



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 23, 2019

Mr. Harry Wehr
General Manager
Arcos Industries, LLC
394 Arcos Drive
Mount Carmel, PA 17851

SUBJECT: NUCLEAR REGULATORY COMMISSION VENDOR INSPECTION REPORT OF
ARCOS INDUSTRIES, LLC, NO. 99900351/2019-201 AND NOTICE OF
NONCONFORMANCE

Dear Mr. Wehr:

From June 10 through June 14, 2019, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at Arcos Industries' (hereafter referred to as Arcos) facility in Mount Carmel, PA. The purpose of this limited-scope inspection was to assess Arcos' compliance with the 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."

This technically-focused inspection specifically evaluated Arcos' implementation of quality activities associated with fabrication and testing of safety-related weld material being supplied to the U.S. nuclear power plants (operating and under construction). The enclosed report presents the results of the inspection. This NRC inspection report does not constitute NRC endorsement of Arcos' overall quality assurance (QA) or 10 CFR Part 21 programs.

Based on the results of this inspection, the NRC inspection team found that the implementation of your QA program did not meet certain regulatory requirements imposed on you by your customers or NRC licensees. Specifically, the NRC inspection team determined that Arcos was not fully implementing its QA program in the area of corrective actions. The specific finding and references to the pertinent requirements are identified in the enclosures to this letter. In response to the enclosed Notice of Nonconformance (NON), Arcos should document the results of the extent of condition review for the finding and determine if there are any effects on other safety-related components. Please provide a written statement or explanation within 30 days of this letter in accordance with the instructions specified in the enclosed NON. We will consider extending the response time if you show good cause for us to do so.

In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," the NRC will make available electronically for public inspection a copy of this letter, its enclosure, and your response through the NRC's Public Document Room or from the NRC's Agencywide Documents Access and Management System, which is accessible at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response, should not include any personal privacy, proprietary, or Safeguards Information (SGI)

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 SGI is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Sincerely,

Kerri A. Kavanagh, Chief */RA/*
Quality Assurance Vendor Inspection Branch
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

Docket No.: 99900351

EPID No.: I-2019-201-0045

Enclosure:

1. Notice of Nonconformance
2. Inspection Report No. 99900351/2019-201
and Attachment

SUBJECT: NUCLEAR REGULATORY COMMISSION VENDOR INSPECTION REPORT OF
 ARCOS INDUSTRIES, LLC, NO. 99900351/2019-201 AND NOTICE OF
 NONCONFORMANCE Dated: July 23, 2019

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NOTICE OF NONCONFORMANCE

Arcos Industries, LLC
394 Arcos Drive
Mount Carmel, PA 17851

Docket No. 99900351
Report No. 2019-201

Based on the results of a U.S. Nuclear Regulatory Commission (NRC) inspection conducted at the Arcos Industries, LLC (hereafter referred to as Arcos) facility located at Mount Carmel, PA from June 10, 2019 through June 14, 2019, Arcos did not conduct certain activities in accordance with NRC requirements that were contractually imposed upon Arcos by its customers or NRC licensees:

- A. Criterion XVI, "Corrective Action," of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* Part 50, "Domestic Licensing of Production and Utilization Facilities," states in part that, "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected."

Paragraph 18.3 of Section 18.0, "Corrective Action," of Arcos' "Quality Systems Manual," Edition 5, Revision 1, dated October 18, 2018, states in part that "...*Corrective Action Reports* shall be issued to identify and correct in-house processing, quality system deficiencies, internal audit findings, and source material, material, and calibration services that do not meet purchase order requirements." In addition, Paragraph 17.5 of Section 17.0, "Audits," of Arcos' Quality System Manual states "deficiencies disclosed by Internal Audits shall be documented by the QA Manager in accordance with the procedure QP-14.1, "Corrective Actions."

Contrary to the above, as of June 14, 2019, Arcos failed to promptly correct conditions adverse to quality. Specifically, Arcos failed to enter seven findings identified during the 2018 internal audit into the corrective action program and did not implement any corrective actions to address these seven findings.

This issue has been identified as Nonconformance 99900351/2019-201-01

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, Quality Assurance Vendor Inspection Branch, Division of Inspection and Regional Support, Office of Nuclear Reactor Regulation, within 30 days of the date of the letter transmitting this Notice of Nonconformance. This reply should be clearly marked as a "Reply to a Notice of Nonconformance" and should include for each noncompliance: (1) the reason for the noncompliance or, if contested, the basis for disputing the noncompliance; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further noncompliance; and (4) the date when the corrective action will be completed. Where good cause is shown, the NRC will consider extending the response time.

Because your response will be made available electronically for public inspection in the NRC's 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/readingrm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or Safeguards Information so that the NRC can make it available

to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If 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 23rd day of July 2019.

**U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
DIVISION OF INSPECTION AND REGIONAL SUPPORT
QUALITY ASSURANCE VENDOR INSPECTION REPORT**

Docket No.: 99900351

Report No.: 99900351/2019-201

Vendor: Arcos Industries, LLC
394 Arcos Drive
Mount Carmel, PA 17851

Vendor Contact: Mr. Harry Wehr
General Manager
Arcos Industries, LLC
E-mail : hwehr@arcos.us
Phone : 800-233-8460 x 135

Nuclear Industry Activity: Arcos Industries, LLC's scope of supply includes fabrication and testing of safety-related ferrous and non-ferrous bare and covered electrodes, bare wire, consumable inserts, and welding flux for U.S. nuclear power plants (operating and under construction).

Inspection Dates: June 10-14, 2019

Inspection Team Leader Andrea Keim NRR/DIRS/IQVB

Inspectors: Yamir Diaz-Castillo NRR/DIRS/IQVB
Raju Patel NRR/DIRS/IQVB

Approved by: Kerri A. Kavanagh, Chief
Quality Assurance Vendor Inspection Branch
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

Arcos Industries, LLC
99900351/2019-201

The U.S. Nuclear Regulatory Commission (NRC) staff conducted a vendor inspection at the Arcos Industries, LLC (hereafter referred to as Arcos) facility in Mount Carmel, PA, 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" and 10 CFR Part 21, "Reporting of Defects and Noncompliance." In addition, the NRC inspection team verified that Arcos had implemented a program in accordance with the applicable requirements of Section III, "Rules for Construction of Nuclear Facility Components," of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code. This was the first NRC vendor inspection at Arcos in the last ten years.

This technically-focused inspection specifically evaluated Arcos' implementation of the quality activities associated with the fabrication and testing of safety-related welding materials being supplied to U.S. nuclear power plants (operating and under construction).

These regulations served as the bases for the NRC inspection:

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

During this inspection, the NRC inspection team implemented inspection procedure (IP) 43002, "Routine Inspections of Nuclear Vendors," dated January 27, 2017, IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated January 27, 2017, and IP 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting of Defects and Noncompliance," dated February 13, 2012.

During this inspection the NRC inspection team witnessed the following activities:

- Chemical analysis on a 0.217-inch type grade 387H and a 1/16-inch type grade 308L-AP weld wires
- Delta-Ferrite test on a weld coupon for E309/309L weld electrodes
- Tensile test on a weld test coupon on Work Order No. 0050235, Q Number 21600
- Final weld chemical analysis on a E309/309L weld electrode lot No. 19E13C
- In-process 6-hole 0.219/0.086-inch wire drawing of size 1/16-inch type grade 316/316L weld wire

With the exception of the nonconformance described below, the NRC inspection team concluded that Arcos' QA policies and procedures comply with the applicable requirements of Appendix B to 10 CFR Part 50 and 10 CFR Part 21, and that Arcos' personnel are implementing these policies and procedures effectively. The results of this inspection are summarized below.

10 CFR Part 21

The NRC inspection team reviewed Arcos' policies and implementing procedures that govern

the implementation of its 10 CFR Part 21 program to verify compliance with 10 CFR Part 21. The NRC inspection team: (1) reviewed the 10 CFR Part 21 postings; (2) reviewed a sample of purchase orders (POs); and (3) verified that Arcos' nonconformance and corrective action programs provide a link to the 10 CFR Part 21 program. No findings of significance were identified.

Nonconforming Materials, Parts, or Components and Corrective Action

The NRC inspection team reviewed Arcos' policies and implementing procedures that govern the implementation of its nonconforming materials, parts, or components and corrective action programs to verify compliance with the requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," and Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50. The NRC inspection team reviewed the nonconformance and corrective action logs to verify appropriate issues are entered into the respective programs. The NRC inspection team reviewed a sample of nonconformance reports and corrective action reports to verify that items were reviewed, corrected and approved by appropriate personnel in a timely manner. The inspection team noted that audit findings from the 2018 internal audit had not been entered into the corrective action program. The NRC inspection team issued Nonconformance 99900351/2019-201-01 in association with Arcos' failure to ensure that conditions adverse to quality are promptly identified and corrected. Specifically, Arcos failed to initiate corrective actions for seven findings identified during the 2018 internal audit.

Supplier Oversight and Internal Audits

The NRC inspection team reviewed Arcos' policies and implementing procedures that govern the implementation of its supplier oversight and internal audit programs to verify compliance with the requirements of Criterion IV, "Procurement Document Control," Criterion VII, "Control of Purchased Material, Equipment, and Services," and Criterion XVIII, "Audits," of Appendix B to 10 CFR Part 50. The NRC inspection team identified two minor issues associated with Arcos' supplier oversight activities.

During the review of a sample of safety-related purchase orders (POs), the NRC inspection team noted that Arcos did not impose the requirements of Appendix B to 10 CFR Part 50 in its POs for materials to be used as basic components. Rather than imposing Appendix B to 10 CFR Part 50, Arcos imposed in the POs that the work must be performed in accordance with the suppliers' QA manual approved by Arcos. The NRC inspection team determined this issue to be minor because Arcos performed additional chemical analyses on the material to confirm the material meets the required chemical composition. Arcos initiated corrective action report (CAR) No. 262 to address this issue.

The NRC inspection team also identified several instances in which the audit checklists did not provide sufficient objective evidence to support the conclusion that the suppliers had met the applicable requirements. The NRC inspection team determined that documentation of objective evidence to be minor because Arcos performed additional chemical analyses on the material to confirm the material meets the required chemical composition. Arcos initiated CAR No. 264 to address this documentation issue.

Commercial Grade Dedication and Utilization of Unqualified Source Material

The NRC inspection team reviewed Arcos' policies and implementing procedures that govern the implementation of its commercial-grade dedication (CGD) program to determine compliance

with the requirements of Criterion III, "Design Control," Criterion IV, and Criterion VII, of Appendix B to 10 CFR Part 50. The NRC inspection team also reviewed Arcos' program for the utilization of unqualified source materials to determine compliance with the requirements of subparagraph NCA-4255.5, "Utilization of Unqualified Source Material," of Subsection NCA, "General Requirements for Division 1 and Division 2," of Section III, "Rules for Construction of Nuclear Facility Components," of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code. The NRC inspection team reviewed a sample of CGD packages for measuring and test equipment (M&TE) to assess the different elements of the CGD program.

The NRC inspection identified two minor issues associated with the implementation of Arcos' CGD and utilization of unqualified source material programs: (1) Arcos exhibited inconsistent documentation of objective evidence in two of the on-site source surveillance reports of CGD calibration service suppliers; and (2) Arcos did not document the identification and traceability procedures in two of its identification and traceability review reports of unqualified source suppliers that Arcos had reviewed and accepted and verified implementation during the visit. Arcos initiated CAR No. 264 to address these documentation issues. No findings of significance were identified.

Identification and Control of Materials, Parts, and Components

The NRC inspection team reviewed Arcos' policies and implementing procedures that govern the implementation of its material identification and traceability program 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 performed a walk-down of the following areas at Arcos' facility: receipt inspection, fabrication and storage, M&TE, chemical and mechanical test laboratories, and nonconformances storage. The NRC inspection team confirmed that safety-related materials were adequately identified with Arcos' unique lot number or serial numbers that were traceable to Arcos' PO and vendor certification reports. The NRC inspection team also observed Arcos' operators appropriately transferred the material identification and traceability. No findings of significance were identified.

Test Control

The NRC inspection team reviewed Arcos' policies and implementing procedures that govern implementation of its the test control program to verify compliance with the requirements of Criterion XI, "Test Control," of Appendix B to 10 CFR Part 50. The NRC inspection team witnessed testing activities associated with the utilization of the unqualified source material process such as chemical, mechanical and delta-ferrite analysis. The NRC inspection team also reviewed a sample of completed analysis and test reports and confirmed that the applicable material specifications were adequately translated into work orders, and that the testing activities were performed in accordance with Arcos' test instructions by qualified test personnel using calibrated M&TE. The NRC inspection team also confirmed that the test results were independently verified by a Quality Control Inspector. No findings of significance were identified.

Control of Measuring and Test Equipment

The NRC inspection team reviewed Arcos' policies and implementing procedures that govern the control of the 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 team observed that M&TE was calibrated, labeled, tagged, handled, stored, or otherwise controlled to indicate the calibration status and its traceability to nationally recognized standards. The NRC inspection team also confirmed that when M&TE is found to be out of calibration, Arcos initiates a nonconformance report and performs an evaluation to determine the extent of condition. No findings of significance were identified.

REPORT DETAILS

1. 10 CFR Part 21 Program

a. Inspection Scope

The Nuclear Regulatory Commission (NRC) inspection team reviewed the policies and implementing procedures that govern the implementation of Arcos Industries, LLC's (hereafter referred to as Arcos) Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, "Reporting of Defects and Noncompliance," program to determine compliance with the applicable regulatory requirements. In addition, the NRC inspection team evaluated the 10 CFR Part 21 postings and a sample of Arcos' purchase orders (POs) 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 evaluated whether Arcos' nonconformance and corrective action programs were sufficiently integrated such that issues identified would be appropriately considered for 10 CFR Part 21 evaluation and reportability, as applicable.

The NRC inspection team reviewed Arcos' procedure to perform a 10 CFR Part 21 evaluation and determined that it addressed the requirements for evaluating deviations and failures to comply. The NRC inspection team reviewed the one Part 21 evaluation performed by Arcos over the past three years and verified that Arcos had effectively implemented the requirements for evaluating deviations and failures to comply and notified customers and the regulatory agency, as appropriate.

The NRC inspection team discussed the 10 CFR Part 21 program with Arcos' 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 Arcos 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 Arcos is implementing its policies and procedures associated with the 10 CFR Part 21 program. No findings of significance were identified.

2. Nonconforming Materials, Parts, or Components and Corrective Action

a. Inspection Scope

The NRC inspection team reviewed Arcos' policies and implementing procedures that govern the control of nonconformances and corrective action to verify compliance with the requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," and Criterion XVI, "Corrective Action," 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 NRC inspection team reviewed Arcos’ nonconformance report (NCR) log and reviewed a sample of NCRs to ensure that Arcos implemented an adequate program to assess and control nonconforming items, including appropriate identification, documentation, segregation, evaluation and disposition. Additionally, the NRC inspection team interviewed Arcos staff to verify there were designated areas to segregate and control nonconforming materials.

The NRC inspection team discussed with Arcos’ staff the weekly Production Quality Meeting and discussed its’ decision making process. These meetings are used to discuss the disposition of nonconformances and address corrective actions.

The NRC inspection team reviewed a sample of NCRs to verify that Arcos: (1) dispositioned the NCRs in accordance with the applicable procedures, (2) documented an appropriate technical justification for various dispositions, and (3) took adequate corrective action regarding the nonconforming items. For NCRs that were dispositioned as use-as-is, the NRC inspection team confirmed the technical justifications were documented to verify the acceptability of the nonconforming items.

The NRC inspection team also reviewed a sample of CARs from the CAR log to ensure that conditions adverse to quality were promptly identified and corrected. The NRC inspection team verified the CARs provided: (1) adequate documentation and description of conditions adverse to quality; (2) an appropriate analysis of the cause of these conditions and the corrective actions taken to prevent recurrence, as applicable; (3) a description of the current status of the corrective actions; and (4) appropriate follow-up actions taken to verify timely and effective implementation of the corrective actions.

The NRC inspection team discussed the nonconformances and corrective action programs with Arcos’ 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

During the review of the 2018 internal audit report, the NRC inspection team noted that Arcos’ contractor had identified seven findings. The NRC inspection team requested to see the CARs initiated to address these seven findings. During further discussions with Arcos’ QA Manager, the NRC inspection team discovered that none of the seven findings were entered into the corrective action program. The NRC inspection team evaluated the internal audit findings and determined that five of the seven findings had the potential to result in a product of indeterminate quality. The five findings addressed: (1) critical characteristics not verified; (2) inadequate calibration of measuring and test equipment (M&TE); (3) traceability of M&TE; (4) M&TE out of tolerance with no evaluation performed; and (5) M&TE calibration not verified prior to use. The NRC inspection team identified this issue as Nonconformance 99900351/2019-201-01 for Arcos’ failure to promptly correct conditions adverse to quality. Arcos initiated CAR No. 263 to address this issue.

c. Conclusion

The NRC inspection team issued Nonconformance 99900351/2019-201-01 in

association with Arcos' failure to implement the regulatory requirements of Criterion XVI of Appendix B to 10 CFR Part 50. Nonconformance 99900351/2019-201-01 cites Arcos for failing to ensure that conditions adverse to quality are promptly identified and corrected. Specifically, Arcos failed to initiate corrective actions for findings identified during the 2018 internal audit.

3. Supplier Oversight and Internal Audits

a. Inspection Scope

The NRC inspection team reviewed Arcos' policies and implementing procedures that govern the implementation of its supplier oversight and internal audit programs to verify compliance with the requirements of Criterion IV, "Procurement Document Control," Criterion VII, "Control of Purchased Material, Equipment, and Services," and Criterion XVIII, "Audits," of Appendix B to 10 CFR Part 50.

For the sample of purchase orders (POs) reviewed, the NRC inspection team verified that the POs included, as appropriate, the applicable technical and quality requirements. For the sample of external and internal audits reviewed, the NRC inspection team verified the audit reports included an audit plan, any findings identified, adequate documented objective evidence of compliance with the applicable requirements, and a review by Arcos' responsible management. The NRC inspection team verified that the external and internal audits reviewed had been performed by qualified auditors, and in the case of the internal audits, that these audits were performed by personnel not having direct responsibilities in the areas being audited.

The NRC inspection team also discussed the supplier oversight and internal audits programs with Arcos' management and technical staff. The attachment to this inspection report lists the documents reviewed and the staff interviewed by the NRC inspection team.

b. Observations and Findings

b.1 Procurement Document Control

During the review of a sample of safety-related POs, the NRC inspection team noted that Arcos did not impose the requirements of Appendix B to 10 CFR Part 50 for safety-related materials to be used as basic components. Rather than imposing Appendix B to 10 CFR Part 50 as a requirement in the PO, Arcos imposes in the POs that the work must be performed in accordance with the suppliers' quality assurance (QA) manual approved by Arcos.

To ensure that material with safety functions have adequate QA applied, POs shall specify compliance with the requirements of Appendix B to 10 CFR Part 50. In addition, imposing Appendix B to 10 CFR Part 50 in the POs ensures that it is passed down to the sub-suppliers.

The NRC inspection team determined this issue to be minor because Arcos performed additional chemical analyses on the material to confirm the material meets the required chemical composition. Arcos initiated Corrective Action Report (CAR) No. 262 to address this issue.

b.2 Supplier Oversight

Arcos' Approved Vendors List includes suppliers whose quality programs are based on the International Organization for Standardization (ISO) 9001:2008, "Quality Management System (QMS) – Requirements." Arcos qualifies these suppliers as Material Organizations (MOs) with a quality program that meets the applicable requirements of Subsubarticle NCA-4250, "Quality System Program Requirements," in accordance with the requirements of Subparagraph NCA-3842.2, "Evaluation of the Qualified Material Organization's Program by Certified Material Organizations of Certificate Holders," of Subsection NCA, "General Requirements for Division 1 and Division 2," of Section III, "Rules for Construction of Nuclear Facility Components," of the American Society Mechanical Engineering (ASME) of the Boiler and Pressure Vessel (B&PV) Code. During the review of a sample of external audit reports of material suppliers qualified as MOs, the NRC inspection team noted several instances in which the audit checklists did not provide sufficient objective evidence to support the conclusion that the material suppliers had met the applicable requirements of NCA-4250 for a specific criterion. This issue is similar to documentation examples detailed in Section 4 of this report.

The NRC inspection team determined these documentation issues are minor because Arcos performed additional chemical analyses on the material to confirm the material meets the required chemical composition. Arcos initiated CAR No. 264 to address these documentation issues.

b.3 Internal Audits

During the review of Arcos' 2018 internal audit report, the NRC inspection team noted that there were seven findings identified. During further discussions with the QA Manager, the NRC inspection team discovered that none of the seven findings had been entered into Arcos' corrective action program. This issue is further discussed above in Section 2 of this report.

c. Conclusion

The NRC inspection team concluded that, with the exception of the minor issues discussed above, Arcos established its supplier oversight and internal audit programs in accordance with the regulatory requirements of Criterion IV, Criterion VII, and Criterion XVII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Arcos is implementing its policies and procedures associated with the supplier oversight and internal audits. No findings of significance were identified.

4. Commercial-Grade Dedication and Utilization of Unqualified Source Material

a. Inspection Scope

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

reviewed Arcos' program for the utilization of unqualified source material to verify compliance with the requirements of Subparagraph NCA-4255.5, "Utilization of Unqualified Source Material," of Section III, of the ASME B&PV Code.

The NRC inspection team reviewed a sample of CGD packages and commercial-grade survey and on-site source surveillance reports of calibration service suppliers. The CGD packages for M&TE contained such documents as the POs, technical evaluation, quality assurance (QA) checklist, verification of calibration reports upon receipt, as applicable. In addition, the CGD packages included the technical evaluation for the identification and documentation of the basis and justification for the selection of the critical characteristics, acceptance methods, and acceptance criteria. The NRC inspection team evaluated the criteria for the identification of item functions, selection of critical characteristics and acceptance criteria, and the identification of verification methods to verify effective implementation of Arcos' CGD process.

The NRC inspection team also reviewed a sample of Certified Material Test Reports (CMTRs), receiving documents, and the supporting laboratory test reports that included the test results of the chemical analysis and mechanical properties testing that was performed on each heat/lot of material to verify implementation of the utilization of unqualified source material process in accordance with the requirements of NCA-4255.5. The NRC inspection team also verified that the test results were consistent and from the same heat number, and observed several in-process inspection and testing activities as part of the NCA-4255.5 process.

The NRC inspection team discussed the CGD and utilization of unqualified source material programs with Arcos' management and staff. The attachment to this inspection report lists the documents reviewed, and staff interviewed by the NRC inspection team.

b. Observation and Findings

During the review of a sample of Arcos' utilization of unqualified source material supplier's identification and traceability reports, the NRC inspection team noted that for two material suppliers, Arcos did not document the supplier's identification and traceability procedure that Arcos had reviewed, approved and verified implementation at the supplier's facilities as required by subparagraph NCA-4255.5. The NRC inspection team determined this issue to be minor because all materials were identified with material type and heat number traceable to the supplier and were listed on the CMTRs and were verified that they meet the applicable ASME material specifications upon receipt.

Upon review of Arcos' on-site source surveillance reports or commercial-grade calibration service suppliers, the NRC inspection team noted that two on-site source surveillance reports' checklist exhibited inconsistent documentation of objective evidence. Specifically, the checklist had critical characteristics such as procedure used during calibration, and the environmental conditions check box were marked as verified, however, the objective evidence was not documented against these critical characteristic criteria. The NRC inspection team determined this issue to be minor because all information was captured in the Certificate of Calibration that was reviewed and accepted by Arcos.

Arcos initiated CAR No. 264 to address the documentation issues. No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that, with the exception of the minor issues discussed above, Arcos established its CGD and utilization of unqualified source material programs in accordance with the regulatory requirements of Criterion III, Criterion IV, and Criterion VII of Appendix B to 10 CFR Part 50, and with the requirements of subparagraph NCA-4255.5 of Subsection NCA of Section III of the ASME B&PV Code. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Arcos is implementing its policies and procedures associated with the CGD and utilization of unqualified source material programs. No findings of significance were identified.

5. Identification and Control of Materials, Parts, and Components

a. Inspection Scope

The NRC inspection team reviewed Arcos' policies and implementing procedures that govern the material identification and traceability program 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 performed a walk-down of Arcos' receipt inspection, fabrication, storage, M&TE, physical and chemical laboratories, nonconforming area and shipping area and verified that materials were either marked with a part number, material specification, heat number/heat code, or unique Arcos lot number and with a shop traveler identifying their fabrication process status. The NRC inspection team confirmed that materials were identified with acceptable tags indicating a part number, material type and grade, and were traceable to a PO, which identified the supplier's heat/lot number from which the materials were procured. The NRC inspection team observed Arcos' wire drawing operation of weld wire during which the operator transferred the material identification and traceability on piece parts as well as on the shop traveler.

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

b. Observation and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team determined that Arcos established its material identification and traceability program in accordance with the regulatory requirements of Criterion VIII of Appendix B to 10 CFR Part 50. Based on limited sample of documents reviewed, the NRC inspection team also determined that Arcos is implementing its policies and

procedures associated with the material identification and traceability program. No findings of significance were identified.

6. Test Control

a. Inspection Scope

The NRC inspection team reviewed Arcos' policies and implementing procedures that govern the test control program to verify compliance with the requirements of Criterion XI, "Test Control," of Appendix B to 10 CFR Part 50.

The NRC inspection team witnessed several testing activities associated with Arcos' utilization of unqualified source material process to verify compliance with the requirements of NCA-4255.5. The NRC inspection team observed: (1) chemical analysis on incoming 0.217-inch type grade 387H weld wire to verify the material meets the requirements of 2017 Edition of ASME ERNiCr-3, SFA A5.4, "Specification for Stainless Steel Electrodes for Shielded Metal Arc Welding," to ASME Section II, "Materials," Part C, "Specification for Welding Rods, Electrodes, and Filler Metals;" specification; (2) Delta-Ferrite test on weld coupon for E309/309L electrode to verify delta-ferrite using Magna Gage to verify ferrite contents were within the requirements of SFA 5.4 material specification and (3) tensile test on test coupon to verify tensile properties meet the 2017 Edition of material specification for ASME SFA 5.4 material specification requirements. The NRC inspection team observed that Arcos' laboratory technician followed Arcos' test procedures, used the latest edition of the applicable material specification for the acceptance criteria, conducted daily verification/calibration of the test equipment using calibrated standards and documenting results in the test logs, and that the test results were independently verified by the quality control inspector (QCI). The NRC inspection team reviewed the training and certification records for laboratory technicians and the QCI to verify they were adequately trained and qualified and that their records were current.

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

7. Control of Measuring and Test Equipment

a. Inspection Scope

The NRC inspection team reviewed Arcos' policies and implementing procedures that govern the 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.

For a sample of M&TE, the NRC inspection team reviewed the calibration stickers and determined that the stickers documented the 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 prior to use. The calibration records reviewed by the NRC inspection team indicated the 'as-found' or 'as-left' condition, accuracy required, calibration results, calibration dates, and the due dates for re-calibration.

The NRC inspection team reviewed equipment located in the fabrication shop and observed that the M&TE was 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 also discussed the M&TE program with Arcos' management and technical staff. The attachment to this inspection report lists the documents reviewed and the staff interviewed by the NRC inspection team.

b. Observation and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that Arcos established 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 Arcos is implementing its policies and procedures associated with the M&TE program. No findings of significance were identified.

8. Entrance and Exit Meetings

On June 10, 2019, the NRC inspection team discussed the scope of the inspection with Mr. Harry Wehr, General Manager, and other members of Arcos' management and technical staff. On June 14, 2019, the NRC inspection team presented the inspection results and observations during an exit meeting with Mr. Wehr, and other members of Arcos' management and technical staff. The attachment to this report lists the attendees of the entrance and exit meetings, as well as those individuals whom the NRC inspection team interviewed.

ATTACHMENT

1. Entrance/Exit Meeting Attendees and Persons Interviewed

Name	Title	Affiliation	Entrance	Exit	Interviewed
Harry Wehr	General Manager	Arcos Industries, LLC (Arcos)	X	X	X
Brian Gaal	Technical Director	Arcos	X	X	X
Sean Williams	Quality Assurance Manager	Arcos	X	X	X
Tim Barwick	Chemical Laboratory Technician	Arcos			X
Jana Mace	QA Specialist	Arcos			X
Beth Haupt	Sales Manager	Arcos	X		
Patricia Shipe	Production Control Manager	Arcos	X		
Walt Quade	Purchasing	Arcos	X		
Tom Kane	Production Manager	Arcos	X		
Tom Barwick	Chemical Laboratory Technician	Arcos			X
Robert Nairns	Metallurgical Laboratory Technician	Arcos			X
Christopher Krah	Quality Control (QC) Inspector/Metallurgical Technician	Arcos			X
Sean Reismiller	QC Inspector	Arcos			X
Yamir-Diaz-Castillo	Inspector	NRC	X	X*	
Raju Patel	Inspector	NRC	X	X	
Andrea Keim	Inspector	NRC	X	X	
Kerri Kavanagh	Chief, IQVB	NRC		X*	

*via phone

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
99900351/2019-201-01	OPEN	NON	Criterion XVI

4. DOCUMENTS REVIEWED

Policies and Procedures

- Quality System Manual (QSM) Edition 5, Revision 1, dated October 18, 2018
- Quality Procedure Manual Index, Revision 29, dated February 19, 2018
- Quality Procedure (QP) -6.4, "Vendor Audits/Surveys," Revision 12, dated April 8, 2019
- QP 6.1, "Purchase Orders for Packaging Supplies, Chemicals, Wire, and Rod," Revision 8, dated April 8, 2019
- QP-6.2, "Purchasing for ASME Nuclear Orders," Revision 9, dated April 8, 2019
- QP-6.3, "Vendor Qualification and Rating," Revision 8, April 8, 2019
- QP-6.4, "Vendor Audits/Surveys," Revision 12, dated April 8, 2019
- QP-6.5, "Audits/Survey Checklists," Revision 5, dated April 8, 2019
- QP-6.6, "Utilization of Unqualified Source Materials," Revision 6, dated April 8, 2019
- QP-6.7, "Finish Material Supplier Controls," Revision 4, dated April 8, 2019
- QP-6.8, "Commercial-Grade Dedication," Revision 3, dated April 8, 2019
- QP-8.2, "Product Identification through Annealing and Cleaning," Revision 6, dated April 8, 2019
- QP-8.3, "Spooled Wire Identification," Revision 5, dated March 8, 2019
- QP-8.4, "Coiled Wire Identification," Revision 6, dated March 8, 2019
- QP-8.6, "Identification of Electrodes on Trays and Portable Carts," Revision 5, dated April 8, 2019
- QP-10.1, "Quality Control Rod & Wire Receiving Inspection," Revision 9, dated April 8, 2019
- QP-11.1, "Calibration of Test Equipment," Revision 13, dated April 8, 2019
- QP-11.2, "Standard Verification," Revision 5, dated April 8, 2019
- QP-13.1, "Nonconforming Product," Revision 12, dated May 14, 2014
- QP-13.2, "Nonconforming Product," Revision 5, dated May 14, 2014
- QP-13.3, "Materials Review Board," Revision 6, dated August 8, 2014
- QP-13.4, "10CFR21 – Reporting of Defects and Noncompliance," Revision 5, dated August 8, 2014
- QP-14-1, "Corrective and Preventive Actions Report," Revision 10, dated November 16, 2016

- QP-17.1, "Internal Audits," Revision 12, dated April 8, 2019
- Work Instruction (WI)-8.5, "In-Process and Finished Product Traceability Control," Revision 5, dated February 28, 2014
- WI-9.5, "Wire Drawing Process," Revision 1, dated April 28, 2014
- WI-10-18, "In-Process and Final Inspection of Arcos Drum Packs and Spools," Revision 2, dated July 21, 2011
- WI-10-4, "Ferrite Determination by Magna Gage," Revision 1, dated July 21, 2011
- WI-10-24, "Baking Record and Welding Test," Revision 1, dated May 24, 2014
- WI-11.1, "Calibration of Welding Parameters," Revision 1, dated May 12, 2014
- WI-11.3, "Magna Gage monthly check," Revision 1, dated July 21, 2011
- WI-11.5, "Operation of LECO Carbon and Sulfur Analyzer," Revision 1, dated May 12, 2014
- WI-11.8, "Micrometer/Dial Caliper Calibration," Revision 1, dated March 21, 2019
- WI-11.14, "Operation of Spectro-Spark Analyzer Pro-Max," Revision 1, dated September 7, 2016

Procurement Documents (PO)

- PO No. R2612 for 500 pounds of 1/16-inch diameter E308L T1-4 Class T2 stainless steel wire, dated March 1, 2019
- PO No. R2598, for RM4043-X-R1 0.035-inch spool 4043 Aluminum 20 pound each to ASME SFA 5.10, February 4, 2019
- PO No. 0028095 for calibration of Magna Gage Identification No. 18544-9, dated December 12, 2018
- PO No. 0027800 for calibration of Tinus Olsten serial number (S/N) 222670, S/N 222669, and S/N 0802408, dated June 19, 2018
- PO No. 0026565 for calibration and repair services of scales, dated August 1, 2016,
- PO No. 0024305 for non-destructive examination, mechanical testing, and chemical analysis services, dated December 27, 2012
- PO No. 0027575 for calibration services, dated February 20, 2018
- PO No. R2655 for hot rolled rod, dated May 13, 2019
- PO No. R2653 for hot rolled and pickled rod, dated May 10, 2019
- PO No. R2561 for hot rolled rod, dated May 10, 2019
- PO No. R2647 for hot rolled, annealed, and pickled rod, dated May 9, 2019

Audits/ Surveys

- Identification and Traceability Review (ITR) Report dated September 14, 2016, of unqualified electrode source supplier
- Identification and Traceability Review Report dated September 14, 2016, of unqualified source weld wire material supplier
- Audit/commercial-grade survey report dated December 16, 2018, of calibration service provider of Magna Gage Instrument
- Source surveillance report dated July 23, 2018, of on-site calibration service supplier for calibration of Tinus Olsten test machine
- On-Site calibration source surveillance report dated April 8, 2019, of calibration service supplier for scales
- On-Site calibration source surveillance report dated February 20, 2019, of calibration service supplier of process calibrator

- Annual supplier evaluation reports dated January 4, 2019, of material organizations, commercial-grade calibration service suppliers, and unqualified source material suppliers
- Internal Audit Report No. IA-16-001 for an audit conducted October 4, 2016
- Internal Audit Report No. IA-17-001 for an audit conducted October 11-12, 2017
- Internal Audit Report No. IA-18-001 for an audit conducted September 18-20, 2018
- External Audit Report No. 17-7-01, Revision 0, for an audit conducted July 6, 2017
- Qualification Audit Report No. 18-09-01 of a supplier of hot rolled rod for an audit conducted September 13, 2018
- Qualification Audit Report No. 19-05-01 of a supplier of hot rolled rod for an audit conducted April 29, 2019
- Qualification Audit Report No. 18-08-01 of a supplier of hot rolled rod for an audit conducted August 20, 2018
- Qualification Audit Report No. 17-05-01 of a supplier of hot rolled rod for an audit conducted May 8, 2017
- Qualification Audit Report No. 18-08-02 of a supplier of hot rolled rod for an audit conducted August 28, 2018
- Qualification Audit Report No. 17-05-02 of a supplier of hot rolled rod for an audit conducted May 11, 2017
- Qualification Audit Report No. 17-04-01 of a supplier of hot rolled rod for an audit conducted April 10, 2017

Certificate of Conformance, and Shop Travelers, Final Inspection Report

- Shop traveler Q No. 15652 for Arcos E309/309L electrodes to ASME SFA A5.4 material specification on work order (W/O) No. 48499E1, Lot No. 18E08E traceable to Heat No. 548815 with Delta Ferrite Diagram, Weld Chemistry, Tensile Test, and Radiographs test and final QA approval
- Shop traveler Q No. 21829 dated June 10, 2019, for production of E308L-16 size 1/8 x 14-inch electrodes to ASME SFA A5.4 material specification on W/O No. 50400/E, Lot No. 19E31E, traceable to heat No. 553549, with weld chemistry, radiograph and Magna-Gage and QA Review
- Shop traveler Q No. 21863 dated June 6, 2019 for production of 5/32 x 14-inch electrodes E310-16 to ASME SFA A 5.4 specification on W/O No. 50294/E, Lot No. 19F01/E, traceable to Heat No. 549874
- Shop traveler Q No. 21859 dated June 11, 2019 for production of 5/32 x 14-inch E310-16 size electrodes to ASME SFA A 5.4 specification on W/O No. 50294/E, Lot No. 19F01/E, traceable to Heat No. 549874, consist of weld chemistry, baking record and weld test and Extrusion QC review and final material to warehouse report
- Final QA package for 0.035-inch x 35-pound spool weld wire Class ER316/316L with CMTR dated May 3, 2019, certified to ASME SFA 5.9 material specification Lot No. XT0781, traceable to Heat No. 754995, for customer order No. 907951
- Final QA package for 5/32 x 14-inch x 629-pounds Arcos ER308L weld wire with CMTR dated May 2, 2019, certified to ASME SFA 5.9 material specification Lot No. EF0576, traceable to Heat No. 54867 for customer order No. 4500176722
- Final QA package for 1/16 x 36-inch x 110-pounds Arcos 382 Class ERNiCr-3 weld wire with CMTR dated December 3, 2018, certified to ASME SFA 5.14 material specification Lot No. AP0708, traceable to Heat No. QY319, for customer order No. 907862
- Final QA package for 300 pounds of 3/32-inch x 35-pound spool weld wire Arcos 625, Class ER NiCrMo-3 with CMTR dated December 19, 2018, certified to ASME SFA 5.14

material specification Lot No. CP0719, traceable to Heat No. QY413, for customer order No. 624490

- Final QA package for 240 pounds of 0.047-inch spool weld wire Arcos 4043, Class 4043 with CMTR dated May 9, 2019, certified to ASME SFA 5.10 material specification Lot No. KU0787, traceable to Heat No. RB19111311, for customer order No. 907946-CO1
- Final QA package for 1410 pounds of 1/16-inch spool weld wire Arcos 218, Class ER218 with CMTR dated December 11, 2018, certified to ASME SFA A 5.9 material specification Lot No. AU0718, traceable to Heat No. 59903-1, for customer order No. 907856
- Final QA package for 1/8-inch x 14-inch Arcos 309/309L-16 certified to ASME SFA 5.4 material specification Lot No. 18E08E with CMTR dated September 28, 2018, for customer order No. 174197

Certificate of Calibration, Inspection and Test Records, Audit Reports, and Commercial-Grade Dedication

- Certificate of Calibration No. HIZPP802 for Tinus Olsten serial number (S/N) 222670 dated July 23, 2018, reviewed and accepted by Arcos on August 6, 2018
- Certificate of Calibration No. HIZPP801 for Extensometer S/N 222669 dated July 23, 2018, reviewed and approved by Arcos on August 6, 2018
- Certificate of Calibration No. HIZPP803 for a Tinius Olsen testing machine, calibrated on July 30, 2018
- Certificate of Calibration No. 701557 of Toledo Scales S/Ns 23333, 2153, 19232 and 17209 dated April 8, 2019, reviewed and accepted by Arcos on April 15, 2019
- Calibration Certificate No. 4500-0844560R1, 4500-0844561, 4500-0844563, 4500-0844564, 4500-0844565, 4500-0844566 for Annealer No. 3-1, dryer temperature, Annealer No. 3-2, Annealer No. 3-3, and Side Heaters dated February 20, 2019, reviewed and approved by Arcos on June 11, 2019
- Certification of Calibration for Magna Gage S/N P-6341, calibrated on March 18, 2016, placed in-service on July 25, 2017, reviewed and accepted on July 25, 2017
- Certified Test Report No. ARC001-18-05-16395-1, dated May 21, 2018, for radiographic inspection of sample Q15652 Lot No. 18E08E stainless steel welded using SMAW process
- Baking Record and Welding Test and Extrusion Quality Control check dated June 7, 2019, performed on E2209-16 electrodes on Arcos Q Number 21858, W/O No. 50376/E, traceable to Lot No. 19E41E, Heat No. E180283 to ASME SFA A5.4 material specification
- Incoming Inspection Report (IIR) dated June 3, 2019, for Arcos ER NiCr-3, 0.217-inch diameter size and type 384H weld coils assigned Lot No. P0816, on Arcos PO No. R2561 traceable to Heat No. QZ190
- IIR dated April 19, 2019, for Arcos 1/16-inch Type 308L-AP weld wire to SFA 5.22 material specification assigned Lot No. U0768, traceable to Heat No. A3600 on Arcos PO No. 21509
- QA package for Arcos 3/16 x 14-inch E309L electrodes Lot 19A32E certified to ASME SFA A5.4 material specification stored in warehouse location R06J2, traceable to Arcos W/O No. 49783/E and Heat No. 552827
- QA package for Arcos 3/32 x 9-inch E320LR-15 electrodes Lot 18B05C certified to ASME SFA A5.4 material specification stored in warehouse location R06E1, traceable to Arcos W/O No. 48228/E and Heat No. QW602

- QA package for Arcos 0.045-inch coil ER309/309L weld wire Lot No. YF0727 certified to ASME SFA A 5.9, stored in warehouse location R06BR, traceable to Arcos W/O No. 49889-1 and heat No. 552827
- Calibration Certificate No. ARC001-18-03-01259-1 for gage blocks, calibrated on March 16, 2018
- Calibration Certificate No. ARC001-19-03-01369-1 for gage blocks, calibrated on March 26, 2019
- Calibration Certificate No. ARC001-18-10-05350-10 for a temperature controller, calibrated on November 26, 2018
- Calibration Certificate No. ARC001-18-10-05350-8 for a temperature controller, calibrated on November 26, 2018
- Calibration Certificate No. ARC001-18-10-05350-9 for a temperature controller, calibrated on November 26, 2018
- Calibration Certificate No. ARC001-18-10-05350-11 for a temperature controller, calibrated on November 26, 2018
- Calibration Certificate No. ARC001-18-10-05350-14 for a temperature controller, calibrated on November 26, 2018
- Calibration Certificate No. ARC001-18-10-05350-13 for a temperature controller, calibrated on November 26, 2018
- Calibration Certificate No. ARC001-18-10-05350-12 for a temperature controller, calibrated on November 26, 2018
- Calibration Certificate No. 701521 for a weight scale, calibrated on April 8, 2019
- Instrument History Report for a welding machine, calibrated on February 27, 2019
- Instrument History Report for a Federal Dial gage, calibrated on November 7, 2018
- Instrument History Report for a digital caliper, calibrated on May 3, 2019

Commercial-Grade Surveys/Audit Reports

- Audit: ARCOS 16-04 NIAC 21123, dated May 5, 2016
- Audit: ARCOS 18-02 NIAC 23097, dated June 19, 2018
- Audit: Closure ARCOS 18-02 NIAC 23097, dated January 23, 2019
- NIAC Audit Report No. 23049, dated February 12, 2018
- NIAC Audit Report No. 2824, dated April 4, 2016
- NIAC Audit No. 21061, dated May 11, 2016
- NIAC Survey Report, dated January 26, 2017
- Audit: 16-07, dated September 26, 2016
- NIAC Commercial Service Survey #22014, dated April 14, 2017
- Audit: 16-07, dated September 26, 2016
- Audit: 16-05 (Commercial-Grade Survey), dated July 7, 2016
- Audit Report LSM-IA-18-16: 2018 Internal Audit- Latrobe Facility, December 18, 2018
- Audit Report LSM-IA-18-17: 2018 Internal Audit- Marion Center Internal Audit, December 18, 2018
- Audit Plan LSM-EA-19-3: Supplier Audit, dated April 17, 2019

Training

- Inspection and Test Personnel Qualification: March 5, 2019
- Inspection and Test Personnel Qualification: March 8, 2019
- Excel Spreadsheet ARCOS Training Records
- Record of Lead Auditor Qualification: June 24, 2014

- Annual evaluation records dated April 25, 2019, for Quality Control Inspectors, Metallurgical Technicians and Chemical Laboratory Technicians

Miscellaneous

- Technical Evaluation Report (TER) No. Service-3 dated January 17, 2017 for CGD of calibration services of mechanical and tensile machine
- TER No. Service-1 dated June 8, 2017, for CGD of calibration and repair service of scales
- TER No. Service-6 dated February 18, 2019, for CGD of calibration service of temperature controllers and recorders
- TER No. 5.9-2, dated January 22, 2014, for utilization of unqualified source material to ASME SFA 5.9, "Specification for Bare Stainless-Steel Welding Electrodes and Rods," of ASME Section II, Part C, latest edition
- TER No. 5.10-2, dated April 16, 2019 for utilization of unqualified source material to ASME SFA 5.10 of ASME Section II, Part C, latest edition
- TER No. 5.22-0, dated January 17, 2016 for unqualified source material to ASME SFA 5.22, "Specification for Stainless Steel Flux Cored and Metal Cored Welding Electrodes and Rods," of ASME Section II, Part C, latest edition.
- Arcos Industries, LLC Approved Vendor List

Nonconformances (NCRs)

- NCR-1568, dated March 27, 2017
- NCR-1569, dated May 16, 2017
- NCR-1570, dated May 23, 2017
- NCR-1571, dated June 5, 2017
- NCR-1572, dated August 1, 2017
- NCR-1574, dated October 25, 2017
- NCR-1576, dated December 7, 2017
- NCR-1577, dated December 19, 2017
- NCR-1579, dated February 2, 2018
- NCR-1581, dated February 25, 2019
- NCR-1583, dated March 4, 2019
- NCR-1585, dated April 15, 2019

Corrective Action Reports (CARs)

- CAR-253, dated April 30, 2018
- CAR-255, dated April 30, 2018
- CAR-256, dated May 1, 2018
- CAR-257, dated June 20, 2018 and Part 21 Evaluation
- CAR-258, dated July 24, 2018
- CAR-259, dated August 10, 2018
- CAR-260, dated October 24, 2018
- CAR-261, dated March 19, 2019

Corrective Actions generated during this inspection

- CAR No. 262 – measures to assure applicable regulatory requirements and other requirements are flowed down to MOs that have been qualified by Arcos.
- CAR No. 263 – Internal Audit findings not entered into corrective action program
- CAR No. 264 – inconsistencies in documented objective evidence on audit/ source surveillance, qualification audit reports and identification and traceability review reports
- CAR No. 265 – lack of independence on documentation preparer, reviewer, and approver.
- CAR No. 266 – inconsistencies with ILAC alternative NEI 14-05A provisions in procedures