8X13 ASTM A992, Heat No. 59071401, and Vigor Lot No. N651-2-7 from Gerdau

Commercial Grade Surveys

- OIW-NP-16-V07, "Survey Plan Outokumpu – New Castle IN," dated August 9, 2016
- VWN-CGD-6003-009, "Commercial Grade Dedication Technical Evaluation/Plan Nondestructive Examination UT Services," Revision 2 dated April 14, 2017
- VWN-CGD-6003-010, "Commercial Grade Dedication Technical Evaluation/Plan ASTM A240-S32101-201a Edition," Revision 1 dated April 3, 2017
- VWN-1.09-31, "Alloy Identity Testing/Positive Material Identification," Revision 0 dated July 17, 2017
- VWN-1.07-02, "Vendor Qualification," Revision 1 dated March 17, 2017
- VWN-1.04-01, "Procurement of Material, Items, and Services," Revision 0 dated June 14, 2016
- VWN-1-.07-01, "Commercial Grade Dedication of Item & Services for 10 CFR Part 50 Appendix B Projects," Revision 2 dated March 30, 2016
- VWN-1.07-03, "Source Inspection/Surveillance," Revision 1 dated December 23, 2016
- VWN-1.07-05, "Receiving Inspection Control," Revision 7 dated July 10, 2017

Purchase Orders (PO)

- PO 2786-00236 to Erico for mechanical couplers, dated March 20, 2015
- PO 30CLK N754, to Nelson Stud Welding Inc. for procurement 900 pieces of HCA 5/8-3/16 inch, dated September 19, 2016
- PO 30CLK N870 to Independent Welding Supply LLC for procurement of Lincoln 60 x 33 pound spools, dated November 1, 2016
- PO 30CLK-F2976 to JJ Calibration Inc., for calibration of granite surface plates, dated January 18, 2017
- PO 30CLK-N1149 to Weldstar for weld consumables, dated March 27, 2017
- PO 30CLK-N1168 to NSL Analytical Services for testing, dated March 14, 2017
- PO 30CLK-N392 to Erico for mechanical couplers, dated March 8, 2016
- PO 30CLK-N648 to Outokumpu for SS plates, dated April 20, 2017, 2016
- PO 30CLK-N820 to Lincoln Electric for weld consumable, dated February 3, 2017
- PO 30CLK-N820 to Lincoln Electric for weld consumable, dated January 19, 2017
- PO 30CLK-N853 to Erico for mechanical couplers, dated October 10, 2016
- PO 30CLK-N958 to Outokumpu for SS plates, dated December 16, 2016

External Audits

- Audit Report # VWN-NP-16-V10 for NDE Professionals (NPI) dated September 12, 2016
- Audit Report #OIW-NP-14-V11 of The ESAB Group, Inc., dated October 23, 2014
- Audit Report #OIW-NP-15-V05 of Weldstar, dated June 24, 2015
- Audit Report #OIW-NP-16-V08 of Gerdau-Jackson, dated September 1, 2016
- Audit Report #VWN-NP-16-V11 of Acuren for RT services, dated September 16, 2016
- Audit Report #VWN-NP-17-V003 of Erico International Corporation, dated February 22, 2017
- Audit report #VWN-NP-17-V01 of Nelson Stud Welding Inc., dated January 19, 2017
- Audit Report #VWN-NP-17-V04 of Lincoln Electric, dated March 8, 2017
- Audit Report #VWN-NP-17-V06 of Acuren for UT services, Revision 1 dated March 13, 2017
- OIW-NP-14-V10 of IMR KHA, dated September 11, 2014

Internal Audits

- Internal audit report for Vigor Works LLC, dated June 23, 2017
- Internal audit report and corrective actions for Vigor Works LLC, dated October 27, 2016

Part 21 evaluations:

- NPD-CAR-14-063, Helium Test Results not meeting requirements, Revision 0, dated November 5, 2014
- NPD-NCR-14-1585, Loose ship K parts, Revision 0, dated December 21, 2015
- VWN-CAR-16-69, FARO laser equipment not calibrated to ISO-17025
- VWN-CDR-16-69, Calibration Certificate Expanded Uncertainty, dated August 25, 2016
- VWN-NCR-17-19, Dimension discrepancy in MOX item, dated January 17, 2017

Travelers

- WO3016716-40710, "Splicing Angles," Release 11, Revision 1 dated July 10, 2017
- WO3016716003-40110V, "SV3 Flat Bottom Rings Module 0300, 0400, 0500 Tash Clean/Fit WTS," Revision 12
- WO6716003-VS2-0100A-038-CLF-CH, for CB20 Sub module Type 1-0100 Channel hand welded performed on May 12, 2017 using 09-DS-G01 procedure using weld wire N820-1-1, VT inspected and accepted to VWN-1-09-90.01 Revision 0 on May 12, 2017
- WO6716003-VS2-0100A-038 Stud/Dim for CB20 Type 1 Stud weld data sheet performed per WPS-06-DS-SW-01, Revision 01 on May 19, 2017, and VT inspected and accepted to VWN-1-09-90 Revision 0 on May 19, 2017
- WO6716003-VS2-0100A-038-ROBO Weld, for CB20 Submodule Type 01, QC Final inspection of fillet welds performed in accordance with VWN-1-09-90 Revision 0 on May 19, 2017
- WO6716003-SV3-2103F, for activity order 6716003-400610V, operation No. 30, "Full Bridge Type 03/04 type 01/02 Fabrication SV3-CB20-S5B-03001-Mk# 07 & 08

Nonconformances Reports

VWN-NCR-16-281, VWN-NCR-16-318, VWN-NCR-16-326, VWN-NCR-16-60, VWN-NCR-16-63, VWN-NCR-16-99, VWN-NCR-17-104, VWN-NCR-17-109, VWN-NCR-17-137, VWN-NCR-17-153, VWN-NCR-17-159, VWN-NCR-17-160, VWN-NCR-17-164, VWN-NCR-17-168, VWN-NCR-17-169, VWN-NCR-17-48, VWN-NCR-17-54, VWN-NCR-17-57, VWN-NCR-17-63, VWN-NCR-17-64, VWN-NCR-17-66

Corrective Actions

- NPD-CAR-14-083, NPD-CAR-14-084, NPD-CAR-14-086, NPD-CAR-14-098, NPD-CAR-14-099, NPD-CAR-14-100, NPD-CAR-14-101, NPD-CAR-16-52, NPD-CAR-16-71, NPD-CAR-17-126, NPD-CAR-17-138, NPD-CAR-17-147, VWN-CAR-16-2, VWN-CAR-16-28, VWN-CAR-16-58, VWN-CAR-16-65, VWN-CDR-17-52, VWN-NCR-17-104

Corrective Action Generated as result of NRC Inspection

- VWN-CDR-17-112, VWN-CDR-17-113, VWN-CDR-17-114, VWN-CDR-17-115, VWN-CDR-17-116, VWN-CDR-17-117

Training and Qualification Records

- Indoctrination and Training for Vigor NQA-1 Appendix B Quality Manual Revision 0 dated July 6-14, 2017
- Training and qualification for VIGOR Level II nondestructive examination personnel: Alex Ackermann in MT, PT, UT; Kevin Dye in MP, PT; Cory Ehlert in MP, PT, VT; James Ford MP, PT, VT; Kevin Keeler VT; Steve Kerr in, MP, PT, UT; Kathleen O'Donnell in MP; Aaron Brent Morriss in RT, UT; Daniel W. Teas in MP, PT, VT; Greg West in MP, PT, UT; Troy S. Zuercher in MP, PT;
- NDE Professional Inc., qualification records for Level III for: David C. Walls in VT; John Clark in MT, PT, UT, VT; Dave Johnson in MT, PT, UT, VT; and Vince Archibald in MT, PT, UT, RT, LT
- Lead Auditor Qualifications for Bradley Boothe (Acuity Quality Assurance), John Salasky (Axion Technical Services), Ken Adams, and Vince Archibald

Miscellaneous

- R680 – Receiving Inspection Report RIR# N648-4/4/2017 for PL1/2X120X340_S32101 Lot No. N648-1-36, Revision 1 dated July 18, 2017
- Receipt Inspection Report (RIR) No. N651-9/27/2016, dated September 27, 2016, for acceptance of dimensional inspection of wide flange beams received from Gerdau on Vigor PO N651, Revision 4
- RIR No. N1149-3/27/2017, dated March 27, 2017, for acceptance of 10 x 10 pound canister of ER309/309L 3/32 x 16-inch N1149
- RIR No. N870-11/18/20116, dated January 12, 2017, for acceptance of 924 pounds of Lincoln ULTRACORE 712C-H E71T-1C JH4 0.045X338SP, lot No. 14114589, assigning lot No. N870-1-1 on PO N870-1
- Sherwin Inc. C of C dated October 18, 2016, for penetrant DP-40, batch No. 614-J1,

reviewed and accepted to meet ASME Section V, Article 6, paragraph T-641, assigned lot No. N933-1-1 meeting PO N933-1 on February 2, 2017

- Sherwin Inc., C of C dated March 24, 2016, for developer D-100, batch No. 610-C6, reviewed and accepted to meet ASME Section V, Article 6, Paragraph T-641, assigned lot No. N933-4-1, meeting PO N933-1, on February 2, 2017
- Sherwin Inc., C of C dated October 18, 2016, for cleaner DR-60, batch No. 613-J4, reviewed and accepted to meet ASME Section V, Article 6, Paragraph T-641, assigned lot No. N933-3-1 meeting PO N933-1 on February 2, 2017
- Vigor M&TE recall report dated July 19, 2017
- Vigor memo dated July 18, 2017, "NDE Level III Designation-NDE Professional Inc., accepted by Level III on July 18, 2017
- Welder Operator Performance Qualification (WPQ) Record for Vigor Receiving Inspection Report (RIR) No. N754-10/27/2016, for acceptance of 9000 pieces of hard concrete anchor 5/8-4-3/16-inch, heat No. 10453060, Lot No. N754-2-1, ASTM A108 Gr. 1010 accepted on PO N754 from Nelson Stud Welding Inc.,"
- Welding Operator Performance Qualification (WPQ) records for Greson Brown, Zack Davis, Brandon Nation, Vyacheslav Deyna, Josh Sturges, Mike White, Kris Heitmeyer, Kristopher Keim, and Tuan Nguyen qualified to welding procedure specification (WPS) 09-DS-G01 in gas metal arc welding (GMAW) process in 2F position for P1-P1 material.