

April 3, 1992

Docket No. 50-440

Mr. Michael D. Lyster, Vice President
Nuclear - Perry
The Cleveland Electric Illuminating
Company
10 Center Road
Perry, Ohio 44081

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Dear Mr. Lyster:

SUBJECT: NRC INSPECTION AT HENRY PRATT COMPANY, FEBRUARY 3-7, 1992

This letter transmits the results of an NRC inspection conducted at the Henry Pratt Company (HPC) facilities at Aurora, Illinois, and Dixon, Illinois, from February 3 through 7, 1992. The enclosed inspection report is provided for your review and action, as appropriate, based on the possible relevance of the findings to the design and operation of the Perry Nuclear Power Plant (PNPP). However, no specific action or response to this letter is required.

During the inspection, it was found that the HPC quality assurance manual and implementing procedures do not contain adequate requirements and interfaces to ensure that all items purchased as commercial grade items (CGIs) for use in safety-related applications are adequately dedicated as basic components. As a result of this program deficiency, HPC supplied some CGIs to the PNPP as basic components, without adequately verifying that the material requirements specified in procurement documents had been met. The specific findings and references to the pertinent requirements are identified in Section 3.4.3 of the enclosed inspection report issued to HPC. These findings were verbally communicated to members of the PNPP staff by the NRC inspectors at the time of the inspection.

If you have any questions about the information in this letter or the enclosed inspection report, please contact Larry L. Campbell of the Vendor Inspection Branch at (301) 504-2976, or me at (301) 504-3063.

Sincerely,

Original Signed By:

151

James R. Hall, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosure:
As stated

OFFICE	LA/PDI-3	PM/PDI-3	PD/PDI-3
NAME	PKreutzer	RHall/tg	JHannon
DATE	03/2/92	03/3/92	03/3/92

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

April 3, 1992

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Mr. Michael D. Lyster, Vice President
Nuclear - Perry
The Cleveland Electric Illuminating
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Perry, Ohio 44081

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Sincerely,

James R. Hall
James R. Hall, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc: See next page

Mr. Michael D. Lyster
Cleveland Electric Illuminating Company

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Perry, Ohio 44081

Perry Nuclear Power Plant
Unit Nos. 1 and 2

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Division of Power Generation
Ohio Department of Industrial
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Columbus, Ohio 43216

The Honorable Lawrence Logan
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4203 Harper Street
Perry, Ohio 44081

The Honorable Robert V. Orosz
Mayor, Village of North Perry
North Perry Village Hall
4778 Lockwood Road
North Perry Village, Ohio 44081

Attorney General
Department of Attorney General
30 East Broad Street
Columbus, Ohio 43216

Radiological Health Program
Ohio Department of Health
1224 Kinnear Road
Columbus, Ohio 43212

Ohio Environmental Protection
Agency
DERR--Compliance Unit
ATTN: Zack A. Clayton
P. O. Box 1049
Columbus, Ohio 43266-0149

Mr. Phillip S. Haskell, Chairman
Perry Township Board of Trustees
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State of Ohio
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Columbus, Ohio 43266-0573

Mr. Robert A. Stratman
Cleveland Electric Illuminating
Company
Post Office Box 97, SB306
Perry, Ohio 44081



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

MAR 11 1992

Docket No. 99900056

Mr. Gregory A. Kurkjain, Jr., President
Henry Pratt Company
401 South Highland Avenue
Aurora, Illinois 60506-5563

Dear Mr. Kurkjain:

SUBJECT: NOTICE OF NONCONFORMANCE
(NRC INSPECTION REPORT No 99900056/92-01)

This letter addresses the inspection of your facilities at Aurora, Illinois and Dixon, Illinois conducted by Mr. L.L. Campbell and Mr. W.C. Gleaves, of this office on February 3-7, 1992 and the discussions of their findings with you and other members of your staff at the conclusion of the inspection. The inspection was conducted as the result of licensee event reports (LERs) submitted to the Nuclear Regulatory Commission (NRC) by the Arizona Public Service Company which identified deficiencies associated with valves supplied by the Henry Pratt Company (HPC) for the Palo Verde Nuclear Generation Station. The performance based inspection was conducted to evaluate the HPC quality assurance program and its implementation in selected areas such as (1) corrective actions associated with 10 CFR Part 21 notifications submitted by either HPC or NRC licensees, (2) engineering activities performed by HPC and their subcontractors, and (3) HPC's commercial grade dedication program.

Areas examined during the NRC inspection and our findings are discussed in the Enclosure 2 inspection report. The inspection consisted of an examination of procedures and representative records, interviews with personnel, and observations by the inspectors.

During this inspection it was found that the implementation of your quality assurance program failed to meet certain NRC requirements. Although HPC has prepared a procedure which addresses the essential elements of the dedication process, HPC's quality assurance manual and implementing procedures do not contain adequate requirements and interfaces to ensure that all items purchased as commercial grade items (CGIs) for use in safety-related applications are adequately dedicated as basic components. As a result of this program deficiency, HPC supplied some CGIs to NRC licensees as basic components without adequately verifying that the material requirements specified in procurement documents had been met. This inspection also identified instances in which HPC failed to implement its requirements for the segregation and storage of nuclear material. The specific findings and references to the pertinent requirements are identified in the enclosures of this letter.

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Mr. Gregory Kurkjain, Jr.


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

The responses requested by this letter and the enclosed Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, Public Law No. 96-511.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

Sincerely,


Leif J. Norrholm, Chief
Vendor Inspection Branch
Division of Reactor Inspection
and Safeguards
Office of Nuclear Reactor Regulation

Enclosures:

1. Notice of Nonconformance
2. Inspection Report 99900056/92-01

NOTICE OF NONCONFORMANCE

Henry Pratt Company
Aurora, Illinois

Docket No: 99900056/92-01

During an inspection conducted at the Henry Pratt Company (HPC) facilities in Aurora, Illinois and Dixon, Illinois, on February 3-7, 1992, the inspection team from the U.S. Nuclear Regulatory Commission (NRC) determined that certain activities were not conducted in accordance with NRC requirements, which are contractually imposed on HPC by purchase orders from NRC licensees. The NRC has classified these items, as set forth below, as nonconformances to the requirements of Title 10 of the Code of Federal Regulations, Part 50, (10 CFR 50) Appendix B, imposed on HPC by contract and the supplemental requirements of its nuclear utility customers.

- A. Criterion II, "Quality Assurance Program," of Appendix B to 10 CFR Part 50 requires that activities affecting quality be accomplished in accordance with a quality assurance program which shall be documented by written policies, procedures and instructions and that activities affecting quality shall be accomplished under suitably controlled conditions which include the use of appropriate equipment including identifying the need for special controls, processes, test equipment, tools and skills to attain the required quality, and for verification of quality by inspection and test. In addition, Criterion III, "Design Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," of 10 CFR Part 50, Appendix B, require that for items intended for use in safety-related applications, the important design, material, and performance characteristics be identified, acceptance criteria be established, and reasonable assurance be provided that the items conform to the acceptance criteria.

Contrary to the above, the HPC Quality Assurance Manual and implementing procedures did not provide sufficient requirements or interfaces to ensure that commercial grade items (CGIs) dedicated as basic components would be adequately verified to be capable of performing their safety functions. As a result of this program deficiency, HPC procured replacement valve spool pins and squeeze pivot segments as commercial grade items and supplied them as basic components for use in safety related applications and did not perform any activity to ensure that the material met the requirements specified by its nuclear utility customers (92-01-01).

- B. Criterion V, "Instructions, Procedures, and Drawings," of Appendix B to 10 CFR Part 50 requires, in part, that activities affecting quality be accomplished in accordance with instructions, procedures, or drawings.

Section 12.0, "Process Control," of the HPC Quality Assurance Manual, Issue 3, Revision 5, dated October 2, 1990; Section 6.0 of HPC Procedure QAP-3, "Receiving Inspection for Nuclear Projects," Revision H, dated February 9, 1985; and Section 6.0 of HPC Procedure QAP-24, "Control of Nuclear Material Purchased as Stock Items," Revision E, dated January 13, 1984, require, in part, that nuclear material be inspected and appropriate reviews and inspections be conducted such as the review of certified material test reports and other documentation, verification of identification, performance of dimensional checks and other inspections required by the receiving checklist. Accepted nuclear items are then required to be stored in the Nuclear Storeroom, when not released directly to production, in a segregated part number bin with sufficient identification to maintain traceability.

Contrary to the above, one bin of type 302 stainless steel spiral pins contained pins that were type 420 stainless steel material. Additionally, one bin of ASME Section III, Class 2, bolts certified as SA 193, Grade B7, contained bolts that were marked both B7 and A-325. (92-01-02)

Please provide a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555, with a copy to the Chief, Vendor Inspection Branch, Division of Reactor Inspection and Safeguards, 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 nonconformance: (1) a description of steps that have been or will be taken to correct these items; (2) a description of steps that have been or will be taken to prevent recurrence; and (3) the dates your corrective actions and preventive measures were or will be completed.

Dated at Rockville, Maryland,
this 11th day of February, 1992.

ORGANIZATION: Henry Pratt Company Aurora, Illinois
REPORT NO.: 99900056/92-01
CORRESPONDENCE ADDRESS: Mr. Gregory A. Kurkjain, Jr., President
Henry Pratt Company
401 South Highland Avenue
Aurora, Illinois 60506-5563
ORGANIZATIONAL CONTACT: Mr. Bruce R. Cummins, Quality Assurance Director
NUCLEAR INDUSTRY ACTIVITY: Manufactures and supplies valves and valve parts
for commercial nuclear power plants.
INSPECTION CONDUCTED: February 3-7, 1992
Larry L. Campbell
L.L. Campbell, Team Leader
Reactive Inspection Section No. 1
Vendor Inspection Branch (VIB) 03/05/92
Date
OTHER INSPECTORS: W.C. Gleaves, VIB
APPROVED: *Uldis Potapovs*
Uldis Potapovs, Chief
Reactive Inspection Section No. 1
Vendor Inspection Branch 03-09-92
Date
INSPECTION BASES: 10 CFR Part 21 and Part 50, Appendix B
INSPECTION SCOPE: To review and evaluate the Henry Pratt Company
(HPC) quality assurance (QA) program and its
implementation in selected areas such as (1)
corrective actions associated with 10 CFR Part
21 reports; (2) Engineering activities; and (3)
HPCs commercial grade dedication program.
PLANT SITE APPLICABILITY: Numerous.

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1 INSPECTION SUMMARY

1.1 Nonconformances

1.1.1 Contrary to Criteria II, III and VII of Appendix B to 10 CFR Part 50, the Henry Pratt Company (HPC) quality assurance (QA) manual and implementing procedures did not provide sufficient requirements or interfaces to ensure that commercial grade items (CGIs) dedicated as basic components for use in safety-related applications would be adequately verified to be capable of performing their safety functions. As a result of this program deficiency, HPC procured replacement valve spiro pins and squeeze pivot segments as CGIs and supplied them as basic components without performing any activity to ensure that the material met the requirements specified by its nuclear utility customers (Nonconformance 92-01-01, see Sections 3.4.2 and 3.4.3 of this report).

1.1.2 Contrary to Criterion V of Appendix B to 10 CFR Part 50, the HPC QA Manual, and HPC procedures QAP-3 and QAP-24, one bin in the Nuclear Storeroom contained an accepted batch of type 302 stainless steel spiro pins. Three pins in this bin were type 420 stainless steel material. Additionally, one bin of accepted ASME Section III, Class 2 bolts, certified as SA 193, Grade B7, contained bolts that were marked B7 and A-325 (Nonconformance 92-01-02, see Sections 3.4.4 of this report).

2 STATUS OF PREVIOUS INSPECTION FINDINGS

2.1 Nonconformance 99900056/83-02, Item B.5 (Closed)

Nonconformance 83-02, Item B.5, stated that contrary to Criterion V of Appendix B to 10 CFR Part 50 and Paragraph 8.5.4.2 of the Quality Assurance Manual, "Policies and Procedures-Rejected Material Report," No. 1350-902.0 had been implemented and had not been approved by the Quality Assurance Manager or a department manager.

The NRC inspectors determined that HPC processes nonconformances in accordance with Section 5.5.3, "Nonconformities and Corrective Action," of their Quality Assurance (QA) Manual, Revision 4, dated and approved on March 14, 1990. Based on the facts that HPC presently processes nonconformances in accordance with approved QA Manual requirements and that during the inspection the NRC inspectors observed implementation of HPC's program for controlling nonconformances by HPC processing and documenting the nonconformances identified in Section 1.1.2 of this report, the NRC inspectors closed Nonconformance 83-02, Item B.5.

3 INSPECTION FINDINGS AND OTHER COMMENTS

3.1 Entrance and Exit Meetings

In the entrance meeting on February 3, 1992, the NRC inspectors discussed the scope of the inspection, outlined areas of concern, and established interfaces

with HPC management and staff. In the exit meeting on February 7, 1992, the NRC inspectors discussed their findings and concerns with HPC's management and staff.

3.2 Henry Pratt Company's Actions Relative to Licensee Event Reports (LERs)

The NRC inspectors reviewed HPC's actions relative to three LERs submitted to the NRC by the Arizona Public Service Company (APS) which identified deficiencies associated with valves supplied by HPC for the Palo Verde Nuclear Generation Station (PVNGS). The issues reviewed by the inspectors and the associated actions taken by HPC are discussed below.

3.2.1 LER 89-013-01, "Unqualified Containment Purge Isolation Valves"

LER 89-013-01 was initiated when two PVNGS Unit 1 containment purge isolation valves were determined by APS personnel to not be installed in accordance with their environmental qualification reports. The containment purge isolation valves were found to have handwheels installed on the manual jacking screws and the hand wheels were not believed to have been included in the seismic analysis for the valves.

The NRC inspectors discussed LER 89-013-01 with HPC personnel during the inspection and reviewed the following documents in order to determine if the containment purge valves' seismic qualification included the installed handwheels:

- Purchase Order (PO) #U-02643 HPC to G. H. Bettis Corporation dated November 26, 1984
- Blueprint N521-SR80-MBHW-CW, Rev. A, G. H. Bettis Corporation Actuator issued December 19, 1984
- Seismic Stress Report for 8", NRS w/N521-SR80-MBHW, Nuclear Class 2, Section III of the ASME Boiler and Pressure Vessel Code, Rev. 3, dated October 30, 1985
- Certificate of Compliance from G. H. Bettis Corporation to Henry Pratt Company, for HPC PO #U-02643
- Sales Order #84-9021-QA, G. H. Bettis Corporation
- Price Quotation Q08410-2123, G. H. Bettis Corporation to HPC, dated October 26, 1984
- G.H. Bettis Corporation Quality Assurance Manual, QAM-1276-100, dated March 26, 1979
- HPC Audit of G. H. Bettis Corporation, dated August 21, 1991

The NRC inspectors determined that the HPC revised seismic analysis did include the handwheels. Following a review of the above listed documents, the NRC inspectors determined that, at the time of the issuance of LER 89-013-01 all necessary information supporting the seismic qualification of the replacement actuators with the handwheel installed was available at HPC. The NRC inspectors believe that APS personnel did not perform an adequate background evaluation before they issued the LER as evidenced by the fact that APS did not contact HPC, the original supplier of the actuator in question, prior to initiating the LER. Subsequent to the inspection, HPC informed the NRC inspectors that G. H. Bettis Corporation had forwarded an analysis to them that specifically addressed the seismic qualification of the actuator (in question) with the handwheel installed.

3.2.2 LER 89-018-001, "Henry Pratt Valve Failures"

LER 89-018-001 was initiated by APS as the result of two PVNGS Unit 3 containment purge valves failing to meet the local leak rate test (LLRT) acceptance criteria. The valves were 42 inch butterfly valves manufactured by HPC. A root cause failure analysis performed by APS revealed that the valves had failed their LLRT due to excessive leakage caused by intergranular fracture in stainless steel spirol pins that fixed the position of a thrust bearing collar in the valves. The pins were manufactured from type 420 stainless steel, which is known to be susceptible to hydrogen embrittlement. Subsequent evaluation of the PVNGS valve population revealed that similar pins were installed in other valves in the containment purge system, nuclear cooling water system, and essential cooling water system.

The NRC inspectors discussed LER 89-018-001 with Henry Pratt personnel during the inspection and reviewed the following documents:

- Calculation Sheet, Henry Pratt Co. 42"-1200 Series Thrust Bearing Pin Load, Ref. #D-01184, dated October 25, 1989
- Derivation of Calculation for 42"-1200 Series Thrust Bearing Pin Load, Ref. #D-0118-405, dated October 27, 1989
- Thrust Bearing Pin Analysis, Henry Pratt Co., Ref. #D-0114, Sheets No. 6 and No. 7, dated November 1, 1989

The NRC inspectors evaluated the corrective actions taken by HPC regarding the spirol pin embrittlement in the HPC supplied valves. Corrective actions taken by HPC included the issuance of a letter to all licensees that received HPC valves with type 420 stainless steel spirol pins recommending that they be replaced with type 302 stainless steel spirol pins. HPC also performed an engineering analysis confirming that the type 302 stainless steel spirol pin is an acceptable substitute. The NRC inspectors concluded that all licensees which received HPC valves with type 420 spirol pins have been adequately notified by HPC of the problem, as required by 10 CFR Part 21.

3.2.3 LER 90-005-00, "Spray Pond Cross Connection Valve Failure Due to Material Misapplication by Henry Pratt Company"

LER 90-005-00 was submitted to the NRC by APS as the result of failures of the PVNGS Unit 1 essential spray pond cross connect valves to operate on demand. Further investigation by APS revealed that for all six cross connect valves at PVNGS, the keys that secured the valve stem to the operator torque tube were either partially or completely corroded. The keys, originally supplied by HPC in the valve assembly, were carbon steel and not suitable for the spray pond environment. The original carbon steel keys were replaced with stainless steel keys.

The NRC inspectors discussed corrective actions taken by HPC as a result of this LER and reviewed the following documents:

- Nuclear Engineering Transmittal Sheet, HPC
- Responsible Engineers Checklist for Nuclear Signoffs, HPC
- Bechtel Design Specifications 13-J-086-325, Rev. 0, and 13-J-086-281 Rev. 1, Arizona Nuclear Power Project
- Blueprint D-0118, Sheets No. 4 and No. 5, 8" through 14" 1400 Series Nuclear Valve Cross-Section and Materials List, ASME Section III Class 3, HPC dated April 28, 1980

The NRC inspectors reviewed the Bechtel design specification for the spray pond cross connect valve which lists continuous submergence in spray pond water as its location and duty. The NRC inspectors were informed by HPC personnel that the incorrect selection of a carbon steel shear key for the spray pond cross connect valve was an incident isolated to the HPC supplied cross connect valves for PVNGS. Following the valve failure at PVNGS, APS corrected the problem by substituting stainless steel keys for the corroded or missing carbon steel keys. HPC personnel informed the NRC inspectors that the transmittal sheets and checklists were generated as part of the corrective action for the LER and are now used to review customer design specifications, arrangement and cross-section drawings, and bills of materials before manufacture and shipment. These supplemental checklists are believed by HPC to be adequate to ensure stricter material selection and control in valve applications. The actions taken by HPC were considered by the NRC inspectors to be sufficient to prevent recurrence.

3.3 10 CFR Part 21

The NRC inspectors determined that HPC has maintained the required 10 CFR Part 21 postings and a procedure, QAP-33, "Reporting of Defects and Noncompliance for Safety Related Basic Components," Revision D, dated January 6, 1978, which implements 10 CFR Part 21 requirements. HPC informed the NRC inspectors that they have copies of NRC Information Notice 91-76, "10 CFR PARTS 21 AND 50.55(e) FINAL RULES," dated November 26, 1991, and the revised 10 CFR Parts 21 and 50 that became effective October 29, 1991. HPC is preparing a revision to QAP-33 to incorporate the reporting requirements presently contained in 10 CFR Part 21.

3.4 HPC Commercial Grade Item Dedication Program

3.4.1 Methodology

HPC presently has two methods for dedicating items procured as commercial grade items (CGIs) as basic components for use in safety-related applications. One dedication method consists of procuring CGIs from a supplier who has not been audited or surveyed, but whose performance is trended, and then performing a standard receipt inspection normally consisting of a review of documentation and the performance of dimensional, marking, and damage checks. HPC informed the NRC inspectors that the performance of these suppliers is trended and rated based on the reject rate during receipt inspection, and not on the actual performance of the dedicated CGIs after being placed in service. All of the dedication packages reviewed by the NRC inspectors used this dedication methodology.

The second method consists of dedicating the CGIs in accordance with a process that, in general, was consistent with the dedication philosophy described in EPRI-NP-5652, "Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Related Applications (NCIG-07)," June 1988. This dedication process was formalized in March 1991 and has been used on a very limited basis and only when specified by the customer's PO.

The dedication methodology consisting of a review of documentation from a supplier that has not been surveyed or audited, performing a receipt inspection for damage and dimensions, and trending the results of the receipt inspections is not considered adequate verifications to ensure that the dedicated item will perform its intended safety-related function. The following paragraphs provide additional discussion on this dedication methodology.

3.4.2 Quality Assurance Program Manual and Implementing Procedures

The NRC inspectors reviewed the following documents and discussed their content with the HPC staff in order to evaluate the process used for dedicating items procured as commercial grade items (CGIs) and supplied to HPC's nuclear customers as basic components:

- Quality Assurance Manual, Issue Three, Revision 5, dated October 2, 1990
- QAP-3, "Receiving Inspection for Nuclear Projects," Revision H, dated February 8, 1985
- QAP-24, "Control of Nuclear Materials Purchased as Stock Items," Revision E, dated January 13, 1984
- QAP-40, "Dedication of Safety Related Commercial Grade Replacement Parts for Use in Nuclear Power Plants," Revision 0, dated March 27, 1991

Although procedure QAP-40 addresses essential elements of the dedication process such as defining the item's safety function and failure modes, a listing and discussion of the item's critical characteristics, and specifying the verification methods and acceptance criteria, Section 2.0 of QAP-40 states that the QAP-40 replacement part dedication process is applicable only when specified by the customer. HPC staff interprets the intent of Section 2.0 to mean that, unless a customer's PO specifically requires HPC to perform a dedication, HPC will not use QAP-40 to control the dedication process. Additionally, even if the customer invokes 10 CFR Part 21 and 10 CFR Part 50, Appendix B, requirements on HPC, but does not specify that HPC will dedicate the item, then HPC would not use QAP-40 to control the dedication process.

The NRC inspectors also reviewed HPC's procedures for the procurement and receipt of nuclear grade, non-Code, stock material and determined that there were no requirements or provisions in these procedures for ensuring that CGIs would be properly dedicated when a customer's PO included 10 CFR Part 21 and 10 CFR Part 50, Appendix B, requirements. QAP-24 controls HPC's procurement of nuclear stock items furnished to customers as basic components. QAP-24 has no requirements for ensuring that the critical characteristics of a CGI are identified and properly verified prior to supplying the CGI as a basic component. Additionally, the NRC inspectors determined that HPC's procedure for receipt inspection contains no requirements for ensuring that a CGI's critical characteristics are verified as part of the dedication process.

The NRC inspectors also determined that the HPC QA Manual has no provisions for the dedication process. Section 10.0, "Procurement Control," of the HPC QA Manual does not require audits or surveys of non-Code safety-related items, except for Class IE equipment such as power actuators, limit switches and solenoid valves. Section 15.0, "Commercial Grade or Stock Items Supplied as Spare or Replacement Parts (Non-Code)," of the HPC QA Manual requires that the Application Engineer prepare a spare parts specification sheet and the order form for the stock or CGI used in nuclear applications with approval by the QA Director, but does not identify any specific controls for the procurement and acceptance of these items. Except for certain Class IE items, the HPC QA manual does not provide adequate requirements to ensure that non-Code items purchased by HPC as CGIs are properly dedicated prior to supplying them as basic components. Section 3.4.3 of this report identifies several customer POs which invoked the requirements of 10 CFR Part 21 and 10 CFR Part 50, Appendix B, and identifies items supplied as basic components and certified by HPC as meeting the requirements of the POs that were inadequately dedicated as the result of inadequate program controls.

The NRC inspectors concluded that both the HPC QA Manual and several implementing procedures, as discussed in this report, failed to contain sufficient requirements to ensure CGIs dedicated as basic components would perform their intended safety functions. Also, based on the previous discussions, the NRC inspectors determined that HPC's implementing procedures controlling the procurement and receipt inspection process did not contain sufficient reference to, use of, or interface with HPC's new dedication procedure, QAP-40, and that as written QAP-40 would only be used when a customer specifically required HPC to dedicate CGIs.

(See Nonconformance 99900056/92-01-01).

3.4.3 Review of HPC Dedication Packages

The NRC inspectors reviewed the customer's PO, HPC's PO to their supplier, HPC's receiving inspection reports and documentation received from their suppliers, and the Certificate of Conformance supplied to HPC's customers for each of the following items.

3.4.3.1 The Cleveland Electric Illuminating Company PO S124603, 4 each, 1/2 x 4 inch, 302 stainless spirol steel pin, HPC Part No. 2109573, supplied for the Perry Nuclear Power Plant in October, 1990. This spirol pin as well as the pins addressed in Sections 3.4.3.2 and 3.4.3.3 of this report perform a safety-related function. Valves supplied by HPC, such as the 42 inch containment purge valves, utilize a rubber seating surface on the disc and a relatively hard seating surface on the body. The disc is installed concentrically inside the valve with the final adjustments performed by HPC prior to shipment. The concentricity is axially adjusted utilizing a thrust bearing stud which screws into the lower valve shaft. After the proper gap adjustments are made, the thrust bearing stud is pinned through the valve shaft utilizing a spirol pin. The spirol pins originally specified by HPC for the thrust bearing stud were type 420 stainless steel and now are specified by HPC to be type 302 stainless steel. Failure of these pins resulted in the containment purge valves failing their local leak rate test (see Section 3.2.2 of this report).

3.4.3.2 Tennessee Valley Authority (TVA) PO RD139533, 25 each, 3/8 x 2 inch spirol pin, HPC Part No. 2117000, supplied for the Watts Bar Nuclear Plant in November, 1990.

3.4.3.3 TVA PO RD137870, 10 each, 1/4 x 3 inch thrust collar (spirol) pin, nickel stainless steel type 302, HPC Part No. 2109248, supplied for the Sequoyah Nuclear Plant in March, 1991.

3.4.3.4 Florida Power & Light Company (FPL) PO G90933/10770, 60 each, segment for 48 inch valve, HPC Part No. 566121, supplied for the St. Lucie Plant, in April, 1991. According to HPC these segments are used to center thrust bearings and are for nuclear valves of an older design and configuration.

Each customer P.O. for the above items contractually invoked 10 CFR Part 21 and 10 CFR Part 50. In each case HPC procured the items as commercial grade from a supplier who had not been audited or surveyed, and dedicated the items by performing a standard receipt inspection. Since these items are non-Code stock material, the documentation of the receipt inspection consists of a signature by an HPC receipt inspector on the copy of the HPC PO for the item. Although Section 6.2.2 of QAP-3 requires that non-Code parts and material be inspected to verify conformance with POs, drawings and other QA requirements, there were no specific receiving inspection instructions identified for these items. The HPC QA Director and the HPC Chief Inspector informed the NRC inspectors that this type of inspection generally consists of performing damage and dimensional checks.

Each of these items were supplied with an HPC certificate of conformance (COC) certifying that the requirements of the customer's PO, including 10 CFR Part 21 and 10 CFR Part 50, Appendix B, had been met. Based on a review of HPC procurement documents and discussions with the HPC QA Director and Chief Inspector, the NRC inspectors determined that receipt inspection of these items consisted of a review for damage, dimensional checks, and a review of any supplied documentation from the HPC supplier. This receipt inspection was the basis for HPC issuing the COC. Also, it was determined that the suppliers of the pins and valve segments, Spirol International and Harris Casting Company, Inc., respectively, had not been audited or surveyed by HPC. The NRC inspectors concluded that HPC procured these items as CGIs and supplied them as basic components for use in safety-related applications without performing any verifications to ensure that the material met the requirements specified by procurement documents (See Nonconformance 92-01-01).

3.4.4 Review of Accepted Material

The NRC inspectors observed several activities at HPC's Dixon, Illinois, facility including receipt inspection, nondestructive examination (NDE), material control and storage, and corrective action. During the examination of the HPC storage area for accepted nuclear items the NRC inspectors determined that the following items were not in conformance with applicable procurement requirements.

3.4.4.1 The NRC inspectors examined an accepted bin of 99 pieces of 1/2 x 4 inch type 302 stainless steel spirol pins, Lot No. 6-5774/#13080, Part No. 2109573, supplied to HPC by Spirol International in 1990 for use in the 36 inch Model 1100 butterfly valves. HPC supplied 4 pins from this bin to the Perry Nuclear Power Plant (PNPP) in October, 1990. The NRC inspectors determined that 3 of the remaining pins were attracted to a magnet and were a darker color than other pins in the box. HPC prepared a nonconformance report to document this condition and to evaluate for 10 CFR Part 21 reportability. During the inspection HPC had the three pins analyzed and determined that they were type 420 stainless steel. Subsequent to the inspection, HPC informed the NRC inspectors that PNPP verified that the material for the four spirol pins received in October, 1990 was type 302 stainless steel (see Nonconformance 92-01-02).

3.4.4.2 The NRC inspectors examined an accepted bin of 3/4 x 3-3/4 Heavy Hex Head Bolts, SA-193, Grade B7, Part No. 1138643R, manufactured by Texas Bolt Company and supplied to HPC by McJunkin in March, 1981. The NRC inspectors determined that one of these bolts was marked "TEXAS BOLT, A-325, JR47," with identification marks of a Grade 5 bolt. All other bolts in this box were marked "TB, B7, JR47." HPC prepared a nonconformance report to document this condition and to evaluate for 10 CFR Part 21 reportability. Subsequent to the inspection, HPC informed the NRC inspectors that they had completed an analysis using SA-325 in lieu of SA-193, Grade B7, bolts and determined that even though the material allowable strength is decreased, the actual shear and combined stresses at twice the weight, acceleration and pressure are well within the material allowable stresses (see Nonconformance 92-01-02).

The NRC inspectors also observed machining activities, weld filler material

control, and the performance of a liquid penetrant (PT) examination of an 8 inch Model 1200 valve body seat ring groove for FP&L's St. Lucie Power Plant. The PT examination was performed in accordance with PT Procedure No. PT-1, "Liquid Penetrant Examination," Revision *, dated March 17, 1973. The NRC inspectors concluded that these activities were adequately performed.

4 PERSONNEL CONTACTED

- * Gregory A. Kurkjain Jr., President
- * Bruce R. Cummins, Director of Quality Assurance
- * John V. Ballun, Vice President and Manager of Engineering
- Jayne Friel, Chief Inspector
- William Sweet, Welding and Paint Foreman
- Elizabeth Sweet, Quality Assurance Clerk

* Attended both the entrance and exit meetings of February 3 and 7, 1992.