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

December 5, 2023

Mr. Brian Johns
Nuclear Quality Manager
Henry Pratt Company, LLC
2048 Industrial Blvd.
Kimball, TN 37347

SUBJECT: NUCLEAR REGULATORY COMMISSION VENDOR INSPECTION REPORT OF HENRY PRATT COMPANY, LLC. NO. 99902116/2023-201, AND NOTICE OF NONCONFORMANCE

Dear Mr. Johns:

On October 23 - 27, 2023, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Henry Pratt Company, LLC's (hereafter referred to as HPCO) facility in Kimball, TN. The purpose of this limited-scope routine inspection was to assess HPCO'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."

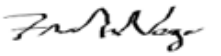
This technically focused inspection specifically evaluated HPCO's implementation of quality activities associated with the design, fabrication, testing, and commercial-grade dedication of safety-related valves, valve parts, and appurtenances for U.S. nuclear power plants. In addition, the NRC inspection team evaluated HPCO's closure of corrective actions for the inspection findings documented in inspection report No. 99901349/2002-201, dated February 8, 2002 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML033570012). The enclosed report presents the results of the inspection. This NRC inspection report does not constitute NRC's endorsement of HPCO's overall quality assurance (QA) or 10 CFR Part 21 programs.

During this inspection, the NRC inspection team found that the implementation of your QA program failed to meet certain regulatory requirements imposed on you by your customers or NRC licensees. Specifically, the NRC inspection team determined that HPCO was not fully implementing its QA program in the areas of procurement document control and control of purchased material, equipment, and services. 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), HPCO 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 from the date 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,” a copy of this letter, its enclosure(s), and your response will be made available electronically for public inspection in the NRC’s 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 should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, “Protection of safeguards information: performance requirements.”

Sincerely,



Vega, Frankie signing on behalf of Kavanagh, Kerri on 12/05/23

Kerri Kavanagh, Chief
Quality Assurance and Vendor Inspection Branch
Division of Reactor Oversight
Office of Nuclear Reactor Regulation

Docket No.: 99902116

EPID No.: I-2023-201-0051

Enclosures:
1. Notice of Nonconformance
2. Inspection Report No. 99902116/2023-201 and Attachment

SUBJECT: NUCLEAR REGULATORY COMMISSION VENDOR INSPECTION REPORT OF HENRY PRATT COMPANY, LLC. NO. 99902116/2023-201, AND NOTICE OF NONCONFORMANCE DATE: December 5, 2023

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ADAMS Accession No.: ML23324A425 **NRR-106**

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DATE	11/28/2023	11/ /2023	12/5/2023

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NOTICE OF NONCONFORMANCE

Henry Pratt Company, LLC
2048 Industrial Blvd
Kimball, TN 37347

Docket No. 99902116
Report No. 2023-001

Based on the results of a U.S. Nuclear Regulatory Commission (NRC) inspection conducted at the Henry Pratt Company, LLC's (hereafter referred to as HPCO) facility in Kimball, TN, from October 23, 2023, through October 27, 2023, HPCO did not conduct certain activities in accordance with NRC requirements that were contractually imposed on HPCO by its customers or NRC licensees:

A. Criterion IV, "Procurement Document Control," 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," states, in part, that "Measures shall be established to assure that applicable regulatory requirements, […] and other requirements which are necessary to assure adequate quality are suitably included or referenced in the documents for procurement of material, equipment, and services, whether purchased by the applicant or by its contractors or subcontractors."

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

   Contrary to the above, as of October 27, 2023, HPCO failed to assure that applicable regulatory, technical, and quality requirements, which are necessary to assure adequate quality, were suitably included or referenced in the procurement documents for materials and services. Specifically, HPCO failed to assess the effectiveness of the control of quality by contractors and subcontractors. Specifically,

   1. HPCO did not invoke the applicable regulatory, technical, and quality requirements in the procurement documents for the paint used to provide a protective coating on the safety-related valves, and for the procurement of water testing services to ensure the water meets the chemistry requirements used in the hydrostatic testing and cleaning of the safety-related valves.

   2. HPCO did not perform an assessment of the paint supplier and the water testing supplier's to verify the adequate implementation of their quality controls associated with the manufacturing of the paint and the supply of water testing services, respectively.

   Nuclear power plants use paint as a protective coating to protect the surfaces of equipment against corrosion and contamination from radionuclides. Under certain circumstances, the debris created from coating degradation could adversely affect the operation of post-accident fluid systems, as applicable. In addition, the chemical analysis of the water used for hydrostatic testing and cleaning is significant because if out of specification, the impurities (e.g., pH, chloride, fluoride, sulfate) could degrade the

safety-related valves' ability to perform their safety-related function during plant operations.

These examples have been identified as Nonconformance 99902116/2023-201-01.

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 and Vendor Inspection Branch, Division of Reactor Oversight, 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 noncompliances; and (4) the date when the corrective actions will be completed. Where good cause is shown, consideration will be given to extending the response time.

In accordance with the requirements of 10 CFR 2.390, "Public inspections, exemptions, requests for withholding," of the NRC's "Rule of Practice," your response will be made available electronically for public inspection in the NRC's Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC's Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material 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 of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of safeguards information: performance requirements."

Dated this 5th day of December 2023.

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
DIVISION OF REACTOR OVERSIGHT
VENDOR INSPECTION REPORT

Docket No.:	99902116		
Report No.:	99902116/2023-201		
Vendor:	Henry Pratt Company, LLC 2048 Industrial Blvd. Kimball, TN 37347		
Vendor Contact:	Mr. Brian Johns Nuclear Quality Manager Phone: 1-423-322-8918 Email: bjohns@muellerwp.com		
Nuclear Industry Activity:	Henry Pratt Company, LLC's (hereafter referred to as HPCO) scope of supply includes safety-related American Society of Mechanical Engineers Boiler and Pressure Vessel Code and Non-Code Class 2 and Class 3 valves, valve parts, and appurtenances.		
Inspection Dates:	October 23 - 27, 2023		
Inspectors:	Yamir Diaz-Castillo Odunayo Ayegbusi Steven Downey Michael Fitzgerald	NRR/DRO/IQVB NRR/DRO/IQVB NRR/DRO/IQVB NRR/DRO/IQVB	Team Leader Trainee
Approved by:	Kerri Kavanagh, Chief Quality Assurance and Vendor Inspection Branch Division of Reactor Oversight Office of Nuclear Reactor Regulation		

EXECUTIVE SUMMARY

Henry Pratt Company, LLC
99902116/2023-201

The U.S. Nuclear Regulatory Commission (NRC) staff conducted a limited-scope routine vendor inspection at the Henry Pratt Company, LLC's (hereafter referred to as HPCO) facility in Kimball, TN, 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." The NRC inspection team conducted this inspection on-site on October 23 - 27, 2023. This was the first NRC inspection of HPCO at the Kimball, TN facility. The NRC performed an inspection in 2002 at the HPCO now closed facility in Dixon, IL. HPCO had another facility as well in Aurora, IL, however, the NRC did not perform an inspection at this facility. HPCO relocated operations from both their Dixon and Aurora, IL, locations to Kimball, TN. The move was completed in September 2022. Prior to relocating its operations to Kimball, TN, HPCO's safety-related valves were constructed in Aurora, IL, while the location in Dixon, IL, handled order entry, design, and procurement.

This technically focused inspection specifically evaluated HPCO's implementation of the quality activities associated with the design, fabrication, testing, and commercial-grade dedication of safety-related valves, valve parts, and appurtenances for U.S. nuclear power plants. In addition, the NRC inspection team evaluated HPCO's closure of corrective actions for the inspection findings documented in inspection report (IR) No. 99901349/2002-201, dated February 8, 2002 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML033570012). IR No. 99901349/2002-201 documents the inspection findings issued to the HPCO facility located in Dixon, IL, which is not in operation anymore.

Specific activities observed by the NRC inspection team during this inspection included:

- Receipt inspection of eight hex head cap screws

The following 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 February 10, 2023; IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated February 10, 2023; and IP 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting of Defects and Noncompliance," dated February 10, 2023.

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

Procurement Document Control and Supplier Oversight

The NRC inspection team issued Nonconformance 99902116/2023-201-01 for HPCO's failure to implement the regulatory requirements of Criterion IV, "Procurement Document Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50. Nonconformance 99902116/2023-201-01 cites HPCO for failing to: (1) assure that the applicable regulatory, technical, and quality requirements were included or referenced in the procurement documents for materials and services; and (2) assess the effectiveness of the control of quality by contractors. Specifically, HPCO: (1) did not invoked the applicable regulatory, technical, and quality requirements in the procurement documents for paint and water testing services used in safety-related components, and (2) did not perform an assessment of the paint and water testing services suppliers to verify the adequate implementation of their quality controls associated with the manufacturing of the paint and the supply of water testing services. HPCO initiated Root Cause/Counter Measure (RCCM) Nos. 2023-21 and 2023-27, respectively, to address these issues.

10 CFR Part 21

The NRC inspection team determined that HPCO is implementing its policies and procedures associated with its 10 CFR Part 21 program. Based on the limited sample of documents reviewed, the NRC inspection team issued URI 99902116/2023-201-02 to request that HPCO provide objective evidence that it has retained, as applicable, the 10 CFR Part 21 evaluations of all deviations and failures to comply performed in the last five years in accordance with the requirements of 10 CFR 21.51(a)(1). HPCO initiated RCCM 2023-25 to address this issue.

Nonconforming Materials, Parts, or Components and Corrective Action

The NRC inspection team reviewed HPCO's closure of the corrective actions associated with Nonconformance 99901349/2002-201-01 and Nonconformance 99901349/2002-201-02, documented in the NRC's IR No. 99901349/2002-201. The NRC inspection team focused its review on the processes, procedures, and controls currently being implemented by HPCO because a significant amount of time had elapsed since the nonconformances were issued including HPCO relocating its manufacturing facility from Dixon, IL to Kimball, TN. The NRC inspection team determined that HPCO's corrective actions taken in 2002 to address Nonconformance 99901349/2002-201-01 and Nonconformance 99901349/2002-201-02 were adequately implemented and remain effective. Based on its review, the NRC inspection team closed Nonconformance 99901349/2002-201-01 and Nonconformance 99901349/2002-201-02.

Other Inspection Areas

The NRC inspection team determined that HPCO established its programs for design control, commercial-grade dedication, control of special processes, material identification and control, test control, measuring and test equipment, and internal audits, in accordance with the applicable regulatory requirements of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed and activities observed, the NRC inspection team also determined that HPCO is implementing its policies and procedures associated with these programs. No findings of significance were identified in these areas.

REPORT DETAILS

1. Procurement Document Control and Supplier Oversight

   a. Inspection Scope

   The U.S. Nuclear Regulatory Commission (NRC) inspection team reviewed Henry Pratt Company, LLC's (hereafter referred to as HPCO) policies and implementing procedures that govern the implementation of its procurement document control and supplier oversight programs to verify compliance with the regulatory requirements of Criterion IV, "Procurement Document Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," 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." The NRC inspection team reviewed a sample of purchase orders (POs), HPCO's Approved Vendors List (AVL), supplier audit reports, and annual evaluations.

   For the review of the sample of POs, the NRC inspection team verified the POs included, as applicable: (1) the scope of work; (2) right of access to the suppliers' facilities; (3) extension of contractual requirements to sub-suppliers; (4) and the applicable technical, regulatory, and quality requirements.

   The NRC inspection team also reviewed a sample of audit reports and verified that the audits reports included, as applicable: (1) an audit plan; (2) any findings identified and the associated corrective actions; (3) adequate documented objective evidence of compliance with the applicable requirements; and (4) a documented review by HPCO's responsible management. For the review of the annual evaluations, the NRC inspection team confirmed they included the information required by HPCO's policies and procedures. In addition, the NRC inspection team also verified that the audits were performed in accordance with the established frequency and by qualified auditors. Furthermore, the NRC inspection team reviewed the training and qualification records of lead auditors and auditors and confirmed that auditing personnel had completed all the required training and had maintained the applicable qualification and certification in accordance with HPCO's policies and procedures.

   The NRC inspection team observed the receipt inspection of eight hex head cap screws. The NRC inspection team verified that the inspection was performed in accordance with HPCO's policies and procedures, using calibrated gages, and performed by a qualified Nuclear Product Inspector.

   The NRC inspection team also discussed the procurement document control and supplier oversight programs with HPCO'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

   During discussions with the HPCO staff, the NRC inspection team learned of two suppliers that were not listed in HPCO's AVL. The NRC inspection team identified that these suppliers provided paint and water testing services to HPCO. The purpose of the paint is to provide a protective coating to the safety-related valves constructed by HPCO.

HPCO uses fresh water to perform hydrostatic testing and cleaning of the safety-related valves constructed by HPCO. As such, the water must be tested at an established frequency to ensure that it meets the applicable chemistry requirements. The NRC inspection team asked HPCO to provide the procurement documents issued to these suppliers as well as the assessments performed by HPCO to verify the suppliers' implementation of their quality controls. Upon review of the procurement documents, the NRC inspection team identified that HPCO did not invoke the applicable regulatory, technical, and quality requirements in the POs. In addition, HPCO staff stated that they had not performed an assessment of these suppliers' quality controls associated with the manufacturing of the paint and the supply of water testing services.

Nuclear power plants use paint as a protective coating to protect the surfaces of equipment (e.g., safety-related valves) against corrosion and contamination from radionuclides. Under certain circumstances, the debris created from coating degradation could adversely affect the operation of post-accident fluid systems, as applicable. In addition, the chemical analysis of the water used for hydrostatic testing and cleaning is significant because if out of specification, the impurities (e.g., pH, chloride, fluoride, sulfate) could degrade the safety-related valves' ability to perform their safety-related function during plant operations.

The NRC inspection team identified these issues as Nonconformance 99902116/2023-201-01 for HPCO's failure to: (1) assure that applicable regulatory, technical, and quality requirements were included or referenced in the procurement documents for materials and services; and (2) assess the effectiveness of the control of quality by contractors. HPCO initiated RCCM Nos. 2023-21 and 2023-27 to address these issues.

c. Conclusion

The NRC inspection team issued Nonconformance 99902116/2023-201-01 for HPCO's failure to implement the regulatory requirements of Criterion IV and Criterion VII of Appendix B to 10 CFR Part 50. Nonconformance 99902116/2023-201-01 cites HPCO for failing to: (1) assure that the applicable regulatory, technical, and quality requirements were included or referenced in the procurement documents for materials and services; and (2) assess the effectiveness of the control of quality by contractors. Specifically, HPCO: (1) did not invoked the applicable regulatory, technical, and quality requirements in the procurement documents for paint and water testing services used in safety-related components, and (2) did not perform an assessment of the paint and water testing services suppliers to verify the adequate implementation of their quality controls associated with the manufacturing of the paint and the supply of water testing services.

2. 10 CFR Part 21 Program

a. Inspection Scope

The NRC inspection team reviewed HPCO's policies and implementing procedures that govern the implementation of its 10 CFR Part 21, "Reporting of Defects and Noncompliance," program to verify compliance with the regulatory requirements. The NRC inspection team evaluated the 10 CFR Part 21 postings and a sample of HPCO's POs to verify 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," respectively. The NRC inspection team verified that HPCO's

nonconformance and corrective action procedures provide a link to its 10 CFR Part 21 program.

The NRC inspection team also discussed the 10 CFR Part 21 program with HPCO'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

10 CFR 21.51(a) states, in part, that "Each individual, corporation, partnership, dedicating entity, or other entity subject to the regulations in this part shall prepare and maintain records necessary to accomplish the purposes of this part, specifically - (1) Retain evaluations of all deviations and failures to comply for a minimum of five years after the date of the evaluation."

During the review of Section 7, "Record Retention," of HPCO's Quality Assurance Procedure No. QAP-15, "Collection, Storage and Maintenance of Quality Assurance Records," Revision A, dated September 22, 2022, the NRC inspection team noted that it did not include a requirement for retaining 10 CFR Part 21 evaluations of all deviations and failures to comply performed in the last five years. The NRC inspection team requested that HPCO provide objective evidence of 10 CFR Part 21 evaluations performed in the last five years, as applicable.

The HPCO staff informed the NRC inspection team that due to the relocation of its operations from Aurora, IL, to Kimball, TN, which was completed in September 2022, most of its quality assurance (QA) records are in a storage facility and it would require a considerable amount of time to determine if the 10 CFR Part 21 evaluations for the last five years were retained in the record storage facility. HPCO started its search for the objective evidence necessary to demonstrate that it had retained the 10 CFR Part 21 evaluations as required, however, at the conclusion of the inspection, HPCO had not completed its investigation.

The NRC inspection team concluded that more information is required to determine if a violation of the requirements of 10 CFR 21.51(a)(1) has occurred. Therefore, the NRC inspection team identified this issue as Unresolved Item (URI) 99902116/2023-201-02, pending HPCO's investigation on whether it had appropriately retained 10 CFR part 21 evaluations for the last five years. HPCO initiated RCCM 2023-25 to address this issue.

c. Conclusion

With the exception of URI 99902116/2023-201-02, the NRC inspection team concluded that HPCO 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 HPCO is implementing its policies and procedures associated with the 10 CFR Part 21 program.

3. Design Control

a. Inspection Scope

The NRC inspection team reviewed HPCO's policies and implementing procedures that govern the implementation of its design control program to verify compliance with the regulatory requirements of Criterion III, "Design Control," of Appendix B to 10 CFR Part 50, and with the applicable requirements 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 & Pressure Vessel (B&PV) Code.

Prior to relocating its operations to Kimball, TN, HPCO's safety-related valves were constructed at its now closed facility in Aurora, IL. HPCO had another facility in Dixon, IL, that handled order entry, design, and procurement. The ASME Certificates for the Aurora facility expired in September 2022 and HPCO obtained new ASME Certificates for its facility in Kimball, TN, in May 2023. At the time of the inspection, HPCO had not shipped any safety-related valves to U.S. nuclear power plants from its facility in Kimball, TN. As such, the NRC inspection team reviewed two completed design packages for two 96-inch motor operated butterfly valves that were constructed at the HPCO facility in Aurora, IL.

The NRC inspection team confirmed that the design requirements per the customer's POs were adequately translated into the applicable HPCO's drawings and design specifications. The NRC inspection team also confirmed that the design documentation included the applicable technical and regulatory requirements as required by customer specifications, HPCO's procedures, and the applicable ASME B&PV Code requirements. The NRC inspection team verified that the materials of construction and components for the motor operated butterfly valves conformed to the appropriate material specification, design specification, and ASME B&PV Code requirements.

In addition, the NRC inspection team discussed the engineering change process, which includes design changes, with HPCO's Senior Nuclear Engineer. The NRC inspection team reviewed two available in-process engineering change packages associated with revising the way certain items are identified on drawings and confirmed the process was being implemented in accordance with HPCO's procedures.

The NRC inspection team verified that HPCO's design control process: (1) adequately translated technical and quality requirements into procedures and instructions, (2) applied materials conformed to the material specifications, (3) design activities were effectively controlled by documented instructions and procedures, and (4) engineering changes were accomplished in accordance with HPCO's procedures.

The NRC inspection team also discussed the design control program with HPCO'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 HPCO is implementing its design control 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 HPCO is implementing its policies and procedures associated with the design control program. No findings of significance were identified.

4. Commercial-Grade Dedication

a. Inspection Scope

The NRC inspection team reviewed HPCO's policies and implementing procedures that govern the implementation of its commercial-grade dedication (CGD) program to verify compliance with the regulatory requirements of Criterion III and Criterion VII of Appendix B to 10 CFR Part 50.

The NRC inspection team reviewed a sample of documents associated with the CGD of the following items: (1) bronze bearing, (2) thrust collar, and (3) bottom cover gasket. Within these CGD documents, the NRC inspection team reviewed: (1) POs; (2) technical evaluations; (3) checklists; (4) inspection and test reports; and (5) Certificates of Conformance. HPCO utilizes special tests and inspections as the method for verifying the critical characteristics met the acceptance criteria. The NRC inspection team evaluated the criteria for the identification of item functions, credible failure mechanisms and modes, selection of critical characteristics and acceptance criteria, identification of verification methods, and justification of the sampling methodologies, as applicable, to verify the effective implementation of HPCO's CGD process.

The NRC inspection team also reviewed HPCO's measures for using the International Laboratory Accreditation Cooperation (ILAC) accreditation process in lieu of performing commercial-grade surveys for the procurement of calibration and testing services as part of the commercial-grade dedication process. HPCO implements this process as described in the Nuclear Energy Institute document No. 14-05A, "Guidelines for the Use of Accreditation in Lieu of Commercial Grade Surveys for Procurement of Laboratory Calibration and Test Services," Revision 1, dated September 2020, which was recognized for use by the NRC in a safety evaluation (SE) dated November 23, 2020 (Agencywide Documents Access Management System Accession (ADAMS) No. ML20322A019).

The NRC inspection team also discussed the CGD program with HPCO'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

During the review of HPCO's implementation of the ILAC accreditation process, the NRC inspection team noted that it is not being adequately implemented and in accordance with the requirements of Revision 1 of NEI 14-05A and the NRC's SE. Specifically, HPCO: (1) did not perform and document a technical evaluation for the CGD of the calibration and testing services; (2) did not include all of the conditions in the QA manual and associated procedures; and (3) did not adequately verify during receipt inspection

that the calibration and testing services were performed in accordance with the laboratories' International Standard Organization (ISO)/International Electrotechnical Commission (IEC) 17025, "General Requirements for the Competence of Testing and Calibration Laboratories," QA program, and the requirements of the PO; and (4) allowed for the subcontracting of calibration services.

The NRC inspection team determined these issues to be minor because: (1) they are a documentation issue; (2) they had no impact on the calibration services; and (3) the NRC inspection team confirmed the laboratories were accredited to the 2017 edition of ISO/IEC 17025. HPCO initiated RCCM No. 2023-18 to address these issues.

In addition, during the review of a sample of CGD documents, the NRC inspection team noted that HPCO identified material composition as one of the critical characteristics. For the verification of the material composition, HPCO chooses a sample and sends it to a qualified laboratory in HPCO's AVL for testing. When the NRC inspection team asked HPCO to provide the technical basis or the engineering evaluation performed for the selected sampling plan and the sampling plan's sample size, HPCO pointed to "Table #1" from its CGD procedure No. QAP-21, "Commercial Grade Item Dedication," Revision B, dated November 15, 2022. The NRC inspection team noted that "Table #1" only includes one sampling plan with four options available for selecting the sample size. The NRC inspection team identified that the information provided in "Table #1" was not based on any industry standards and HPCO had not developed a technical basis or performed an engineering evaluation for the selection of the sample plan and the sample plan's sample size. The NRC inspection team determined that the use of "Table #1" by itself was not adequate and should be supplemented with other qualitative factors (e.g., supplier performance, performance history of the item, complexity of the item, safety significant of the item) to ensure adequate selection and implementation of the sampling plan's sample size. In addition, sampling plans should be used in accordance with nationally recognized industry standards and should have an adequate documented technical basis and/or engineering evaluation.

The NRC inspection team determined this issue to be minor because HPCO has not shipped any valves since moving to the new facility in Kimball, TN, and HPCO performs additional tests and inspections as part of the CGD process, which demonstrate that the critical characteristics were adequately controlled. HPCO initiated RCCM No. 2023-15 to address this issue.

c. Conclusion

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

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

a. Inspection Scope

The NRC inspection team reviewed HPCO's policies and implementing procedures that govern the implementation of its material identification and control program to verify

compliance with the regulatory requirements of Criterion VIII, “Identification and Control of Materials, Parts, and Components,” of Appendix B to 10 CFR Part 50.

The NRC inspection team performed a walk-through of HPCO’s facility and verified that materials and/or components were identified with either a heat number, part number, and/or serial number, as applicable, using applicable markings and labels. These numbers are traceable back to the HPCO PO number. The NRC inspection team also noted that these numbers are included in all of the documentation associated with the materials and/or components.

The NRC inspection team discussed the material identification and control program with HPCO’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 HPCO is implementing its material identification and control 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 HPCO is adequately implementing its policies and procedures associated with the material identification and control program. No findings of significance were identified.

6. Control of Special Processes

a. Inspection Scope

The NRC inspection team reviewed HPCO’s policies and implementing procedures that govern the implementation of its control of special processes program to verify compliance with the regulatory requirements of Criterion IX, “Control of Special Processes,” of Appendix B to 10 CFR Part 50, and with the applicable requirements of Section V, “Nondestructive Examination,” Section IX, “Welding and Brazing Qualification,” of the ASME B&PV Code, and with the American Society for Nondestructive Testing (ASNT) SNT-TC-1A, “Personnel Qualification and Certification in Nondestructive Testing.”

Welding

There were no safety-related welding activities performed during the week of the inspection. As such, the NRC inspection team reviewed a sample of completed welding records for two 96-inch motor operated butterfly valves constructed at the HPCO facility in Aurora, IL, including Welding Procedure Specifications (WPS) and their associated Procedure Qualification Records (PQR). The NRC inspection team confirmed that the welding records, including the WPSs and PQRs, contained the required information in accordance with the applicable HPCO’s welding procedures and the applicable requirements of Section IX of the ASME B&PV Code. The NRC inspection team also verified that welding activities were performed by qualified welders.

The NRC inspection team performed a walk-through of the weld storage area and confirmed that weld rods were being adequately stored and controlled to prevent degradation, inadvertent use, or loss of traceability in accordance with the applicable HPCO's welding procedures. The NRC inspection team also verified that the process for issuing weld filler metal was controlled in accordance with the HPCO's applicable welding procedures. The NRC inspection team noted that the weld area was secured, clean, and protected from wind and moisture.

The NRC inspection team also reviewed the welder performance qualifications and continuity records for the two welders currently working at HPCO's facility in Kimball, TN. The NRC inspection team confirmed that the welders had completed the required training and had maintained their training and qualification in accordance with HPCO's welding procedures and the applicable requirements of Sections III and IX of the ASME B&PV Code.

Non-destructive Examination (NDE)

There were no safety-related NDE activities performed during the week of the inspection. As such, the NRC inspection team reviewed a sample of completed NDE records associated with magnetic particle testing (MT), liquid penetrant testing (PT), and visual examinations (VT) for the two 96-inch motor operated butterfly valves constructed at the HPCO facility in Aurora, IL. The NRC inspection team confirmed that the NDE reports contained the required information in accordance with HPCO's NDE procedures and the applicable requirements of Section V of the ASME B&PV Code. The NRC inspection team also verified that NDE activities were performed by qualified NDE personnel.

In addition, the NRC inspection team reviewed a sample of HPCO's NDE personnel training and qualification records and confirmed that the NDE personnel had completed the required training and had maintained their qualifications in accordance with HPCO's NDE procedures and the applicable requirements of ASNT SNT-TC-1A and Sections III and V of the ASME B&PV Code.

The NRC inspection team also discussed the control of special processes program with HPCO'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 HPCO is implementing its control of special processes program 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 HPCO is implementing its policies and procedures associated with the control of special processes program. No findings of significance were identified.

7. Test Control

a. Inspection Scope

The NRC inspection team reviewed HPCO's policies and implementing procedures that govern the implementation of its test control program to verify compliance with the requirements of Criterion XI, "Test Control," of Appendix B to 10 CFR Part 50. There were no safety-related testing activities performed during the week of the inspection. As such, the NRC inspection team reviewed a sample of completed hydrostatic test reports associated with an ASME test fixture used as a demonstration to obtain HPCO's ASME nuclear certification. This certification allows HPCO to certify and stamp safety-related components constructed in accordance with Section III of the ASME B&PV Code.

The NRC inspection team verified that HPCO's test procedures adequately included the applicable technical, quality, and regulatory requirements. The NRC inspection team also confirmed that the following testing elements were satisfied, verified, and recorded, as appropriate: (1) test parameters and initial conditions, (2) test acceptance criteria, (3) test prerequisites, (4) test instrument range, accuracy, and uncertainty appropriate for the test; (5) current calibration; and (6) proper procedure sequence followed and any deviations documented and evaluated.

The NRC inspection team also confirmed that the tests were performed using properly calibrated measuring and test equipment (M&TE). The NRC inspection team also reviewed the training and qualification records of the test technicians identified in the reports and confirmed that testing personnel had completed all the required training and had maintained the applicable qualification and certification in accordance with HPCO's policies and procedures.

The NRC inspection team discussed the test control program with HPCO'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

Section 6.1, "Water Quality Requirements," of HPCO's test control procedure No. A&T-6, "Test and Acceptance of Valves for Nuclear Projects," Revision D, dated March 30, 2023, requires the water used for hydrostatic testing of the valves to meet certain chemistry requirements. During the review of HPCO's test procedures, the NRC inspection team noted that procedure No. A&T-6 did not provide any guidance and/or direction for testing the water at a specified frequency to confirm that the quality of the water meets the applicable chemistry requirements.

The NRC inspection team determined this issue to be minor because HPCO has not performed any hydrostatic testing and it hasn't shipped any valves since moving to the new facility in Kimball, TN. HPCO initiated RCCM No. 2023-21 to address this issue.

c. Conclusion

The NRC inspection team concluded that HPCO 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 HPCO is adequately implementing its policies and procedures associated with the test control program. No findings of significance were identified.

8. Control of Measuring and Test Equipment

a. Inspection Scope

The NRC inspection team reviewed HPCO's policies and implementing procedures that govern the implementation of its 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.

HPCO sends all their M&TE to an outside laboratory in the AVL for calibration. For a sample of M&TE, the NRC inspection team verified that M&TE had the appropriate calibration stickers 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 prior to use. In addition, the NRC inspection team verified that the Certificates of Calibration contained the following information: (1) as-found or as-left conditions; (2) accuracy required; (3) calibration results; (4) calibration dates; and (5) the due date for recalibration. The NRC inspection team also verified that the selected M&TE was calibrated using procedures traceable to known industry standards.

The NRC inspection team verified that HPCO's procedures include guidance for when M&TE equipment is found to be out of calibration. At the time of the NRC inspection, HPCO had not identified any M&TE that had been found out of calibration. The NRC inspection team performed a walk-through of HPCO's manufacturing areas and observed that 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 HPCO'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 HPCO 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 HPCO is implementing its policies and procedures associated with the M&TE program. No findings of significance were identified.

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

a. Inspection Scope

The NRC inspection team reviewed HPCO's 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 verified that HPCO's processes and procedures provide for the identification, documentation, segregation, evaluation, and disposition of nonconforming items. Nonconformances could be dispositioned as "Repair," "Scrap," "Use-As-Is," or "Return to Vendor."

The NRC inspection team reviewed a sample of Nonconforming Materials Reports (NMRs) and verified that HPCO: (1) dispositioned the NMRs in accordance with the applicable procedures; (2) documented an appropriate technical justification for the selected disposition; and (3) took adequate corrective action regarding the nonconforming items, as applicable.

The NRC inspection team also reviewed a sample of RCCMs and verified that the RCCMs contained, as applicable: (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; (3) direction for review and approval by the responsible authority; (4) a description of the current status of the corrective actions; and (5) the actions taken to verify timely and effective implementation of the corrective actions.

In addition, the NRC inspection team reviewed HPCO's corrective actions in response to the inspection findings identified in the NRC's Inspection Report (IR) No. 99901349/2002-201-01, dated February 8, 2002 (ADAMS Accession No. ML033570012). The 2002 inspection was conducted at the now closed HPCO's facility in Dixon, IL.

The NRC inspection team discussed the nonconforming materials, parts or components and corrective action programs with HPCO'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

During the review of HPCO's corrective action procedure No. KI-000-QP-23, "Corrective Action Process," Revision 4, dated September 19, 2023, the NRC inspection team noted that the procedure did not require that: (1) significant conditions adverse to quality (SCAQ) be identified, the cause of the condition be determined, and corrective actions identified to preclude recurrence; and (2) an extent of condition be performed on non-conforming issues entered into the non-conforming or corrective action programs. In addition, the NRC inspection team identified that RCCM No. 2022-47, opened in response to a finding identified during an audit performed by Southern Nuclear Operating Company, was closed without completing one of the corrective actions.

Specifically, HPCO stated in the RCCM that it was going to modify KI-000-QP-22, Revision 3, dated February 25, 2022, to add guidance on how to perform screenings for 10 CFR Part 21 on nonconforming items and conditions entered in the corrective action program. The NRC inspection team noted that RCCM No. 2022-47 was closed without revising Revision 3 of KI-000-QP-22.

The NRC inspection team determined these issues to be minor because while Revision 4 of KI-000-QP-23 (the last two numbers reflect the year the procedure was updated) does not include guidance on how to process a SCAQ, HPCO has completed all the necessary actions, including performing an extent of condition review, as applicable. In addition, the NRC inspection team did not identify any NMRs or RCCMs that required a 10 CFR Part 21 screening. HPCO initiated RCCM Nos. 2023-22 and 2023-24 to address these issues.

Corrective Actions Associated with Nonconformances 99901349/2002-201-01

Following the February 2002 inspection at HPCO's facility in Dixon, IL, as documented in the NRC's IR No. 99901349/2002-201, the NRC issued Nonconformance 99901349/2002-201-01 for HPCO's failure to use a qualified welder to perform weld operations on a nuclear valve. Specifically, the welder received his formal qualification approximately two weeks after the weld had been performed.

In its response dated February 25, 2002 (ADAMS Accession No. ML ML020600318), HPCO stated, in part, that a notification was distributed on February 22, 2002, which outlined that no welder would be allowed to weld prior to being approved as a Qualified Welder by the Welding Engineer, documented in the Dixon Nuclear Welding Procedure Specification Manual, and confirming the current activity in the Continuity Log Book. HPCO also stated that all future orders requiring welding would be closely scrutinized by the Project Manager, Welding Engineer, Manufacturing Supervisor, QA Inspectors, and the QA Manager.

For the closure of Nonconformance 99901349/2002-201-01, the NRC inspection team focused its review on HPCO's current procedures, processes, and controls associated with the implementation of HPCO's welding program because a significant amount of time had elapsed since this nonconformance was issued including HPCO relocating its manufacturing facility from Dixon, IL to Kimball, TN. In addition, the NRC inspection team did not identify any examples of unqualified welders performing weld operations on nuclear components.

The NRC inspection team determined that HPCO's corrective actions taken in 2002 to address Nonconformance 99901349/2002-201-01 were adequately implemented and remain effective. Based on its review, the NRC inspection team closed Nonconformance 99901349/2002-201-01. No findings of significance were identified.

Corrective Action Associated with Nonconformance 99901349/2002-201-02

Following the February 2002 inspection at HPCO's facility in Dixon, IL, the NRC also issued Nonconformance 99901349/2002-201-02 for HPCO's failure to document the final disposition of a nonconforming nuclear component associated with shop order No. DD626-1.

In its response dated February 25, 2002, HPCO stated, in part, that a notification was distributed to all QA inspectors on February 22, 2002, referencing Section 5.8.2, QAP 5, and QAP 39, which required documentation of the respective corrective action, re-inspection, and final disposition on the "In-Process Inspection Record" form. HPCO also stated that its personnel would undergo annual training.

For the closure of Nonconformance 99901349/2002-201-02, the NRC inspection team focused its review on HPCO's current procedures, processes, and controls associated with the implementation of HPCO's nonconformance because a significant amount of time had elapsed since this nonconformance was issued including HPCO relocating its manufacturing facility from Dixon, IL to Kimball, TN. In addition, the NRC inspection team did not identify any examples of nonconforming nuclear components that did not have a documented final disposition.

The NRC inspection team determined that HPCO's corrective actions taken in 2002 to address Nonconformance 99901349/2002-201-02 were adequately implemented and remain effective. Based on its review, the NRC inspection team closed Nonconformance 99901349/2002-201-02. No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that HPCO 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 HPCO is implementing its policies and procedures associated with its nonconforming materials, parts, or components and corrective action programs. No findings of significance were identified.

10. Internal Audits

a. Inspection Scope

The NRC inspection team reviewed HPCO's policies and implementing procedures that govern its internal audit program to verify compliance with the requirements of Criterion XVIII, "Audits," of Appendix B to 10 CFR Part 50. The NRC inspection team reviewed a sample of HPCO's internal audit plans, internal audit reports, and corrective actions generated during internal audits.

For the sample of internal audits reviewed, the NRC inspection team verified that the audit reports included: (1) an audit plan; (2) audit results; (3) adequately documented objective evidence with the applicable requirements; and (4) a review by HPCO's responsible management. The NRC inspection team verified that the internal audits were performed by qualified auditors who were not auditing their own work and that the internal audits were performed using the appropriate checklists. The NRC inspection team also verified that HPCO adequately initiated and corrected any findings identified during the internal audits.

The NRC inspection team discussed the internal audits program with HPCO'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 HPCO is implementing its internal audits program in accordance with the regulatory requirements of 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 HPCO is adequately implementing its policies and procedures associated with the internal audit program. No findings of significance were identified.

11. Entrance and Exit Meetings

On October 23, 2023, the NRC inspection team discussed the scope of the inspection during an entrance meeting with Mr. Tom Burke, Director of Operations, and other members of HPCO's management and technical staff. On October 27, 2023, the NRC inspection team presented the inspection results and observations during an exit meeting to Mr. Burke and other members of HPCO's 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

Name	Title	Affiliation	Entrance	Exit	Interviewed
Tom Burke*	Director of Operations	Henry Pratt Company, LLC (HPCO)	X	X	
Aaron Burden	Plant Manager	HPCO	X	X	
Brian Johns	Nuclear Quality Manager	HPCO	X	X	X
Alex Malone	Commercial Quality Assurance Manager	HPCO	X	X	
Josh Bradner	Purchasing Manager	HPCO	X	X	
Dustin Rivers	Maintenance Manager	HPCO	X	X	
Nick Velk	Product Engineering Manager	HPCO	X	X	
Daniel McSpadden	Operations Manager	HPCO	X	X	
Norbert Blum	Manufacturing Engineering Manager	HPCO	X		
Jason Chandler	Product Engineering Manager	HPCO	X	X	
Forrest Hollman*	Human Resources Manager	HPCO	X		
Kara Dickey	Controller	HPCO	X	X	
Bobbie Allman	Nuclear Buyer	HPCO	X	X	X
Jeremy Dykes	Nuclear Product Inspector (NPI)	HPCO	X	X	X
Morgan Guffey	NPI	HPCO	X		X

Name	Title	Affiliation	Entrance	Exit	Interviewed
Kyle Shrum	Drager	HPCO	X	X	
Brandon Lowe	Senior Product Engineer	HPCO	X	X	
Chris Stanfill	Senior Nuclear Engineer	HPCO	X	X	
Brian Tuteur	Process Engineer	HPCO	X	X	X
Chanel Booker	Welding Engineer	HPCO	X	X	X
Beverly Graham	Manager of Nuclear Projects (MNP)	HPCO	X		
Melinda Kroning	MNP	HPCO	X		
Bill Densmore	Certifying Engineer	HPCO	X	X	X
Yamir Diaz-Castillo	Inspection Team Leader	Nuclear Regulatory Commission (NRC)	X	X	
Odunayo Ayegbusi	Inspector	NRC	X	X	
Steven Downey	Inspector	NRC	X	X	
Michael Fitzgerald	Inspector	NRC	X	X	

*Participated remotely.

2. INSPECTION PROCEDURES USED

- Inspection Procedure (IP) 36100, “Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance,” dated February 10, 2023.
- IP 43002, “Routine Inspections of Nuclear Vendors,” dated February 10, 2023.
- IP 43004, “Inspection of Commercial-Grade Dedication Programs,” dated February 10, 2023.

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Status	Type	Description
99902116/2023-201-01	OPENED	NON	Criterion IV and Criterion VII

Item Number	Status	Type	Description
99902116/2023-201-02	OPENED	URI	10 CFR Part 21
99901349/2002-201-01	CLOSED	NON	Criterion IX
99901349/2002-201-02	CLOSED	NON	Criterion XV

4. DOCUMENTS REVIEWED

Policies and Procedures

- HPCO, LLC's Nuclear Quality Assurance Manual, Revision 7, dated July 20, 2023
- Henry Pratt Company Procedure (HPCP) No. QAP-02, "Tool and Gauge Control," Revision B, dated March 7, 2023
- HPCP No. QAP-03, "Receiving Inspection for Nuclear Projects," Revision B, dated March 9, 2023
- HPCP No. QAP-04, "Maintenance of Identification and Traceability," Revision A, dated August 27, 2022
- HPCP No. QAP-05, "In-Process and Finished Part Inspection of Nuclear Projects," Revision B, dated March 27, 2023
- HPCP No. QAP-06, "Non-Destructive Examination - Documentation of Testing and Qualification of Personnel," Revision C, dated March 30, 2023
- HPCP No. QAP-07, "Preparation and Use of Specification Drawings," Revision B, dated October 14, 2022
- HPCP No. QAP-08, "Control of Nuclear Materials Purchased as Stock Items," Revision B, dated October 19. 2022
- HPCP No. QAP-09, "Handling, Storage, and Interpretation of Radiographs," Revision A, dated September 11, 2022
- HPCP No. QAP-10, "Indoctrination and Training Procedure," Revision D, dated October 6, 2023
- HPCP No. QAP-11, "Control of Returns of Nuclear Valves," Revision C, dated March 27, 2023
- HPCP No. QAP-12, "Drafting Control and Documentation for Nuclear Valves," Revision B, dated October 28, 2022
- HPCP No. QAP-13, "Procurement, Inspection, Handling, Storage and Testing of Motor and

Air Operated Valve Actuators," Revision A, September 21, 2022

- HPCP No. QAP-14, "Control of Nuclear Valve Spare Parts and Replacement Parts Inquires and Orders," Revision D, dated May 18, 2023
- HPCP No. QAP-15, "Collection, Storage and Maintenance of Quality Records," Revision A, dated September 12, 2022
- HPCP No. QAP-16, "Reporting of Defects or Non-Compliances for Safety Related Basic Components," Revision C, dated September 22, 2023
- HPCP No. QAP-17, "Qualification of Audit Personnel," Revision B, dated April 5, 2023
- HPCP No. QAP-18, "Qualification of Inspection & Test Personnel," Revision B, dated April 6, 2023
- HPCP No. QAP-19, "Qualification Procedure for Certifying Engineers (CE)," Revision D, dated March 27, 2023
- HPCP No. QAP-20, "Nonconforming Material Procedure," Revision C, dated September 22, 2023
- HPCP No. QAP-21, "Commercial Grade Item Dedication," Revision B, dated November 22, 2022
- HPCP No. QAP-22, "Verification of Material Received from ASME Quality System Certificate Holders," Revision A, dated September 21, 2022
- HPCP No. QAP-23, "Audit Procedure," Revision D, dated September 26, 2023
- HPCP No. QAP-24, "Contract Review/Order Entry," Revision C, dated August 7, 2023
- HPCP No. QAP-25, "Management Review," Revision A, dated September 27, 2022
- HPCP No. QAP-27, "Nuclear Method Sheet," Revision C, dated March 24, 2023
- HPCP No. ENG-007, "Software Quality Assurance," Revision 8, dated March 27, 2023
- HPCP No. ENG-013, "Design Report for Nuclear Butterfly Valves & Actuator Assembly," Revision 6, dated March 29, 2023
- HPCP No. ENG-016, "Weak Link Analysis for Nuclear Valves," Revision 4, dated December 2, 2013
- HPCP No. ENG-018, "Windchill Change Process," Revision 2, dated April 4, 2023
- HPCP No. A&T-5, "Assembly of Valves for Nuclear Projects," Revision A, dated February 14, 2023
- HPCP No. A&T-6, "Test and Acceptance of Valves for Nuclear Projects," Revision D, dated

March 30, 2023

- HPCP No. INSP-1, “Body Wall Thickness Measurement Procedure for Nuclear Valves 3” Through 48” (150# Valve Class),” Revision B, dated February 16, 2023
- HPCP No. INSP-2, “Dimensional Measurement Procedure,” Revision B, dated February 14, 2023
- HPCP No. MAN-10, “Handling, Packaging, and Shipping of Nuclear Valves,” Revision B, dated March 8, 2023
- HPCP No. MAN-11, “Cleaning Procedure for Nuclear Valves,” Revision B, dated March 21, 2023
- HPCP No. MAN-2, “General Rubber Molding Procedure for Bonded Seat Nuclear Valves,” Revision A, dated March 1, 2022
- HPCP No. PT-1, “Liquid Penetrant Examination Visible Dye Solvent Removable,” Revision C, dated March 7, 2023
- HPCP No. VT-1, “Visual Examination,” Revision C, dated March 7, 2023
- HPCP No. WP-1, “General Welding and Repair Procedure Specification for Nuclear Valves,” Revision B, dated February 20, 2023
- HPCP No. WP-2, “Nuclear Weld Machine Validation,” Revision A, dated March 23, 2023
- Mueller QAP No. KI-000-QP-23, “Corrective Action Process,” Revision 4, dated September 19, 2023

Design and Commercial-Grade Dedication Records

- Design Report No. 2268077DD-2, “96”-Model XL Butterfly Valve w/SMB-2-60/H6BC,” Revision 0
- Design Specification Review Checklist (Contract No. 73C38-83573), Revision 1
- Engineering Change Request No. KNECR00001, dated September 1, 2023
- Engineering Change Notice No. KNECR00001, dated September 19, 2023
- Engineering Change Request No. KNECR00002, dated October 11, 2023
- Engineering Change Notice No. KNECR00002, dated October 12, 2023
- NUS-2074, “Specification for Motor-Operated Butterfly Valves for Service Water and Circulating Water Systems,” Revision 4
- Weak Link Report No. 2268077DD-2, “Weak link and Seismic Stress Analysis for 96”-Model XL Butterfly Valve w/SMB-2-60/H6BC,” Revision 0

- Drawing No. B-214, “Hex Head Capscrew,” Revision 8, dated April 22, 2016
- Drawing No. B-014305, “Nuclear Valves Bronze Bearings,” Revision 3, dated December 16, 2020
- Drawing No. B-15061, “Bottom Cover Gasket Xline Power Valves,” Revision 1, dated March 10, 1994
- Drawing No. A-77463, “Rouch Thrust Collar,” Revision 1, September 13, 2011
- Drawing No. B-12256, “O-Rings,” Revision 25, dated April 9, 2019
- Drawing No. B-003388, “Buna O-rings with Uniform Dash Numbers,” Revision 19, dated August 13, 2020
- Drawing No. B-012163, “V-Type Packing,” Revision 15, dated February 14, 2023
- Drawing No. B-17845, “XLine#1 Rubber Seat Cross Section,” Revision 7, dated June 4, 2008
- Commercial-Grade Dedication (CGD) No. 501 for a bronze bearing, ASTM B-438, Part No. 737209, dated August 11, 2023
- CGD No. 515 for a thrust collar/bearing, Part No. 640390, dated May 22, 2023
- CGD No. 549 for a bottom cover gasket, Part No. 818500, dated June 21, 2023
- Certificate of Conformance for Order No. 56155918 ON for 3 gaskets, 1/16 non-asbestos, Part No. 818500, dated June 9, 2023
- Certificate of Conformance/Compliance for Purchase Order (PO) No. 56122293 ON, Packing Slip No. 380274, dated February 3, 2023
- Certificate of Conformance for PO No. 56147664, Part No. 2-147N70, dated March 28, 2023
- Certificate of Conformance for PO No. 56157418 ON, Part No. 654115, dated July 20, 2023
- Certificate of Conformance for Order No. 00306786 for 71 hex cap screws, Part No. 28397, dated September 11, 2023
- Certificate of Conformance for PO No. 56156696 ON for O-rings, Part No. 2-228E70, dated June 20, 2023
- Material Certification Report for Sale Order No. 56142270 ON, Item No. 737209, Production Lot No. 178378
- Nuclear Valve/Actuator Specification Sheet for Order No. 2679395DD, 8-inch butterfly valve, Class 2, ASME Section III B&PV Code 19721 Edition, 1972 Addenda, dated August 8, 2023
- Spare Parts Specifications Sheet for Order No. 51635954DD, 30-inch thrust collar, Class 3,

Model No. XR-70, ASME Section III B&PV Code 1968 Edition, dated May 22, 2023

- Test Report for Project No. P23-0815, “Brone Bearing, P/N 737209, PO# 56142770 ON, Lot #178378, For Order 2679395DD-1, Material: ASTM B438 CT-1000-K26,” dated June 29, 2023

- Test Report No. 48009, Garlock 3000 non-asbestos gasket, P/N 818500, PO# 56155918, Batch # 174533, dated July 15, 2023

- Test Report No. 47584, P/N 13858, PO No. 56147579 ON, Batch No. VEES-40927/Adaptors-40240, P/N 734582, PO No. 56147664 ON, Batch No. 10202020, dated April 13, 2023

- Test Report No. 48115, “2 x 2-1/2” V-Type Packing PN 654115 PO#56161262 ON & 56157418 ON, Batch/Lot# Vee Rings 40733-02-Adapters 41807,” dated Augustu 15, 2023

- Test Report No. 48203, “2-1/2” x 2-1/4: O ring PN 1043233 PO# 5616696 ON,” dated July 17, 2023

- Test Report No. 48217, “#1 XR70 Rubber Seat “Z” PN 1122200 PO# 56156381, Heat# 10570629231,” dated September 25, 2023

Nondestructive Examination and Welding Records

- Fabrication and Inspection Record for Part No. 2357380, dated November 16, 2020

- Fabrication and Inspection Record for Part No. 2357380, dated March 28, 2022

- Fabrication and Inspection Record for Part No. 2357392, dated January 5, 2021

- Fabrication and Inspection Record for Part No. 2359367, dated November 23, 2020

- Magnetic Particle Examination Report No. N-7733-2, dated June 27, 2018

- Magnetic Particle Examination Report No. N-8526-1, dated August 30, 2018

- Magnetic Particle Examination Report No. N-8526-2, dated August 30, 2018

- Visual Examination Report for Part No. 1528093, Heat No. 283435, Serial No. 1, dated October 23, 2023

- Visual Examination Report for Part No. 1528093, Heat No. 283435, Serial No. 2, dated October 23, 2023

- Visual Examination Report for Part No. 1528093, Heat No. 283435, Serial No. 3, dated October 23, 2023

- Visual Examination Report for Part No. 1528093, Heat No. 283435, Serial No. 4, dated October 23, 2023

- Procedure Qualification Record (PQR) No. PQR-GMAW-4242N-G, dated March 6, 2023
- PQR No. PQ-0101-22, dated November 12, 2022
- PQR No. PQ2-16, dated November 5, 1999
- Welding Procedure Specification (WPS) No. WPS-GMAW-4242N-G, Revision 1
- WPS No. WP3-0101N, Revision 11
- WPS No. WP3-0808N, Revision 6

Calibration and Test Records

- Calibration Certificate No. HPDX-RT-629 for a ¾"-10 UNC Go Thread Gauge, dated March 23, 2023
- Calibration Certificate No. HPDX-RT-630 for a ¾"-10 UNC No-Go Thread Gauge, dated 3/23/202 March 23, 2023
- Calibration Certificate No. HPCO-RTG-264 for a 5/8"-11 UNC Go Thread Gauge, dated March 23, 2023
- Calibration Certificate No. HPCO-RTG-265 for a 5/8"-11 UNC No-Go Thread Gauge, dated March 23, 2023
- Calibration Certificate No. 1030919 for a Venier Caliper, dated January 25, 2023
- Calibration Certificate No. HPCO-M-238 for an Internal Diameter Micrometer, dated May 1, 2023
- Calibration Certificate No. 7643 for an Internal Diameter Micrometer, dated May 1, 2023
- Calibration Certificate No. 74111370 for an Indicator Toggle, dated January 24, 2023
- Calibration Certificate No. 11126865 for a Torque Wrench, dated January 27, 2023
- Calibration Certificate No. 371158050 for a Set Screw, dated May 22, 2023
- Calibration Certificate No. HPDX-RG-474 for a ¼"-20 UNC 2A Go Thread Gauge, dated March 23, 2023
- Calibration Certificate No. HPDX-RG-475 for a ¼"-20 UNC 2A No-Go Thread Gauge, dated March 23, 2023
- Calibration Certificate No. B23240601 for a Caliper, Digital 6 inch, dated August 11, 2023
- Calibration Certificate No. SO31784-1-003 for a Caliper, Digital, 8-inch, dated June 20, 2023

- Calibration Certificate No. SO31784-1-011 for a Micrometer, Dian, ID, 4-22-inch, dated June 20, 2023
- Calibration Certificate No. SO31784-2-003 for a Pressure Gage, dated June 20, 2023
- Calibration Certificate No. SO31784-3-002 for an Infrared Thermometer, dated June 23, 2023
- Calibration Certificate No. SO30564-2-001 for a Pressure Gauge, dated September 22, 2022
- Calibration Certificate No. SO30669-1-001 for a Torque Wrench, Bi-Directional, dated October 3, 2022
- Calibration Certificate No. CHA-19142-3922035-1 for a Durometer, dated April 4, 2023
- Calibration Certificate No. CHA-19807-3922039-1 for a Light Meter, dated March 30, 2023
- Calibration Certificate No. CHA-19142-3922035-3 for a Durometer, dated October 25, 2023
- Calibration Certificate No. SO31121-1-023 for a Coating Thickness Gage, dated January 24, 2023
- Calibration Service Receiving Inspection Report for PO No. 56118850 ON, dated September 16, 2022
- Calibration Service Receiving Inspection Report for PO No. 56156807 ON, dated June 28, 2023
- Calibration Service Receiving Inspection Report for PO No. 56145000 ON, dated April 11, 2023
- Calibration Service Receiving Inspection Report for PO No. 56145000 ON, dated May 10, 2023
- Calibration Service Receiving Inspection Report for PO No. 56141214 ON, dated February 14, 2023
- Test Record No. 52628993DD-1 for an 8-inch 1200 Series 150 psi butterfly ASME B&PV Code Mock Valve, dated March 24, 2023

Supplier Oversight Records and Internal Audits

- HPCO's Approved Vendors List, dated October 19, 2023
- HPCO's Nuclear Management Review, dated March 3, 2023
- 2023 HPCO's Internal Audit Report
- 2022 HPCO's Internal Audit Report

- Annual Supplier Evaluation/Assessment of a supplier of testing services, dated August 25, 2023
- Annual Supplier Evaluation/Assessment of a supplier of steel plates, dated September 8, 2023
- Annual Supplier Evaluation/Assessment of a supplier of material, dated September 19, 2023
- Annual Supplier Evaluation/Assessment of a supplier of valve actuators, dated September 8, 2023
- Annual Supplier Evaluation/Assessment of a supplier of machining services, dated September 8, 2023
- Annual Supplier Evaluation/Assessment of a supplier of machining services, dated September 8, 2023
- Audit report for a supplier of testing services, dated February 8, 2022
- Audit report for a supplier of steel plates, dated August 12, 2021
- Audit report for a supplier of material, dated May 9, 2023
- Audit report for a supplier of valve actuators, dated June 29, 2021
- Audit report for a supplier of non-destructive examination services, dated October 14, 2022
- Audit report for a supplier of machining services, dated February 16, 2022
- Audit report for a supplier of machining services, dated July 9, 2021
- PO No. 56169434 ON for material testing services, Revision 0, dated September 5, 2023
- PO No. 56161376 ON for steel plates, Revision 1, dated July 18, 2023
- PO No. 56156460 ON for materials, Revision 2, dated August 10, 2023
- PO No. 56085899 ON for rework services, Revision 2, dated February 5, 2022
- PO No. 56118279 ON for machining services, Revision 1, dated September 27, 2022
- PO No. 56105994 ON for machining services, Revision 0, dated June 15, 2022
- PO No. 56159692 ON for testing services, Revision 0, dated Jue 20, 2023
- PO No. 56142770 ON for bronze bearings, Revision 3, dated June 12, 2023
- PO No. 56160088 ON for testing services, Revision 0, dated June 22, 2023

- PO No. 56155918 ON for a bottom cover gasket, Revision 1, dated May 6, 2023
- PO No. 56140964 ON for testing services, Revision 1, dated March 3, 2023
- PO No. 56122293 ON for thrust collars, Revision 0, dated September 30, 2022
- PO No. 56149699 ON for testing services, Revision 4, dated September 20, 2023
- PO No. 56147664 ON for O-rings, Revision 0, dated March 27, 2023
- PO No. 56152850 for inorganic paint, Revision 0, dated May 15, 2023
- PO No. 56156807 for calibration services, Revision 1, dated June 23, 2023
- PO No. 5611850 ON for calibration services, Revision 0, dated September 9, 2022
- PO No. 56160249 ON for calibration services, Revision 0, dated June 23, 2023
- PO No. 56145000 ON for calibration services, Revision 4, dated April 3, 2023
- PO No. 56141214 ON for calibration services, Revision 1, dated February 9, 2023
- PO No. 56165176 ON for testing services, Revision 1, dated August 7, 2023
- PO No. 56160841 ON for testing services, Revision 0, dated June 28, 2023
- PO No. 56171389 ON for testing services, Revision 0, dated September 19, 2023
- Receiving Inspection Checklist/Record Certified Material for Production Order No. 2828322DD-1, 3 Sets of V-Type Packings, Lot No. 40733-02 and 41807, Part No. 654115, dated August 24, 2023
- Receiving Inspection Checklist/Record Certified Material for Production Order No. 2679395DD-1, 5 Bronze Bearings, Lot No. 178378, Part No. 737209, dated July 5, 2023
- Receiving Inspection Checklist/Record Certified Material for Production Order No. TR-Stock, 3 Bottom Cover Gaskets, Batch No. 174533, Part No. 818500, dated August 24, 2023
- Receiving Inspection Checklist/Record Certified Material for Production Order No. 51635954DD-1, 5 Thrust Collars, Heat No. AB7124, Part No. 2329427, dated February 12, 2023
- Receiving Inspection Checklist/Record Certified Material for Production Order No. TR-Stock, 20 O-rings, Batch No. 10202020, Part No. 734582, dated April 17, 2023
- Receiving Inspection Checklist/Record Certified Material for Production Order No. 2783148DD-1 and 2800755DD-1, 7 O-rings, Batch No. 19917, Part No. 1043233, dated July 20, 2023

- Receiving Inspection Checklist/Record Certified Material for Production Order No. TR Stock, 100 feet XR70 #1 Rubber Seat, Batch No. 10570629231, Part No.11222200, dated September 27, 2023

- Alabama Power Company PO No. SNA10312282 for 42-inch Butterfly Valve, Class 3, ASME Section III B&PV Code 1971 Edition, 1971 Addenda, dated May 25, 2023

- Florida Power & Light PO No. 02439623 for 30-inch Thrust Collar, Class 3, ASME B&PV Code 1968 Edition, dated May 11, 2023

- Tennessee Valley Authority (TVA) PO No. 6007870 for an 8-inch Butterfly Valve, Class 2, ASME Section III B&PV Code 19721 Edition, 1972 Addenda, dated April 30, 2021

- TVA PO No. 7107225 for a 6-inch Butterfly Valve, Class 2, Revision 3, dated April 18, 2023

Nonconforming Material Reports

- 2200575, 2200624, 2300690, 2300721, 23001032, 23001033, 23001050, 23001116, 23001118, and 23001184

Root Cause/Counter Measure (RCCM) Reports

- 2022-47, 2022-49, 2022-60, 2022-63, 2022-71, 2022-72, 2022-73, 2022-74, 2022-75, and 2023-11

RCCM Reports Opened During the NRC Inspection

- 2023-15, 2023-16, 2023-17, 2023-18, 2023-20, 2023-21, 2023-22, 2023-23, 2023-24, and 2023-25

Training and Qualification Records

- Nuclear Quality Assurance Manager - Brian Johns

- Certifying Engineer - William Densmore

- Manager of Nuclear Projects - Beverly Graham and Melinda Kroning

- Nuclear Product Inspectors - Jeremy Dykes and Morgan Guffey

- Senior Nuclear Engineer - Chris Stanfill

- Senior Product Engineer - Brandon Lowe

- Welding Engineer - Chanel Booker

- Process Engineer - Brian Tuteur

- Welders - Pat Moats and Kyle Russell

- Non-destructive Examination personnel:
    - Nathan Spence - Level II Magnetic Particle Testing (MT)
    - P. Kogut - Level II MT
    - Steve Lippai - Level III Visual Examination and Liquid Penetrant Testing