

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-440/82-09(DETP); 50-441/82-08(DETP)

Docket Nos. 50-440; 50-441

Licenses No. CPPR-148; CPPR-149

Licensee: Cleveland Electric Illuminating  
Company  
Post Office Box 5000  
Cleveland, OH 44101

Facility Name: Perry Nuclear Power Plant, Units 1 and 2

Inspection At: Perry Site, Perry, OH

Inspection Conducted: July 19-23, 26-30, and August 16-17, 1982

Inspectors: <i>D. H. Danielson</i> D. H. Danielson	<u>8/30/82</u>
<i>J. M. Peschel</i> J. M. Peschel	<u>8/26/82</u>
<i>W. J. Key</i> W. J. Key	<u>8/27/82</u>
<i>I. T. Yin</i> I. T. Yin	<u>9/2/82</u>
<i>D. H. Danielson</i> for E. H. Nightingale	<u>8/30/82</u>
<i>D. H. Danielson</i> for M. L. Gildner (Resident Inspector - Perry)	<u>8/30/82</u>
<i>D. H. Danielson</i> for P. Keshishian (IE Headquarters)	<u>8/30/82</u>

Accompanying Personnel: A. B. Davis, Deputy Regional  
Administrator  
(July 29-30, 1982)

Approved By: *D. H. Danielson*  
D. H. Danielson, Chief  
Materials and Processes Section 8/30/82

Inspection Summary

Inspection on July 19-23, 26-30, and August 16-17, 1982 (Reports  
No. 50-440/82-09(DETP); 50-441/82-08(DETP))

Areas Inspected: QA Program interfaces and overview; corrective action systems; design change control; material traceability of installed structures and components; inprocess inspections; QC inspector effectiveness. The inspection involved a total of 464 inspector-hours onsite by seven NRC inspectors.

Results: Of the areas inspected, one apparent violation was identified (failure of CEICo and site contractors to follow their procedures - Paragraph b.(11).b. and b.(14).(b)).

## DETAILS

### 1. Persons Contacted

#### Cleveland Electric Illuminating Company (CEICo)

- \*M. R. Edelman, Manager, Nuclear Engineering and Construction Division
- F. R. Stead, Manager, Nuclear Engineering Department
- J. A. Kline, Manager, Nuclear Construction Department
- \*R. L. Farrell, Manager, Nuclear Quality Assurance Department
- M. L. Titas, Manager, Perry Project Services Department
- \*E. Riley, General Supervising Engineer, Construction Quality Section
- \*R. L. Vondrasek, General Supervising Engineer, Program Quality Section
- \*R. P. Jadgechew, General Supervising Engineer, Nuclear Construction Administration Section
- J. M. Lastovka, General Supervising Engineer, Nuclear Construction
- \*G. R. Leidich, Supervisor, Construction Quality Engineering
- \*K. C. Kaplan, Senior Engineering Aide
- \*K. R. Pech, Assistant Project Manager (GAI)
- \*D. R. Green, Senior Project Engineer
- \*B. D. Walrath, Supervisor, Operational Quality Assurance Program Development
- \*T. P. Keaveney, Senior Structural Engineer
- C. M. Shuster, Director of Training
- M. R. Kritzer, Construction Quality Engineer (GAI)
- J. J. Lausberg, Quality Engineer (GAI)
- V. K. Higaki, Quality Engineer
- T. G. Swansiger, Supervisor, Program Quality Engineering
- R. Matthys, Quality Engineer (GAI)
- J. Gilstrap, Quality Engineer (GAI)
- T. Metcalf, Quality Inspector (KEI)
- R. Sheer, Quality Engineer (KEI)
- E. Parker, Quality Engineer (GAI)
- R. Williams, Supervisor, Construction Quality Auditing (GAI)
- M. Brown, Audit Coordinator, Construction Quality Auditing
- L. Beck, General Supervising Engineer, Nuclear Licensing and Fuel Management
- W. Coleman, Senior Licensing Engineer
- B. Nyerges, Environmentalist
- W. Miller, Quality Engineer
- H. Walls, Senior NDE Administrator
- W. Winslow, Nuclear Design Engineer
- E. Turk, Senior Nuclear Design Engineer
- C. Hunter, Supervisor, Operational Quality Control (GAI)
- D. Askew, Lead Field Maintenance Inspector (KEI)
- E. Christiansen, Lead Engineer
- S. Nguyen, Engineer
- H. Dieckmann, Engineer
- A. Peck, Lead Test Engineer
- B. Gerhart, Quality Engineer
- J. Furness, Lead Quality Engineer Electrical (GAI)

G. Gayton, Quality Engineer  
F. Manno, Surveillance Engineer (KEI)  
G. Daderko, Quality Engineer (KEI)  
C. Hubbuch, Quality Engineer (GAI)  
J. Connelly, Quality Engineer (GAI)

Gilbert Associates, Incorporated (GAI)

J. Mehaffey, Quality Assurance Program Manager

Kaiser Engineers, Incorporated (KEI)

P. Gibson, Site Quality Assurance Manager  
J. Kerr, Quality Engineer

General Electric Company (GE)

D. Hess, Quality Assurance Manager  
M. McCrum, Quality Assurance Specialist  
D. Brian, Quality Control Supervisor  
R. Lindberg, Quality Assurance Specialist  
D. Lohman, Quality Control Inspector

L. K. Comstock and Company, Inc. (LKC)

L. Seese, Quality Control Supervisor  
M. Imhoff, Quality Control Welding Inspector

Pullman Power Products Corporation (PPP)

A. Eck, Corporate Quality Assurance Manager  
R. Walker, Resident Construction Manager  
J. Miller, Quality Assurance Manager  
J. Steele, Assistant Quality Assurance Manager  
R. Hunnicutt, Field Supervisor  
K. Laymon, Engineering Process Lead  
I. Harvard, Lead Welding Inspector  
T. Smith, Quality Control Inspector  
R. Chandler, Quality Control Inspector  
C. Pfister, Nonconformance Report Coordinator  
C. Hoskins, Assistant Nonconformance Report Coordinator  
G. Frehaffer, Field Engineer  
H. Sinclair, Field Engineer  
J. Cantrell, Field Engineer  
M. Lipscomb, Training Supervisor  
J. Hubbuch, Lead Auditor  
J. McPherson, NDE Supervisor  
D. Biermann, Auxiliary Building Area Superintendent  
R. Bungo, Quality Assurance Specialist, Records

Newport News Industrial Corporation (NNI)

T. Bond, Quality Assurance Manager  
R. Gozelancyk, Quality Assurance Engineer  
E. Hooreth, Engineering Manager  
T. Payne, Quality Control Manager

Johnson Controls, Incorporated (JC)

H. Whiteknight, Corporate Quality Assurance Manager  
D. Sentupta, Site Engineering Manager  
S. Young, Quality Assurance Manager  
B. Christensen, Audit Coordinator  
T. Chipps, Document Control Clerk  
T. Butch, Document Control Clerk  
T. Foanio, Quality Control Inspector

Pittsburgh Bridge and Iron Industries (PBI)

J. Anulies, Construction Quality Assurance Manager  
C. Burnett Jr., Erector's Quality Manager

The Robert Irsay Company

J. Yemma, Lead Quality Technician

\*Denotes those personnel attending the exit meeting held at the Perry Site on July 30, 1982. During the inspection at the Perry Site, exit meetings were held on each Wednesday and Friday in order to keep the licensee informed of any findings.

The inspectors also contacted and interviewed other licensee and contractor personnel during this inspection.

2. Functional or Program Areas Inspected

a. General Background

The purpose of this special team inspection was to determine if there are indications of existing or potential construction problems similar to some of those identified at a number of other plants under construction. The scope of the assessments included quality assurance program interfaces and overviews, corrective action systems, design change control, material traceability of installed structures and components, inprocess inspections, and effectiveness of quality control inspectors.

Prepared By: J. M. Peschel

b. QA Program Interfaces and Overview

(1) QA Manuals Reviewed

Cleveland Electric Illuminating, Corporate Nuclear Quality Assurance Program, Revision 5, May 17, 1982.  
PBI Industries, Quality Assurance Program, Revision 2, August 18, 1980.  
National Engineering and Contracting Company, Quality Assurance Manual, Revision 5, June 6, 1980.  
General Electric Company, Nuclear Quality Assurance Manual, Revision 3, February 18, 1982.  
Newport News Industrial Corporation, ASME Nuclear Quality Assurance Manual, Revision D, January 6, 1981.  
Automatic Sprinkler Corporation of America, Quality Assurance Program.  
National Mobile Concrete Corporation, Quality Assurance Program, Revision 96, October 29, 1981.  
Dick Corporation, Quality Assurance Program, Revision 6, April 14, 1981.  
L. K. Comstock and Company, Inc., Quality Assurance Program, July 2, 1982.  
United States Testing Company, Inc., Project Quality Assurance Manual, Revision 10, February 11, 1982.  
The Robert Irsay Company, Quality Assurance Manual, Revision 7, September 23, 1981.  
The Robert Irsay Company, Quality Assurance Manual Supplement, Revision 2, May 1, 1980.  
Johnson Controls, Inc., SECD Quality Assurance Program, Revision 1, May 28, 1981.  
Pullman Power Products Corporation, Quality Assurance Program, April 7, 1982.  
Cleveland Electric Illuminating Company, Contractors Quality Program Requirements for Safety Related Installation/Erection, SP-709-4549-00, June 1, 1979.

(2) Procedures Reviewed

(a) Cleveland Electric Illuminating Company

Project Administration 0303, Revision 0, July 10, 1981, As-Built Drawings.  
Project Administration 0204, Revision 1, April 26, 1982, Management Assessment of Quality Assurance Program Effectiveness.  
Project Administration 0205, Revision 1, December 14, 1981, Project Training Program.  
Project Administration 0206, Revision 2, December 7, 1981, Housekeeping.  
Project Administration 1003, Revision 1, May 17, 1982, Qualification and Certification of Inspection Personnel.  
Project Administration 1601, Revision 1, August 24, 1981, Evaluation of IE Documents.

Project Administration 1801, Revision 1, July 12, 1982,  
 Qualification and Certification of Auditing Personnel.  
 Program Quality Assurance 1-0201, Revision 1, May 17, 1982,  
 PQS Indoctrination and Training.  
 Program Quality Assurance 1-1301, Revision 0, October 12, 1981,  
 Surveillance/Inspection Activities Field Storage and Maintenance.  
 Nuclear Quality Assurance 1-1806, Revision 0, July 12, 1982, Audits.  
 Construction Quality Assurance 2-0201, Revision 2, September 26,  
 1980, Construction Quality Assurance Program.  
 Construction Quality Assurance 2-0205, Revision 2, July 30, 1979,  
 CQS Indoctrination and Training.  
 Construction Quality Assurance 2-0701, Revision 3, September 15,  
 1980, Review of Contractor QA Program/Manual.  
 Construction Quality Assurance 2-1001, Revision 4, November 16,  
 1981, Surveillance/Inspection Activities.  
 Construction Quality Assurance 2-1002, Revision 3, May 27, 1980,  
 Preparation and Maintenance of Surveillance/Inspection Plans.  
 Construction Quality Assurance 2-1602, Revision 3, November 2,  
 1981, Trend Analysis.  
 Program Quality Assurance 1-1802, Revision 0, January 26, 1979,  
 Qualification and Certification of CEICo/NQAD Audit Personnel.  
 Program Quality Assurance 1-1802, Revision 1, March 31, 1980,  
 Qualification and Certification of CEICo/NQAD Audit Personnel.  
 Nuclear Design and Procurement 3-1301, Revision 3, October 26,  
 1981, Storage Maintenance Requirements.  
 Nuclear Design and Procurement 3-1302, Revision 3, September 21,  
 1981, Field Storage Maintenance of Equipment.  
 Nuclear Design and Procurement 3-1304, Revision 1, November 16,  
 1981, Contractors Field Storage Maintenance of Equipment.  
 Perry Plant Department 7-1302, Revision 0, September 21, 1981,  
 Field Storage Maintenance of Equipment.  
 Nuclear Quality 1-1301, Revision 1, July 26, 1982, Field  
 Maintenance.  
 Nuclear Design and Procurement 3-0603, Revision 1, October 1,  
 1981, Coordination of Responses to the NRC.  
 Training/Administration 8-0201, Revision 0, August 24, 1981,  
 Radiation Safety.  
 Training/Administration 8-0203, Revision 0, July 10, 1981,  
 Radiation Safety Requirements for Personnel Performing  
 Surveillance/Inspection of Radiographic Operations.  
 Training/Administration 8-0901, Revision 0, March 17, 1982,  
 Qualification and Certification of Nondestructive Examination  
 Personnel.  
 Nuclear Test 61-0507, Revision 2, May 17, 1982, Mechanical  
 Flush/Cleaning Program Guidelines.  
 Nuclear Test 61-1402, Revision 0, June 13, 1980, Control of  
 Mechanical Foreign Items.  
 Construction Quality Assurance 21-1001, Revision 1, May 16, 1980,  
 Instruction for QC Surveillance/Inspection of Contractor  
 Program Field Activities.  
 Construction Quality Assurance 2-0102, Revision 3, November 16,  
 1982, Stop Work Authority.

- (b) Newport News Industrial Corporation  
701-F-5009, Revision D, November 3, 1980, Internal Audit Program.
- (c) Metalweld, Inc.  
QAP-001, Revision 0, August 11, 1978, Organization of the Quality Assurance Department.  
QAP-002, Revision 1, August 11, 1978, Quality Assurance Program.  
QAP-002.4.2, Revision 1, August 21, 1980, Indoctrination, Training, and Certification of Auditors.  
QAP-018, Revision 4, August 21, 1980, Audits.
- (d) Dick Corporation  
FQC-18.1, Revision 3, February 15, 1978, Quality Assurance Audits.
- (e) Kaiser Engineers, Inc.  
QAP No. 20, Revision 3, June 23, 1980, Indoctrination, Training, and Certification.  
QAP No. 20, June 15, 1982, Indoctrination and Training.  
QAP No. 21, June 15, 1982, Qualification and Certification of Inspection and NDE Personnel.  
QAP No. 22, June 15, 1982, Qualification of Auditors.
- (f) Johnson Controls, Inc.  
QAS-702-PNPP, Revision 2, January 17, 1980, Control of Field Questions, Field Variance Authorizations, and Engineering Change Notices.  
QAS-1803-PNPP, Revision 2, Standard Field and Record System.  
QAS-1901-PNPP, Revision 2, December 20, 1979, Internal and External Audit Procedure.
- (g) L. K. Comstock and Company Inc.  
4.13.1, November 18, 1982, Filing System.
- (h) General Electric Company  
GEP-GQI-0001, Revision 3, June 17, 1982, Documentation Checklist DCL-PNPP.  
GEP-G-0001, Revision 1, May 23, 1980, Cleanliness Control.
- (i) The Robert Irsay Company  
QCP-18-1/707, Revision 0, June 29, 1979, Sample Document Package and Instructions for Maintenance and Turnover of QA Records.



(j) Pullman Power Products Corporation

IX-3, April 5, 1982, Fabrication and Field Installation Specifications for Power Plant Components, Piping Systems and Appurtenances ASME-Section III.  
XIII-4, April 20, 1982, Cleaning Procedure (Field).  
XIII-5, February 23, 1981, Field Storage and Maintenance Procedure.  
XIII-11, February 3, 1982, End Protection - Pipe and Flanges.  
XV-4, November 5, 1981, Hold Tag Usage.  
XVII-1, March 11, 1982, Field Quality Assurance Records Procedure.  
XVIII-4, August 31, 1981, QA Site Internal Audit Program.

(3) Miscellaneous Documentation Reviewed

(a) Cleveland Electric Illuminating Company

CQS Projected Monthly Audit Schedules, January through July 1982.  
CQS Program Audit Schedule for 1982.  
Management Overview Report, Perry Project, October, 1980.  
Project Organization Charts, Revision 26, June 7, 1982.  
Corporate Nuclear Quality Assurance Program Assessment Reports.

First Quarter, 1982  
Fourth Quarter, 1981  
Third Quarter, 1981  
Second Quarter, 1981  
First Quarter 1981  
Fourth Quarter, 1980  
Third Quarter, 1980  
Second Quarter, 1980

Perry Nuclear Power Plant Quality Assurance Advisory Committee Charter

QA Advisory Committee Meeting Minutes

March 10-12, 1982 Meeting  
March 29-31, 1982 Meeting  
April 13-15, 1982 Meeting  
April 21-22, 1982 Meeting  
May 19-20, 1982 Meeting

Audit Reports

P1A 82-08	PNPP Nos.	522, 630, 644
P1A 82-09		674, 708, 532,
P1A 82-12		325, 709, 658,
P1A 82-14		545, 655, 670,
P1A 82-05		326, 666, 668,
		473, 682, 659,
		442, 680, 669,
		328, 619, 640,
		605, 576, 618,
		327, 591, 324,

423, 410, 606,  
560, 639, 621,  
546, 625, 464,  
561, 651

Operational Quality Control Inspection Reports

R0474	R-82-0015	R-82-0169
R0507	R-82-0109	R-82-0170
R0522	R-82-0110	R-82-0213
R0564	R-82-0171	R-82-0214
R0596	R-82-0172	R-82-0215
	R-82-0216	R-82-0236
	R-82-0237	R-82-0238
	R-82-0239	R-82-0257
	R-82-0258	R-82-0259
	R-82-0361	R-82-0362
	R-82-0590	R-82-0605
	R-82-0604	R-82-0603
	R-82-0606	R-82-0607

(b) Johnson Controls, Inc.

Audit Report No. 20301-1 Audit Findings.

(c) The Robert Irsay Company

Internal Audit Report, September 1, 2 and 3, 1981.

(d) Pullman Power Products Corporation

Audit Reports

7026-1-82  
7026-2-81  
QAS1A-4-3-82  
QAS1A-5-4-82  
QAS1A-6-5-82  
QAS1A-7-6-82  
QAS1A-8-6-82

(4) Interviews With Site Personnel

Interviews were conducted with six personnel from Cleveland Electric Illuminating Company, three personnel from Pullman Power Products Corporation, two personnel from Kaiser Engineers, Inc., one person from Gilbert Associates, Inc., one person from Johnson Controls, Inc., and one person from The Robert Irsay Company.

(5) Licensee Action

Several observations were made during the course of the inspection and the licensee took prompt action in most cases to correct the deficient conditions or to alleviate the the inspector concerns.

(6) Licensee's Quality Assurance Program

(a) Objective

The objectives of this assessment were to determine:

- 1 that the licensee's Quality Assurance Program, including all amendments, has been approved by NRR.
- 2 if the licensee has control of changes to the submitted Quality Assurance Program.
- 3 if the Quality Assurance Manual is consistent with the approved Quality Assurance Program.

(b) Discussion

A review was conducted of the licensee's Corporate Nuclear Quality Assurance Program. The current Quality Assurance Program and the Quality Assurance Organization are not reflected in the PSAR and are a result of an Immediate Action Letter (IAL) issued by Region III on February 8, 1978. As part of the closeout of the IAL, the revised Quality Assurance Program, CEICo implementing Quality Assurance Procedures, and contractors' Quality Assurance Manuals were reviewed and accepted by the Region III staff. The Quality Assurance Program was not submitted to NRR. The licensee has stated that they will revise the Quality Assurance Program to clarify Regulatory Guide and ANSI Standard commitments and will submit the Quality Assurance Program to NRR for approval by September 1, 1982.

Open Item (50-440/82-09-01; 50-441/82-08-01)

The submittal of the licensee's Quality Assurance Program for review and approval by NRR is considered to be an open item.

The licensee also stated that the "Contractor Quality Program Requirements for Safety Related Installation/Erection," which are the Quality Assurance Specifications for contractors and the contractor's Quality Assurance Programs will be reviewed to verify compliance with the CEICo Quality Assurance Program. These reviews are to be completed by January 1, 1983.

Open Item (50-440/82-09-02; 50-441/82-08-02)

The licensee's review of the contractors' Quality Assurance Programs is considered to be an open item.

The Corporate Nuclear Quality Assurance Program is implemented by a hierarchy of Project Manuals. The Project Administration Manual implements the program through Departmental Quality Assurance Procedures Manuals and Instruction Manuals. A review indicated that the eighteen criteria of 10 CFR 50, Appendix B are addressed by the manuals.

The licensee requires the same level of review for changes to its Quality Assurance Program as the original program required.

(7) Quality Assurance Programs of Contractors

(a) Objectives

The objectives of this assessment were to determine if the licensee had approved and routinely audited the Quality Assurance Programs of contractors for consistency with 10 CFR 50, Appendix B, and to determine the current status and effectiveness of licensee management of the onsite Quality Assurance Programs.

(b) Discussion

Interviews were conducted with licensee and contractor personnel, and the QA manuals and related documentation of the licensee and contractors were reviewed to determine levels of staffing, organizational independence from cost and schedule, position descriptions, and to determine if the status and adequacy of the QA Programs were regularly reviewed by the licensee and the contractor's management.

At the time of the inspection the licensee had thirteen contractors on site and each was performing safety related work under their own specific Quality Assurance Programs (QAPs). The licensee also had two contractors who were providing personnel to work within the licensee's organization. These contractors also had their own QAPs. All QAPs were submitted to the licensee for review and documentation showed that the QAPs were approved before the contractor began work. The licensee was also reviewing changes to these programs.

The licensee was fully aware of its ultimate responsibility for Quality Assurance and had its own QA organization onsite to monitor the activities of the various site contractors through the mechanisms of surveillances and audits.

Open Item (440/82-09-03; 441/82-08-03)

The Pullman Power Products Corporation Quality Assurance Program stated that the Site Quality Assurance Manager reports administratively to the Resident Construction Manager. The Site Quality Assurance Manager may report

directly to the President of Pullman Power Products in matters relating to Quality Assurance, but not in administrative matters. The Resident Construction Manager is responsible for the administration of all required functions at the field site and is not directly involved in production.

Pullman Power Products Corporation has agreed to clearly state that the Site Quality Assurance Manager may report directly to the President on matters affecting the administration of Quality Assurance personnel.

The revision of the Pullman Power Products Corporation Quality Assurance Program is considered to be an open item.

(8) Licensee Management Assessment of the Quality Assurance Program

(a) Objective

The objective of this assessment was to determine if a periodic assessment of the licensee's Quality Assurance Program is conducted by Cleveland Electric Illuminating Company upper level management.

(b) Discussion

The licensee has a multiple approach to Management Assessment of the Quality Assurance Program.

Project Administration Procedure 0204 provides for a Quarterly Performance Analysis Report. This report is written by the Manager, Nuclear Quality Assurance, and reports on the overall adequacy, implementation, and effectiveness of the Corporate Nuclear Quality Assurance Program. The Quality Assurance Manager presents to and discusses this report with the Corporate Management each quarter.

The licensee has a Quality Assurance Advisory Committee (QAAC) chartered as an independent group to regularly review and evaluate the QA Program. The group is required to meet twice a year, but has been holding monthly meetings recently. QAAC reports go to the Vice President - System Engineering and Construction and are factored into the quarterly Quality Assurance Management Assessment. The QAAC is composed of four CEICo managers; the Vice President, Quality Assurance, GAI; the Manager - Supplier Quality, KEI; and Mr. Boyce Grier, an independent consultant.

Management Overview Reports of the Perry Project are also provided to present an independent assessment of program effectiveness and compliance with documented commitments. The last overview was in October 1980 and was conducted by the Quality Assurance Department of Gilbert Associates, Inc.

An overview or audit is scheduled for September 1982. The licensee has not determined what organization will conduct the review.

(9) Licensee Quality Assurance Organization

(a) Objective

The objective of this assessment was to determine if the Quality Assurance Program provides sufficient independence from cost and schedule.

(b) Discussion

The licensee's Corporate Nuclear Quality Assurance Program was reviewed along with the latest CEICo organization charts. This review indicated that the CEICo Quality Assurance Organization has adequate independence from cost and schedule. Interviews conducted with Quality Assurance personnel verified the independence. CEICo QA personnel report through discipline supervision to the Nuclear Quality Assurance Department Manager who reports to the Vice President, System-Engineering and Construction. Quality Assurance personnel have the authority to stop work defined in procedures.

The CEICo Quality Assurance Organization is composed of CEICo employees, Kaiser Engineers, Inc. employees, and Gilbert Associates, Inc. employees. The management of the QA organization is by CEICo employees at the General Supervisory Engineer level and all personnel work to CEICo procedures and policies. The licensee intends to replace the contracted personnel with CEICo employees as construction progresses. The phase out of contractors is intended to maintain an acceptable level of QA expertise and allow the licensee to achieve complete coverage of QA activities with licensee personnel.

(10) Quality Assurance Responsibility

(a) Objective

The objective of this assessment was to determine if the licensee has the prime responsibility for establishing and executing the Quality Assurance Program.

(b) Discussion

A review was conducted of the licensee's Corporate Nuclear Quality Assurance Program and selected implementing manuals. These reviews were supplemented with interviews of licensee Quality Assurance Supervisors and QA/QC Managers of selected contractors. The documentation review and the interviews showed that the responsibility of the licensee was established, documented, and understood by responsible personnel in both the licensee's and contractor's organizations.

(11) Licensee Oversight of Contractor Activities

(a) Objective

The objectives of this assessment were to determine if the licensee has effective oversight of contractor activities and has detailed knowledge of those activities.

(b) Discussion

Interviews were conducted with QA/QC personnel from the licensee, Pullman Power Products Corporation, Johnson Controls, Inc., Kaiser Engineers, Inc., and Gilbert Associates, Inc. These interviews were supplemented by the review of quality assurance procedures; audits; surveillances; inspections and related documentation; tours of work areas, storage areas and field offices; inspections of installed hardware; and discussions with other licensee and contractor personnel. As a result of this review, it was determined that the licensee has a program that should provide an effective oversight of contractor activities.

A discussion of some inspection findings and observations, along with licensee action, follows:

Licensee's Oversight Mechanism

The licensee has a large Project Organization of approximately 1175 personnel and located in this organization are two groups with direct oversight responsibilities.

The Construction Quality Section contains the Construction Quality Engineering Unit (CQE). CQE has 57 engineers and technicians that perform a day to day surveillance of contractors. Each contractor has a Contract Team assigned to it, composed of a Contract Administrator from the Nuclear Construction Administration Section, a Responsible Engineer from the Nuclear Construction Engineering Section and a Quality Engineer from CQE. The Contract Team works together to identify and correct potential contractor problems. The Quality Engineer has the responsibility to sense negative

trends and institute remedial action. CQE also conducts Process Audits of contractors. The Process Audits are scheduled on a monthly basis to allow CQE to concentrate on noted weaknesses in contractor activities.

The Construction Quality Auditing section has recently been created to conduct Program Audits of the contractors, addressing all 18 criteria on a yearly basis. This group will also be conducting a trend analysis of contractors. The Program Audit function was formerly in CQE, but with the creation of the Construction Quality Auditing Section, CQE is able to concentrate more on day to day activities.

#### Auditor Qualifications

The qualifications of the licensee's auditors and lead auditors were checked and all records reviewed showed that ANSI N45.2.23-1978 was being met.

Kaiser Engineers, Inc. (KEI) provides Quality Assurance personnel to work within the CEICo QA organization. KEI maintains the auditor qualification records of its personnel according to KEI procedures. KEI Quality Assurance Procedure QAP 20, Revision 3, Indoctrination, Training, and Certification, requires that a Record of Lead Auditor Qualifications (Figure 20-6) shall be prepared and maintained for each auditor. Section 5.3.3 of QAP 20 states that job performance shall be evaluated at intervals not to exceed two years.

KEI could not produce, from either its site or corporate files, a Figure 20 that showed Lead Auditor M. R. Kritzer to have had an annual Evaluation since 1979.

KEI was able to verify that the Lead Auditor met the requirements of ANSI N45.2.23-1978 through other records.

KEI has rewritten QAP 20 to be three separate procedures, QAP-20, QAP-21, and QAP-22. KEI approved these procedures and made them effective June 15, 1982. QAP-22 states that the lead auditor records of qualifications shall be kept in accordance with the Auditor Qualification Plan. The Auditor Qualification Plan had not been written and approved by KEI on July 21, 1982. The licensee stated that they would be approving these KEI procedures and they would assure the Auditor Qualification Plan existed.

#### Noncompliance (440/82-09-04a; 441/82-08-04a)

The failure of Kaiser Engineers, Inc. to maintain a Record of Lead Auditor Qualification is contrary to Revision 3 of their Procedure QAP-20 and is an item of noncompliance.



## Equipment Storage

Tours were made of field and warehouse storage areas of Johnson Controls, Inc. (JCI), The Robert Irsay Company (RiCo), and Pullman Power Products Corporation (PPP), to determine if the storage was in accordance with applicable procedures and standards. Tours were also made of various plant areas to determine the adequacy of in place storage.

PPP had piping stored in QA accept areas without end caps on the pipe. Safety related hangers were found on the ground near a PPP storage area. This manner of storage is contrary to PPP Procedure XIII-5 which specifies storage on dunnage and with end caps installed. Food wrappers were found in the hanger storage buildings and indicated that eating had been done in these areas. Rolls of chicken wire were noted to be stored on safety related hangers in the same area. These conditions were promptly corrected by PPP.

Spool No. 3646 was found in containment without an end cap. This is contrary to General Electric Company (GE) Procedure GEP-G-0001. The condition was promptly corrected.

CEiCo Procedures 3-1302 and 7-1302 specify the field storage maintenance requirements and the implementation of the Field Storage Maintenance Request (FSMR). The FSMR specifies the storage and maintenance requirements for each piece of equipment stored in the field. Numerous examples of items not being stored in accordance with the FSMR were noted including:

- 1 CRD Hydraulic Units C11D001, one of 177, was stored without the specified plywood covering.
- 2 Diesel Generator Fuel Oil Day Tanks 2R45A003 and 2R45A005 were stored without the specified covering on open flanges.
- 3 Electrical Switchgear 12R225012 was stored without being protected from falling material as the FSMR required.
- 4 HVAC bearing and motor components OM25-C001B and OM26-C001B did not have the required electrical heaters or protective coverings installed.

In some instances the storage requirements of the FSMR were no longer feasible or were no longer appropriate due to changes in the construction conditions. The HVAC no longer required protective housings since the drive belts and the associated housing had been installed. The CRD Hydraulic Units could no longer be covered since vertical piping work had commenced in February of 1982. The CRD Hydraulic Unit FSMR was not rewritten until July 1, 1982. There appears to be a lack of communication between maintenance/inspection

personnel and the Nuclear Design Section, as Nuclear Design can not rewrite the FSMR until it is informed that the original is no longer applicable. The four month delay on CRD Hydraulic Units is only one example of an outdated FSMR being utilized.

JCI Procedure QAS-1402-PNPP requires that equipment be stored in accordance with the licensee's FSMR. It was noted that some items in the possession of JCI, such as Reactor Vessel Level and Pressure Rack 1H22-P026, were not stored in accordance with the FSMR as the rack did not have the plywood covering and griffolyn wrap installed.

Noncompliance (440/82-09-04b; 441/82-08-04b)

The failure of Pullman Power Products Corporation to place end caps on pipe and to store material on dunnage is contrary to their procedure XIII-5 and is an item of noncompliance.

Noncompliance (440/82-09-04c; 441/82-08-04c)

The failure of General Electric Company to maintain end caps on a spool is contrary to their Procedure GEP-G-0001 and is an item of noncompliance.

Noncompliance (440/82-09-04d; 441/82-08-04d)

The failure of the Cleveland Electric Illuminating Company to adhere to the FSMR storage requirements is contrary to their Procedures 3-1302 and 7-1302 and is an item of noncompliance.

Noncompliance (440/82-09-04e; 441/82-08-04e)

The failure of Johnson Controls, Inc. to maintain equipment in accordance with the licensee's FSMR is contrary to their Procedure QAS-1402-PNPP and is an item of noncompliance.

Nondestructive Examination Surveillances

During interviews it was determined that the contractors do not have records of all surveillance performed by the contractor's "Radiation Safety Officer." The licensee stated that a letter will be written to all contractors requiring them to document all surveillances of NDE personnel.

CEICo Procedure 8-0203 indicates that the surveillances performed on contractor NDE personnel by CEICo personnel would be announced surveillances. The licensee stated they were announced for safety considerations, but we still questioned whether an announced surveillance would be effective. At the exit meeting the licensee agreed to conduct unannounced surveillances of contractor NDE activity.

### Measuring and Test Equipment

The methods used to control issue and storage of calibrated measuring and test equipment were reviewed at Pullman Power Products Corporation, Johnson Controls, Inc., and The Robert Irsay Company. Equipment was also checked in numerous field locations. In all areas reviewed the equipment was in calibration and controlled according to procedures.

The Robert Irsay Company has a calibrated Skidmore Torque Wrench Calibrator located next to its office in an unheated shop. The device is calibrated in Cleveland in a controlled atmosphere. The storage box for the Skidmore has a light bulb installed as a temperature maintenance system. It is unclear as to how the validity of a torque wrench calibration is to be maintained when the Skidmore may be subjected to a temperature differential of approximately 80° during the winter when its storage location is compared to a calibration laboratory. The licensee has agreed to have the Skidmore moved back into the Irsay office where it had been stored until March of 1982.

### Drawing Control

Controlled drawings were checked in numerous field locations and compared to the contractors drawing index and the Gilbert Associates, Inc. drawing index. All drawings checked were of the proper revision.

Johnson Controls, Inc. has controlled copies of Gilbert Associates, Inc. drawings located in the field for reference. All JCI work is done to JCI drawings. The Engineering Change Notices (ECNs) and Field Variance Authorizations (FVAs) applicable to the Gilbert Associates, Inc. drawings are annotated on the drawing and a copy of the ECN or FVA does not accompany the drawing. We questioned whether an annotated copy of a controlled drawing is still a controlled drawing. The licensee has agreed to have the JCI procedure changed to have the ECN or FVA accompany the controlled drawings to the field location.

### Audits

A review of some audits conducted by CEICo indicated that the audit reports of CEICo do not always meet the requirements of ANSI N45.2.12 regarding personnel contacted during the audit and an evaluation statement regarding the effectiveness of the quality assurance program elements which were audited. This is contrary to CEICo Procedure 1-1806 which requires such items to be in the audit reports. The licensee has stated that it will be revising the procedure to address the Process Audits which have been a major contributor to the

problem. The process audit is reported on a form. This form was dropped from the CEICo procedures when all QA auditing procedures were consolidated into 1-1806.

Pullman Power Products Corporation also has not been reporting persons contacted and has not been writing an evaluation statement. This was noted by CEICo on July 8, 1982, during a Program Audit. An Action Request has been written to PPP referencing their Procedure XVIII-4.

Noncompliance (440/82-09-04f; 441/82-08-04f)

The failure of Cleveland Electric Illuminating Company to have their audit reports reflect the persons contacted or contain an evaluation statement is contrary to their Procedure 1-1806, and is an item of noncompliance.

Housekeeping

Tours of the plant revealed many instances of housekeeping that does not meet the Standards of ANSI N45.2.3 and CEICo Project Administration Procedure 0206. Excessive amounts of lumber, rags, cardboard and other such items that were not directly related to the construction activities in progress were scattered throughout the plant. The areas noted were the diesel generator rooms, the steam tunnel, the containment and the 620' level of the auxiliary building. The licensee stated that extra attention has been given to housekeeping since our findings.

Noncompliance (440/82-09-04g; 441/82-08-04g)

The failure of the licensee to maintain housekeeping at the levels required by ANSI N45.2.3 is contrary to their Procedure PAP-0206 and is an item of noncompliance.

Records Storage

The methods used to maintain Quality Records were reviewed in several records storage facilities and the facilities did not always meet ANSI N45.2.9 guidelines.

The Pullman Power Products Corporation records storage area was also a work area. Smoking and eating were allowed in the area and cigarette butts were on the floor. The rear door to the Pullman Power Products Corporation area was not controlled and any personnel could enter. Radiographs were stored in the room with no provision for temperature and humidity control based upon the manufacturer's recommendations. Pullman Power Products Corporation has taken steps to improve their records storage such as segregating the records and the work area and not allowing smoking in the record area.

The General Electric Company records vault did not have provisions to maintain radiographs within the manufacturer's recommendations. The vault also has a water fire suppression system with no provision for drainage. The records were stored on shelves and would not be protected from water damage. General Electric Company has since installed a dehumidifier and has let bids for a halon fire suppression system.

Noncompliance (440/82-09-4h; 441/82-08-4h)

The failure of Pullman Power Products Corporation to protect quality records from damage due to fire and humidity is contrary to their Procedure XVIII-1 and is an item of noncompliance.

Noncompliance (440/82-09-4i; 441/82-08-4i)

The failure of General Electric Company to store quality records in accordance with ANSI N45.2.9 is contrary to their Procedure GEP-GQI-0001 and is an item of noncompliance.

#### Fluid System Cleanliness

The RHR system has temporary flush connections installed at locations in room three at the 620' level of the auxiliary building. The equipment is under the jurisdiction of the Nuclear Test Section. The flush connections do not have seals to prevent the entry of foreign material during times when flushing operations are not being conducted. Discussion with Nuclear Test Section personnel and a review of selected Nuclear Test procedures reveals that the capping of these ends is not considered necessary. This position does not seem to approach the same standards of cleanliness that the contractors and the Construction Quality Engineering Section strive to maintain. The flush connection also does not appear to meet the requirements of ANSI N.45.2.1. The licensee indicated at the exit meeting that Nuclear Test procedures would be reviewed and a determination made as to when connections need to be capped in order to meet applicable standards.

Unresolved Item (440/82-09-05; 441/82-08-05)

The question of uncapped flush connections meeting ANSI N45.2.1 requirements is an unresolved item pending the licensee's review of Nuclear Test Section procedures.

### (12) Quality Assurance Staffing

#### (a) Objective

The objective of this assessment was to determine if the Quality Assurance organizations of the licensee and contractors were adequately staffed.

(b) Discussion

Interviews were conducted with personnel involved in the management of the licensee's and selected contractor's Quality Assurance organization; and approximately ten percent of the Quality Control inspectors employed by the contractors. Based upon the interviews; and a review of scheduled and completed audits, surveillances, and inspections, it was concluded that the QA/QC organizations were staffed with sufficient manpower. The auditors of selected organizations were found to be adequately qualified. Qualifications of Quality Control Inspectors are discussed in detail in the "QC Inspector Effectiveness" section of this report.

Pullman Power Products Corporation had recently instituted an onsite auditing program to allow continual audits to supplement the corporate audits. The Lead Auditor was terminated on July 23, 1982, and a replacement had not been designated. Our concern in this area was addressed by the licensee, and Pullman Power Products Corporation will be accomplishing the site audit function by utilizing qualified auditors from the corporate office until a permanent site auditor can be obtained.

(13) Trend Analysis Program

(a) Objective

The objective of this assessment was to determine if the licensee has an effective trend analysis program.

(b) Discussion

A review was conducted of the method the licensee used to analyze trends in the performance of contractors. The Construction Quality Engineering Section (CQE) assigns a Quality Engineer to each contractor and the Quality Engineer determines the need for trend analysis based upon problems encountered during audits, nonconformance reviews, and his normal observation of the contractor. The need for trending is also indicated in the weekly QA Items of Interest Reports, and the monthly and quarterly QA Performance Analysis Reports.

A review was made of the use of trend analysis reports in conjunction with the QA reports regarding Pullman Power Products Corporation hanger problems and no discrepancies were noted.

The Construction Quality Auditing Section is writing a trend analysis procedure, and this will add a scheduled trend analysis to that performed by CQE.

(14) Compliance History

(a) Objective

The objectives of this assessment were to review the licensee's compliance history and the effectiveness of the associated corrective action.

(b) Discussion

A review was conducted of the licensee history of noncompliances, unresolved items, open items, 10 CFR 50.55(e) Reports, 10 CFR 21 Reports, IE Bulletins, IE Circulars, IE Information Notices, and the systems used to assign responsibility for the tracking and resolution of the items. The review showed that the corrective action was appropriate and the tracking effective for noncompliances, unresolved items, open items, IE Bulletins, 10 CFR 21 Reports and 10 CFR 50.55(e) Reports. Appropriate responses had been made for these items.

Noncompliance (440/82-09-04j; 441/82-08-04j)

Project Administration Procedure 1601 and Nuclear Design and Procurement Procedure 3-0603 assign responsibility to the Licensing Engineer for initial determination of the responsible project section and to assign a review due date for IE Circulars and Information Notices. The procedures assign the reviewer the responsibility to respond to the Licensing Engineer by the due date and require the Licensing Engineer to establish a file package for all material related to the document.

Contrary to the above, the IE documents are not being reviewed in accordance with the procedures. As an example, ten of twenty IE Information Notices issued in 1982 have exceeded their due date with no response made to the Licensing Engineer by the Responsible Reviewer.

The licensee has indicated that a computer tracking system with a tickler system based upon due dates, will be developed to track IE Documents.

Except as noted, within the areas inspected, no items of noncompliance or deviations were identified.

Prepared By: W. J. Key

c. Corrective Action Systems

(1) Objective

The objective of this assessment was to determine if:

- (a) Corrective action procedures were adequate.
- (b) Responsibilities have been adequately defined and that the affected personnel have been trained and understand the procedures.
- (c) Procedures are being effectively implemented. This includes the areas of tracking, closeout, trending of nonconformances, and upper management's involvement.

(2) Discussion

(a) Cleveland Electric Illuminating Company (CEICo)

1 The processing of nonconformances and corrective actions at PNPP for all contractors is in accordance with the CEICo quality assurance program. A standardized NCR form is used. All site generated NCR's are processed and computerized for close-out, tracking, and trending, although site contractors log, track and trend their own generated NCR's. All NCR dispositions and corrective actions are reviewed and approved by the licensee and where required resolutions are made by the PNPP engineering review board.

2 Procedure Review

The inspector reviewed CEICo Corporate Nuclear Quality Assurance Program, Procedure 1502, Revision 1, Project Nonconformance Control, dated May 5, 1981, (during this inspection Revision 2 to was released for use in training) and Procedure 1504, Revision 0, Contractor Initiated Nonconformance Reports, dated May 11, 1981. This review indicates that the program and procedures appear to adequately address corrective actions and the processing of nonconformance reports. Problem areas and adverse trends are brought to the attention of management through a review board.

3 Review of NCR's

The inspector selected from the computer print-out, NCR's generated in 1981 and 1982 for review of corrective actions, processing, disposition, and closure. A detailed review of the following NCR's was made.



- a NCR 2457, dated April 19, 1982. This NCR was closed out June 4, 1982.
- b NCR 2539, dated July 22, 1982. This NCR superseded National Engineers NR 801, dated September 17, 1980. This NCR remains open.
- c NCR 2379, dated December 9, 1981. This NCR was closed and disposition verified on April 21, 1982.
- d NCR 2526 dated June 21, 1982. This NCR was closed on June 21, 1982.
- e NCR 2372, dated October 26, 1981. This NCR remains open.
- f NCR 2392, dated December 7, 1981. This NCR remains open.
- g NCR 2385, Revision 1, dated March 10, 1982. This NCR was closed on March 31, 1982.
- h NCR 2410, Revision 1, dated February 4, 1982. This NCR was closed on March 23, 1982.
- i NCR 2445, dated April 6, 1982. Disposition approved by quality engineering. This NCR remains open.
- j NCR 224, dated October 29, 1981, Anchor Bolts. This NCR supercedes Great Lakes Construction NR 591. This NCR was closed on December 15, 1982.
- k NCR 2501, dated May 24, 1982. This NCR was closed on June 6, 1982.

4 Personnel Interviews

The inspector held discussions with CEICo/GAI/KEI personnel attached to the construction quality engineering department. It appears that they are knowledgeable in CEICo and contractors corrective action procedures, and the processing of nonconforming items.

(b) Pullman Power Products Corporation (PPP)

1 Procedure Review

The inspector reviewed the following procedures:

- Procedure XVI-2, Revision 0, Corrective Action, dated March 24, 1982.

- . Procedure XV-2, Revision 9, Procedure for Handling Nonconformances (Field), dated April 6, 1982.
- . Procedure XV-3, Revision 5, Reporting of Defects and Nonconformances to the NRC 10 CFR 21, dated April 15, 1981.
- . Procedure XV-4, Revision 4, Hold Tag Usage dated November 5, 1981.

During the review of Procedure XV-2 it was noted that the procedure does not reflect all that PPP is doing to track, process, and closeout NCR's. PPP is at present using improved methods on a trial bases until a determination is made as to which ones will be incorporated into the next revision of the procedure.

Open Item (440/82-09-06; 441/82-08-06)

During the exit meeting the licensee stated that the PPP procedure will be revised, in the near future, to reflect the new system PPP will use to process NCR's.

2 Review of NCR's

The inspector randomly selected NCR's from the computer printout for further review of corrective actions, proper processing, trending and closeout. The quarterly NCR report sent to the Quality Assurance Manager for review is also used to trend NCR's.

The following are examples of NCR's selected for the inspectors review:

- a NCR 750, Revision 2, dated December 11, 1981. This NCR was closed February 2, 1982.
- b NCR 1002, Revision 0, dated April 1, 1982. Closed out June 6, 1982.
- c NCR 727, Revision 0, dated October 19, 1981. Closed out May 27, 1982.
- d NCR 741, Revision 0, dated October 29, 1982. Closed out December 8, 1981.
- e NCR 947, Revision 0, dated March 19, 1982. Closed out May 21, 1982.
- f NCR 1258, Revision 0, dated June 28, 1982. Remains open.

- g NCR 1236, Revision 1, dated July 2, 1982. Remains open.
- h NCR 905, Revision 0, dated February 26, 1982. Remains open.
- i NCR 879, Revision 0, dated February 16, 1982. Remains open.
- j NCR 866, Revision 1, dated July 22, 1982. Remains open.
- k NCR 810, Revision 0, dated December 23, 1981. Remains open.
- l NCR 771, Revision 0, dated November 23, 1982. Remains open.
- m NCR 762, Revision 0, dated November 14, 1981. Remains open.

During the inspectors general review of the approximately 760 PPP NCR's listed on the computer printout it was noted that about half or 371 were written against hanger installation. This review confirmed the trend in this area identified by the QA quarterly review. It appears that the problem areas are welding and hanger location.

(c) Newport News Industrial Corporation (NNI)

1 Procedure Review

The inspector reviewed NNI Procedure 701-F-S007, Revision C, PNPP Corrective Action. This procedure incorporates the requirements for corrective actions and requires these actions to be stated on the nonconformance report. Revision D to this procedure was approved on June 4, 1982, and has been released for distribution and training onsite.

2 Review of NCR's

From the computer printout the inspector made a general review of the status of 90 NCR's written against Specifications 17, 3 and 96. From these the inspector selected 17 for a more detailed review for proper closeout, and corrective actions. Line 10 on the NCR form is to identify what steps are to be taken to prevent recurrence.

The following NCR's were reviewed in detail.

- a NCR 345, Revision 0, dated April 19, 1982. Closed out on May 17, 1982.

- b NCR 213, Revision 0, dated October 15, 1981. This NCR was cancelled and closed out on October 28, 1981.
- c NCR 319, Revision 0, dated November 10, 1981. This NCR closed out on May 18, 1981.
- d NCR 352, Revision 0, dated May 17, 1982. This NCR closed out on June 11, 1982.
- e NCR 361, Revision 0, dated June 14, 1982. This NCR closed out on June 25, 1982.
- f NCR 316, Revision 2, dated February 19, 1982. This NCR has been open for 158 days and remains open.
- g NCR 317, Revision 1, dated December 1, 1981. This NCR has been open 238 days, and remains open.
- h NCR 321, Revision 0, dated December 18, 1981. This NCR has been open for 229 days and remains open.
- i NCR 343, Revision 2, dated June 29, 1982. This NCR remains open.
- j NCR 3, Revision 0, dated June 29, 1982. This NCR remains open.
- k NCR 1008, Revision 0, dated May 7, 1982. This NCR cancelled and closed out on May 12, 1982.
- l NCR 345, Revision 0, dated May 26, 1982, Specification 53. This NCR was closed on June 22, 1982.

The quarterly review of NCR's by the QA Manager is used to trend NCR's. The inspector reviewed the log of quarterly reports and the printout. There does not appear to be a trend at NNI.

(d) General Electric Company Installation and Service Engineering Division (GE)

1 Procedure Review

The inspector reviewed the GE NQAM Section 15.0, Revision 0, and Section 17.0, Revision 3; Procedure GEP-AP-0001, Revision 2, dated September 9, 1981, Nonconformance Reports; and GEP-AP-000 Corrective Action Requests.

The NQAM and procedures address corrective actions, the handling of nonconformances, involvement of upper management, and the interface with the licensee and other site contractors.

2    Personnel Interviews

Interviews with GE QA/QC personnel indicates that they have a good working knowledge of their procedures for corrective actions, and the handling of nonconforming items and interface with the Authorized Nuclear Inspector (ANI).

3    Review of NCR's

The inspector selected the following GE initiated non-conformance reports for a detailed review of proper processing and corrective actions.

- a    NCR 0322 dated November 24, 1981. Closed November 30, 1981.
- b    NCR 0188, dated May 26, 1982. Closed May 28, 1982.
- c    NCR 0447, dated July 6, 1982. Proposed disposition of this NCR was rejected by the PNPP review board, and remains open.
- d    NCR 0401, dated May 26, 1982. This NCR remains open.
- e    NCR 0381, Revision 1, dated May 10, 1982. This NCR remains open.
- f    NCR 0358, dated March 26, 1982. This NCR remains open.
- g    NCR 007, Revision 0, dated January 13, 1982, and Revision 2; dated May 17, 1982. This NCR remains open.
- h    NCR 0301, Revision 0, dated October 9, 1981, and Revision 3, dated February 2, 1982. This NCR remains open.
- i    NCR 0320, dated November 18, 1981. This NCR closed December 4, 1981.

Within the areas inspected, no items of noncompliance or deviations were identified. Based on the inspectors review of applicable procedures, discussions with personnel and a detailed review of the processing of nonconformance reports and corrective actions in the areas examined, it appears that procedures are adequate and that the licensee requirement that all site contractors use the same form for processing nonconformances and stated corrective actions meets NRC requirements.

Prepared By: I. T. Yin

d. Design Control

(1) Objectives

The objectives of this assessment were to ascertain that the licensee's design engineering organizations have established programs to perform system and component design, including design change and work interface control, and that approved procedures are clearly understood and are being effectively implemented.

(2) Discussion

This inspection is only a part of the overall program review. Specific onsite design activities, such as small bore piping and piping suspension design, were examined during previous inspection. The GAI corporate design control in conjunction with field activities and the GAI interfaces with NSSS and component vendor testing and verification program will be reviewed as part of the routine NRC inspection program.

The functional or program areas inspected include review of design responsibilities and authorities, procedure review, and review of work implementation.

(a) Project Design Activities

The following areas were discussed with licensee representatives, and later confirmed with the licensee's site management.

- 1 Mechanical Equipment and HVAC Design and Qualification - GAI Corporation
- 2 Large Bore Piping Design - GAI Corporation
- 3 Small Bore piping Design including:
  - . Process lines installed by Pullman Power Products Corporation.
  - . Instrumentation and control installed by Johnson Controls, Inc.
  - . Tubing in the Control Complex HVAC installed by The Robert Irsay Company.
  - . General routing by GAI, including the details and suspension systems by GAI site personnel.

- 4 Electrical Equipment Design and Qualification - GAI.
- 5 Electrical conduit and cable tray routing including support system design - GAI.
- 6 Specific electric conduit support selection based on GAI established criteria (site contractor with GAI site overview).
- 7 Civil/Structural Design and Analysis - GAI.

(b) Review of Design Control Procedures

The inspector reviewed the following site design control, design change control, and design interface control procedures relating to the A-E and the authorized site organizations.

- 1 GAI "Design Control Procedure (DCP) Manual" including the following DCPs:
  - . DCP Introduction, "Introduction to Design Control Procedures," Revision 2, dated June 30, 1981.
  - . DCP 1.10, "Design Input," Revision 1, dated December 1, 1980.
  - . DCP 1.15, "Layout Design," Revision 2, dated June 19, 1978.
  - . DCP 1.20, "Calculations," Revision 3, dated December 30, 1981.
  - . DCP 1.30, "GAI Drawings," Revision 1, dated March 6, 1981.
  - . DCP 2.05, "Design Verification," Revision 4, dated July 15, 1982.
  - . DCP 2.10, "Review and Approval," Revision 1, dated December 1, 1980.
  - . DCP 2.15, "Noncompliance with Procedures," Revision 0, dated September 1, 1977.
  - . DCP 2.20, "Change Notices," Revision 0, dated September 1, 1977.
  - . DCP 4.20, "Nonconformances to GAI Design Documents," Revision 2, dated February 14, 1980.
  - . DCP 5.15, "Indoctrination," Revision 1, dated September 1, 1981.

- . DCP 5.20, "Subcontracted Technical Services,"  
Revision 1, dated June 19, 1978.
  
- 2 GAI "Quality Assurance Program Plan," Revision 7, dated  
February 26, 1982, including the following sections:
  - . 1.0 General
  - . 2.0 Program Management
  - . 3.0 Design Assurance
  - . 7.0 Construction Assurance
  
- 3 CEICo PNPP 1 and 2, "Procedures Manual," Revision 15,  
dated January 29, 1982, including the following sections:
  - . 2:04.10, "Onsite Design Team (GAI)."
  - . Figure 2-2, "Perry Project - Site GAI Design Team,"  
dated January 29, 1982.
  - . Appendix G, "GAI Drawings," Revised January 29, 1982.
  - . Appendix N, "Engineering Change Notices," Revised  
January 29, 1982.
  - . Appendix O, "Processing Field Questions," Revised  
January 29, 1982.
  - . Appendix P, "Nonconformance Conditions," Revised  
July 1, 1981.
  - . Appendix Q, "Manufacturer/Stress/Mechanical Equipment  
Seismic Reports," Revised January 29, 1982.
  - . Appendix R, "Design Review Status Reports," Revised  
January 29, 1982.
  - . Appendix T, "SAR Deviations," Revised January 29, 1982.
  - . Appendix V, "Design Interfaces," Revised July 1, 1981.
  - . Appendix W, "Field Variance Authorization," Revised  
July 1, 1981.
  - . Appendix X, "Procedure for Drawing Change Notice (DCN)  
for Piping Drawings," Revised July 1, 1981.
  - . Appendix Y, "Seismic Clearance," Revised January 29,  
1982.



(c) Review of Licensee Engineering Change Notice (ECN) System

The inspector reviewed a total of 15 ECNs issued from July 19-22, 1981, including:

- . ECN 9104-33-2011
- . ECN 9098-44-1088
- . ECN 9082-33-2008
- . ECN 9081-44-1083
- . ECN 9079-44-1082

Unresolved Item (440/82-09-07; 441/82-08-07)

Since the complete documentation packages for ECNs are kept in the GAI corporate office, the inspector's questions relative to: (1) the adequacy of backup calculations for revised system or component design, and (2) the work interface between site and corporate staff, including communication documentation, will be reviewed at GAI during a future inspection.

(d) Review of Licensee Field Variance Authorization (FVA) System

The inspector reviewed a total of 13 FVAs issued from June 25-29, 1982, including:

- . 4200-44-407, approved on June 25, 1982, involving a spring support tack weld that was changed to a fillet weld.
- . 4205-20-865, approved on June 30, 1982, involving the waiver of the water curing requirement for a grout placement.
- . 4210-20-867, approved on June 30, 1982, involving bending of a 1 1/4" anchor bolt to miss conduit.
- . 4214-17-32, approved on July 1, 1982, involving design of nine one ton capacity temporary platforms attaching that attached to the containment shell.

(e) Review of Licensee Field Question (FQ) System

The inspector reviewed a total of 13 FQs issued from June 9-10, 1982, including:

- . 21901, approved on June 30, 1982, involving redesign of two hangers. ECN 8967-45-531 was attached.

- . 21903, approved on June 18, 1982, involving redesign of one hanger. No ECN was attached.
- . 21910, approved on June 10, 1982, involving a floor penetration that was identified to be out of plumb.
- . 21911, approved on June 15, 1982, involving incorrect valve listings shown on a drawing.

(f) Review of Licensee Drawing Change Notice (DCN) System

The inspector reviewed the following safety related DCNs involving design changes:

- DCN 4-432, dated October 18, 1978
- DCN 5-433, dated October 18, 1978
- DCN 2-434, dated October 18, 1978
- DCN 3-435, dated October 18, 1978
- DCN 2-445, dated October 16, 1978
- DCN 3-447, dated October 16, 1978

(g) Review of Licensee Nonconformance Report (NR) System

The inspector reviewed a total of 59 NRs issued from March 11 to April 1, 1982 contained in Book 92, filed in the site document control center. These NRs were issued as Pullman Power Products Corporation (PPP) No. PPP-923 to 998 with 16 outstanding NRs not included in the book. The focus of the review was placed on design review of PPP requests of "Use-As-Is". Among the NRs reviewed, there were only five requested "Use-As-Is", and the field design review conclusion was as follows:

PPP-924, 3/12/82, Staff accepted suggest plate drill hole modification.

PPP-949, 3/18/82, Staff rejected field proposal. Rework required.

PPP-953, 5/21/82, Rework was requested.

PPP-971, 3/23/82, Rework of piping installation error was required.

PPP-977, 4/5/82, Reinspection of Hilti-Kwik bolt installations was accepted.

The inspector stated that the measures provided for the documentation and evaluation of the nonconforming hardware conditions, including the engineering design review and dispositions, appeared to be adequate and conservative. A great majority of the deficiencies were reworked or repaired to meet the original design requirements.

(h) Review of Licensee Design Control Audits

1 The inspector reviewed the following CEICo PNPP Audits including followup on the Action Request (AR) items:

- . Project Internal Audit (PIA), 81-11, Gilbert/Commonwealth Design Control," conducted on April 20 to May 1, 1981.
- . PIA 80-07, "PNPP Project Management," conducted on August 21-22, 1980.
- . PIA 79-06, "PNPP Design Control Audit of Fire Protection Program," conducted on August 30-31, 1979.
- . PIA 79-02, "Drawing, Specification, and ECN Control," conducted on March 14 to April 19, 1979.

2 The inspector also reviewed the following site audit reports:

- . GAI Corporate Internal Audits (CIA) 055, "Perry Site Engineering," conducted on February 2-5, 1982.
- . CEICo PIA 82-14, "Drawing Control," conducted July 2, 1982.
- . CEICo PIA 82-11, "GE FOA/FDDR Processing," conducted on April 5-21, 1982.
- . CEICo PIA 82-10, "Conduit Design Activity," conducted on May 4-11, 1982.
- . CEICo PIA 82-02, "As-Built Drawings," conducted on January 25 to February 5, 1982.
- . CEICo PIA 81-08, "Specification and ECN Control," conducted on May 4-8, 1981.
- . CEICo PIA 81-06, "Nonconformance Control and Corrective Action," conducted between December 14, 1981 to January 5, 1982.
- . CEICo PIA 81-03, "Drawing Control," conducted on June 8-18, 1981.
- . CEICo PIA 80-04, "Drawing Specification and ECN Control," conducted on April 28 to May 9, 1980.
- . CEICo PIA 80-02, "NR, CARs, and ARs," conducted on February 14-22, 1980.
- . CEICo NQAD and GAI QAD Nonconformance Assessment Report, "PNPP Vendor Program," dated July 15, 1982.

(3) Conclusions

As a result of the above review of the procedures and work activities relative to the site ECN, FVA, FQ, DCN, and NR systems, the inspector concluded that the following items should be evaluated and necessary modifications and clarifications implemented.

- . The review process of the Field ECNs contained in PNPP Procedure Manual, Appendix N, appeared to be out of sequence. The issuance of ECNs for hardware installation requires no prior GAI corporate engineering signoff.
- . There appeared to be incomplete procedural requirements to assure that design modifications and alterations that result in the approval of the ECNs, FVAs, DCNs, and "Use-As-Is" conditions on NRs, will receive a comprehensive design review equal to that performed on the original design. This includes review of cumulative effects and conduct of optimized functional and operability assessments of the affected portions of the systems.
- . The contractor and NSSS supplier unique site design control documents such as Comstock's "Problem Sheets," GE's FDDR's and FDI's, and possibly others, all of which are equivalent or similar to the FVAs and FQs are not included as a part of the CEICo "Nonconformance System Assessment" program evaluation.
- . The ECN, FVA, and FQ procedures did not appear to be definitive as to their applications. Examples on "what it should not be used for" in addition to "what it is used for" in each of these systems were lacking in the procedures.
- . The present FQ procedures describe only the handling of safety and nonsafety systems that require clarification and interpretation. In view of the fact that there are nonsafety related systems connecting to safety related systems, and nonsafety related systems that are "important to safe plant operations" or "could have effect on safe system operations," measures taken to resolve these interrelated items should be considered in a future program revision. Paragraph 2:02 of Appendix O, "Processing Field Questions" contained in the PNPP Procedure Manual could be changed to reflect the above relationships.

Unresolved Item (440/82-09-08; 441/82-08-08)

During discussion licensee management stated that they will initiate an evaluation effort immediately, and that they will make a presentation of the upgrade program to NRC the week of September 20, 1982, at the Region III office.

Prepared By: E. H. Nightingale

e. Material Tracability of Installed Structures and Components

(1) Objective

The objective of this assessment was to determine that material traceability was maintained from procurement through installation for structural beams, small bore piping and welding materials.

(2) Discussion

(a) L. K. Comstock and Company, Inc. (LKC)

1 Review of Procedures

The following site procedures were reviewed:

- 4.7.6 - Storage Issue and Control for Welding Material.
- 4.7.1 - Welding Procedure and Welder Qualifications for Structural Attachments.
- 4.7.0 - Control of Special Process.

2 Review of Records

The documents reviewed for weld material traceability are as follows:

- . Weld Filler Material Withdraw Tag
- . Purchase Order
- . Purchase Order Attachment
- . Requirements
- . Receiving Inspection Reports
- . Invoice
- . Quality Conformance (Material Test Report)

3 Review of Welder Qualification

The review of welder qualification records consisted of reviewing the original qualification records as well as the supportive documents pertaining to their "update" qualification records. The LKC welding efforts are to the AWS Code which requires six (6) month requalification periods.

The inspector reviewed the following welder certification and qualification records:

<u>Name</u>	<u>Welder ID No.</u>
Paul Watson	15
Joe Hall	35
Jim Dowd	50

These three (3) welders are representative of the 17 welders qualified by LKC.

4    Review of Weld Material Control

The review of weld material control procedures and direct observation of in-process activities indicates that sufficient efforts are being implemented to assure material traceability and control.

(b) Pullman Power Products Corporation (PPP)

1    Review of Procedures

VII-2, Material Control  
VIII-1, Procedure for Identification of Materials, Parts and Components  
VII-3, Control of Welding Materials (Field)  
IX-3, Fabrication and Field Installation Specification for Nuclear Power Systems and Appurtenances. ASME Section III  
X-9, Inspection Procedure of In-Process Operations  
X-11, General Visual Examinations  
VII-1, Field Quality Assurance Records Procedure

2    Review of Records

The inspector selected several safety related small bore piping systems for material traceability. The review of the data packages consisted of documentation from the purchase order to installation of the item.

The document reviewed are as follows:

- . Purchase Order
- . Certificate of Inspection
- . Receiving Inspection Report
- . Metallurgical Report
- . Shipping Document
- . Itemized P.O. Material List
- . Receiving Physical Inspection Report
- . DOC Review Certificate

The inspector reviewed data packages for the following small bore piping systems.

SMALL BORE PIPING

<u>ISO</u>	<u>SYSTEM NO.</u>	<u>HEAT NO.</u>	<u>SIZE NO.</u>
1E22-501	E22 High Pressure Core Spray	66252	1" Ø C.S.
1E22-501	E22 High Pressure Core Spray	66247	1" Ø C.S.
1E51-503	E51 Reactor Core Isolation Cooling	E68741	3/4" Ø C.S.
1P42-500	P42 Emergency Closed Coolant	D85994	3/4" Ø C.S.
1C11-674	C11 Control Rod Drive Hydraulic Piping	463186	1 1/4" Ø S/S
1C11-674	C11 Control Rod Drive Hydraulic Piping	463488	1 1/4" Ø S/S
1C11-674	C11 Control Rod Drive Hydraulic Piping	463514	1 1/4" Ø S/S
1G41-41	G41 Fuel Pool Cleanup	04655	3/4" Ø S/S
1G33-500	G33 Reactor Water Cleanup	1H69728	1" Ø C.S.
1G33-500	G33 Reactor Water Cleanup	M60397	1" Ø C.S.
1G36-501	G36 Reactor Water Cleanup	E92335	3/4" Ø C.S.

COMPONENTS

<u>VALVE</u>	<u>S/N</u>	<u>B/M</u>	<u>ISO</u>	<u>TYPE</u>
1E51-F0519	H890AAM	ROP211	1E51-005	Globe Manual
1G41-F0514	AA036	ROP243	1G41-042	Globe Manual
1G33-F0025B	H406AAM	ROH214	1G33-503	Globe Manual
1G36-F0504B	H560AAU	ROP211	1G36-003	Globe Manual

3 Review of Welder Qualifications

The review of welder qualification records consisted of reviewing the original qualification record as well as the supportive documents pertaining to their "update" qualification record. PPP welding efforts are to the ASME Code which requires three (3) month requalification periods.

The inspector reviewed the following welder certification and qualification records:

<u>Name</u>	<u>Welder ID NO.</u>
R. Strom	AP
A. Picciano	BB
S. Noga	DW
S. Dukuslow	EI
J. Degreen	EP
K. Phillips	FL
G. Satmary	FY
J. Dunda	GG
W. Manuel	HL
D. Tyler	LJ
M. Masterino	MB
R. Peden	NB

J. Churella	SB
W. Still	TN
L. Nash	VF
A. Artayet	D1
R. Stimmel	F8
L. Dysart	J3
M. Romano	NR
M. Sapienza	P5
J. D'Angelo	S3
R. Lane	V4
S. Ritcey	Y5
R. Anders	AMA
K. Kilbane	AAF
W. Bake	AAN
D. Queen	ABC
S. Wood	ABR
E. Shanholtz	ACB
T. Wilson	ACO
D. Marti	ACX

These Thirty-one (31) welders are representative of the approximately 221 welders qualified by PPP.

#### 4 Review of Weld Material Control

The review of weld material control procedures and direct observation of in-process activities indicates that sufficient efforts are being implemented to assure material traceability and control.

The documents reviewed for material traceability are as follows:

- . Q.A. Inspection Report
- . Receiving Inspection Check Report
- . Material Test Report
- . Weld Rod Issue Tag
- . Weld and Inspection Records

#### (c) Pittsburgh Bridge and Iron (PBI)

##### 1 Review of Procedures

- . 9F-WELD, Control and Distribution
- . D-1, Welder Qualification
- . E-1, Welder I.D.
- . VII, Purchase Material Control
- . VI, Document Control

##### 2 Review of Records

The inspector selected thirteen (13) beams for material traceability. Beams selected were as follows:



<u>Beam ID</u>	<u>Building</u>	<u>Unit No.</u>
428B2	RB	2
429B3	RB	2
233B2	RB	2
2B2(2)	AUX	1
2B1(2)	AUX	1
307G3	RB	1
308G2	RB	1
523B5	RB	1
56B8	AUX	2
56B7	AUX	2
56B5	AUX	2

The data packages reviewed consisted of the following documents:

- . Purchase Order
- . Shipping Notice
- . Certification of Inspection
- . Document Review Certification
- . Q/A - Inspection Check List
- . Shop and Shipping Bill
- . Material Sheet
- . Metallurgical Test Report
- . Receiving Inspection Report

A study of the data packages for the structures selected, disclosed the following:

<u>BLDG.</u>	<u>PIECE NO.</u>	<u>HEAT NO.</u>	<u>MR NO.</u>	<u>SHIPMENT NO.</u>	<u>GAI DWG NO.</u>	<u>ERECTION DWG NO.</u>
RB No.2	428B3	75A253	15207	19	561-061	49E E009 E219
RB No.2	429B3	B13129	15645	28	561-061	49E E009 E219
RB No.2	233B3	181E413	10664	21	561-021	49E E009 E203
AUX No.1	(2)2B2	(2)171C452	6057	5	512-021	28E E016 E102
AUX No.1	(2)2B1	(2)171C452	6211	7	512-021	28E E016 E102
RB No.1	307G3	74C538	6650	19	511-022	49E E006 E204
RB No.1	308G2	74C543	7177	21	511-022	49E E006 E204
RB No.1	523B5	74E371	11938	61	511-027	49E E006 E213
AUX No.2	56B8	183C270	10484	14	562-023	28E E021 E104
AUX No.2	56B7	72425	10484	14	562-023	28E E021 E104
AUX No.2	56B5	189H226	10786	16	562-023	28E E021 E104

### 3 Review of Welder Qualifications

The review of weld qualification records consisted of reviewing the original qualification record as well as the supportive documents pertaining to their "up-date" qualification records. PBI welding efforts are to the AWS Code which require six (6) month re-qualification periods.

The inspector reviewed the following welder certification and qualification records:

<u>Name</u>	<u>Welder ID No.</u>
C. Chutas	7
C. Martsolf	M

The two (2) welders are representative of the fifteen (15) welders qualified by PBI.

4 Review of Weld Material Control

The review of weld material control procedures and direct observation of in-process activities indicates that sufficient efforts are being implemented to assure material traceability and control.

The documents reviewed for material traceability are as follows:

- . Purchase Order
- . Weld Material Requisition
- . Installation/Fabrication
- . Weld Record
- . Material Test Report

(d) Newport News Industrial Corporation (NNI)

1 Review of Procedures

The following site procedures were reviewed:

- . 701-F-W003, Monitoring Welding Parameters other than NDE
- . 701-F-W004, Weld Filler Metal Handling and Control
- . 701-F-W006, Field Welding for CEICo @ Perry, Ohio, Units 1 and 2

2 Review of Records

The documents reviewed for weld material traceability are as follows:

- . Purchase Order
- . Inspection Report
- . Certified Material Test Report
- . QC Material Chit
- . Material Receipt
- . Certification of Test
- . Stores Order
- . Weld Metal Issue Log
- . Satisfactory Tag

3    Review of Welder Qualifications

The review of welder qualification records consisted of reviewing the original qualification records as well as the supportive documents pertaining to their "up-date" qualification records. The NNI welding efforts are to the ASME Code which requires three (3) month re-qualification periods.

The inspector reviewed the following welder certification and qualification records:

<u>Name</u>	<u>Welder ID No.</u>
Sweeney, R.	894
Mello, A.	300
Tharp, E.	276
Bien, J.	241
Mansol, J.	47
Streit, F.	258
Crockford, R.	56
Hynd, J.	009
Yolda, F.	65
Freeman, J.	271
Gonzalez, A.	23
Deanes, L.	452
LeVasser, P.	486

These thirteen (13) welders are representative of the 62 welders qualified by NNI and are presently on site.

4    Review of Weld Material Control

The review of weld material control procedures and direct observation of in-process activities indicates that sufficient efforts are being implemented to assure material traceability and control.

(e)    General Electric Company (GE)

1    Review of Procedures

The following site procedures were reviewed:

- .    GWP-1000, General Welding Procedures for Welding Nuclear Service Products
- .    GWP-009, Document Control
- .    GWP-1003, Welding Performance Qualification
- .    GWP-1010, Weld Material Control and Storage

2    Review of Records

The documents reviewed for weld material traceability are as follows:

- .    Purchase Order
- .    Weld Material Request
- .    Material Test Report
- .    Impact Test Certification
- .    Chemical Analysis
- .    Receiving Inspection Report

3    Review of Welder Qualification

The review of welder qualification records consisted of reviewing the original qualification records as well as the supportive documents pertaining to their "up-date" qualification records. GE welding efforts are to the ASME Code which requires three (3) month re-qualification periods.

The inspector reviewed the following welder certification and qualification records:

<u>Name</u>	<u>Welder ID No.</u>
Gircsis, L.	55
Grinnell, E.	005
Wilson, P.	127
Piero, R.	170
Kaster, T.	105
Bunny, R.	121

These six (6) welders are representative of the forty (40) welders qualified by GE.

4    Review of Weld Material Control

The review of weld material control procedures and direct observation of in-process activities indicates that sufficient efforts are being implemented to assure material traceability and control.

(f)    Johnson Controls, Inc. (JCI)

1    Review of Procedures

- QAS-701, PNPP-Document Control
- QAS-1001, PNPP-Visual Inspection
- QAS-1005, PNPP-Welding Procedure and Performance Quality

2    Review of Records

The inspector selected several safety related small bore piping systems for material traceability. The review of the data packages consisted of documentation from the purchase order to installation of the item.

The documents reviewed are as follows:

- . Purchase Order
- . Receiving Inspection Report
- . Material Test Report
- . Certification of Test
- . Packing List
- . Warehouse Issue Ticket
- . Certificate of Inspection
- . Certificate of Completion

The inspector reviewed data packages for the following small bore piping systems.

SMALL BORE PIPING

<u>ISO</u>	<u>SYSTEM NO.</u>	<u>HEAT NO.</u>	<u>SIZE NO.</u>
1H22-P005	B21 NSSS	08625	3/4" Ø S/S
1H15-P1051	M15 Annulus Exhaust Gas Treatment	TV5033	3/8" Ø S/S
1/F 51P1049	M15 Annulus Exhaust Gas Treatment	M5771	3/4" Ø S/S
Field Storage	AUX. 1, EL 620'	4363	3/8" Ø S/S
Field Storage	AUX. 1, EL 583'	403437	3/8" Ø S/S
Field Storage	AUX. 1, EL 575'	08290	3/8" Ø S/S

COMPONENTS

1M15-F0502A	AA044-7	ROP243	Detail Dwg. 814-835 Globe Manual
1B21-F0504	CAJ824	ROP242	Detail Dwg. 814-601 Globe Manual

3    Review of Welder Qualifications

The review of welder qualification records consisted of reviewing the original qualification record as well as the supportive documents pertaining to their "up-date" qualification record. Johnson Controls, Inc. welding efforts are to the ASME Code which requires three (3) month requalification periods.

The inspector reviewed the following welder certification and qualification records:

<u>Name</u>	<u>Welder ID No.</u>
J. Miller	J26
J. Popolis	J59

These two (2) welders are representative of the (16) welders qualified by Johnson Controls, Inc.

4    Review of Weld Material Control

The review of weld material control procedures and direct observation of in-process activities indicates that sufficient efforts are being implemented to assure material traceability and control.

- .    Purchase Order
- .    Weld Filler Material Requisition
- .    Receiving Inspection Report
- .    Weld Material Issue Slip

Within the areas inspected, no items of noncompliance or deviations were identified.

Prepared By: E. H. Nightingale

f. In-Process Inspections

(1) Objectives

The objective of this assessment was to determine if in-process inspection activities were being accomplished with adequate procedural control, if personnel have been trained in the use of the procedures, and whether they understand the procedure requirements pertaining to inspection activities.

(2) Discussion

The assessment consisted of witnessing the heavy lift of the dryer for the Unit No. 2 reactor pressure vessel, monitoring of concrete placement of the Unit No. 1 containment dome, monitoring of concrete placement in the Unit No. 2 steam tunnel, and witnessing of NDE activities (liquid penetrant examination) of in-process welding.

The heavy lift of the dryer was conducted by General Electric Company (GE) and was performed utilizing their combination procedure and checklist sign-off traveler No. T-2B13-06, Revision 1, GE IS&E Unit 2 Steam Separator and Dryer Lift.

In addition to reviewing this procedure the inspector witnessed that GE had QC inspectors present during the lift. Discussions with the inspectors indicated that they were well acquainted with the procedures involved and had received sufficient training to enable them to perform their assigned function.

The NDE effort witnessed by the inspector was performed on small bore piping field weld No. 5 on Process Sheet 1H51-P-1049, Revision 0, and was conducted by Magnaflux personnel. The inspector reviewed, Johnson Controls, Inc. Procedure No. QAS-1002 PNPP Revision 8, which was used for these examinations. In addition, the inspector reviewed the NDE qualifications of the personnel performing the penetrant testing and found them to be in compliance to ASNT-TC-1A for the efforts being accomplished.

The concrete placements, performed by Dick Corporation, were carried out with QC inspectors at the area of placement as well as at the discharge point.

The inspector reviewed the following procedures concerning concrete placement:

- . FQC-10.1, Concrete Control
- . FQC-3.2, Pre-Placement, Placement, Post-Placement of Concrete
- . FQC-10.3, Re-Inforcement

In addition, the inspector witnessed concrete batch testing consisting of the following tests:

- . Air Content
- . Slump
- . Temperature

Discussions with QC personnel indicated that their training was adequate to enable them to perform their assigned function.

The inspector examined U.S. Testing Company, Incorporated Inprocess Concrete Test Reports for the above concrete placements. Except for some high slump results of the steam tunnel dry wall placement, all other parameters of the tests were within ACI requirements.

Open Item (440/82-09-09; 441/82-08-09)

The inspector requested information on any ongoing test results (compression strength) and the results of the final disposition. This is an open item.

Within the areas inspected, no items of noncompliance or deviation were identified.



g. QC Inspector Effectiveness

(1) Objective

The objectives of this assessment were to determine if:

- (a) any problems exist that inhibit an inspector from properly executing his assigned functions.
- (b) The training, qualifications, and certification of QA/QC personnel working for contracting organizations to the licensee are in compliance with 10 CFR 50, Appendix B; ANSI N45.2.6 1973; ANSI SNT-TC-1A; USNRC Regulatory Guides 1.58; USNRC Generic Letter 81-01; CEICo Quality Assurance Program Manuals; CEICo Response to Generic Letter 81-01 (D. R. Davidson to D. G. Eisenhut dated July 31, 1981); and Contractor Quality Assurance Manuals.

(2) Discussion

The individuals selected for interview were chosen at random by the NRC Inspector from QA/QC inspector lists furnished by each contractor doing safety related work. The organizations selected, production function monitored by the inspectors, number of inspectors in the organization, number of inspectors interviewed and percentages are identified in Table I. Each inspector interviewed was asked a standard set of questions. The answers provided were summarized and are provided as Table II.

The individuals selected for interview were requested to provide the record of their training, qualification and certification to the NRC inspector. The inspector reviewed each of the training, qualifications and certification records to verify compliance with applicable regulatory requirements, standards and FSAR commitments. In verifying the implementation of the approved requirements emphasis was placed on (1) evaluation of performance/re-evaluation; (2) determination of initial capability by suitable evaluation; (3) physical requirements identified and examined yearly; (4) written certification in appropriate form; (5) records of qualification established and maintained; and (6) qualification criteria followed.

Table II is provided as a summary of QA/QC inspector answers to the standard set of interview questions. Some of the questions are self evident and do not require further definition or comment. Other questions deserve further explanation or comment to clarify the results:

Question 1: Stands alone.

Question 2: This question deals with the extent of inspection or QC experience of interviewed personnel prior to serving in such a capacity at the Perry site. Of those interviewed, 12 out of 28 (43%) had no formal QC or inspection work experience. The majority of those interviewed had manufacturing or skilled trades experience in which there is an implicit experience of comparing the condition of a product to design which is not accounted for in this question.

Question 3: This question relates to the number of inspectors that indicated during their answers to Question 2 that they had prior inspection experience. Of those inspectors with prior experience, 11 out of 16 had prior nuclear experience. Since the Perry project is the first nuclear facility in the area, the lack of previous nuclear experience is to be expected and has been compensated for by in house training programs to meet certification requirements. (See Question 10).

Question 4: The affirmative responses to this question do not imply overt threats or pressure placed upon members of the QC staff. The response results from the inspectors' perceptions that production and QC are not totally without interaction effects and that production is in fact the stronger influence.

Question 5: The affirmative response to this question does not imply overt direction to not identify an adverse finding. The response results from the inspector's perception that the questioning of QC inspectors adverse findings by production is at a level of intensity greater than that considered to be normal for a production/QC relationship.

Note: The inspectors providing affirmative responses to Questions No. 4 and No. 5 above are associated with only one of the contractors interviewed.

Question 6: This question specifically addresses overtime due to reducing an inspection back log or resulting from inadequate staff size. QC overtime to provide QC coverage of production working overtime is considered to be a normal evolution and was not considered for this question.

Question 7: The inspectors interviewed in general felt that the QC staff was adequate to do the work. Inspectors for two contractors felt that the staff needed additional personnel or more effective utilization of present manpower. All inspectors indicated that their work load varied with production efforts and inspector availability due to sickness, vacation, or involvement in nonroutine inspection activities.

Question 8: The negative answers to this question result from a perceived inadequate QC staff of certain contractors.

Question 9: This question deals with direct authority to stop work/process by placement of a hold tag or not signing off a hold point on a process sheet. Some inspectors must obtain the authorization from their supervisor after verifying the nonconformance. All inspectors interviewed have developed a credibility with craft that they can stop a process upon seeing nonconforming conditions on a verbal basis. Virtually all inspectors interviewed had used this authority if they were authorized its use. Most of the inspectors felt that they would receive management support of a stop work resulting from a valid clear cut nonconformance, however, a few were less confident of support for a borderline case.

Question 10: The inspectors interviewed were satisfied with the training they received with only minor exception. That exception occurs when inspectors are trained in several areas and one or two of the collateral areas was not covered in the same depth as the principal area. All inspectors said they would like more training in the areas they inspect.

Question 11: The affirmative responses are resultant from delays caused by radiographers being unable to work in an area due to safety concerns, thereby holding up work requiring radiography to proceed.

Question 12: Most inspectors interviewed used either a detailed checklist or followed detailed procedures outlining inspection areas to be covered. Those not using checklists/procedures were basically doing inspections that were implicitly covered by the base instructions.

Question 13: All inspectors interviewed felt they had access to their management and that management would get involved. A few were unsure of the extent of access or involvement as a result of personalty differences. None of the inspectors interviewed felt they had no path of problem resolution.

Unresolved Item (440/82-09-10; 441/82-08-10)

Some inspectors interviewed expressed a concern in the area of being certified as a receipt inspector for all items received by a site contractor even though the training received by the inspection personnel was primarily concentrated in one area. This certification was a few years ago and may or may not be present practice. Resolution requires limited certification or a revised training program if the practice still exists. The inspector will be investigating further to resolve the concern.

3. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. Unresolved items disclosed during this inspection are discussed in Paragraphs 2.b.(11).(b), 2.d.(2).(c)., 2.d.(3), and 2.g.(2).

4. Exit Interview

The inspectors met with licensee personnel (denoted in Paragraph 1) at the conclusion of the inspection on July 30, 1982. The inspectors summarized the scope and findings of the special inspection, which were acknowledged by the licensee.

Attachments:

1. Table I, QC/QA Inspection  
Interview Summary
2. Table II, Summary of Questions  
Asked QC/QA Inspectors During  
Interviews

TABLE I

QA/QC INSPECTOR INTERVIEW SUMMARY

<u>ORGANIZATION</u>	<u>FUNCTIONS</u>	<u>TOTAL INSPECTORS</u>	<u>INSPECTORS INTERVIEWED</u>	<u>%</u>
Dick Corporation	Concrete Placement	3	1	33
General Electric Company	NSSS Installer	12	2	17
Johnson Controls, Inc.	I&C Installation	14	2	14
L. K. Comstock & Co., Inc.	Electrical Installation	26	4	15
Metalweld, Inc.	Coatings/Painting	18	2	11
National Engineering and Contracting Company	Concrete Placements	2	1	50
National Mobil Concrete Corporation	Concrete Supplier	2	1	50
Newport News Industrial Corporation	Containment Shell Fabricator	38	4	11
PBI Industries	Structural Steel	9	1	11
Pulman Power Products Corporation	Piping Systems	86	8	9
The Robert Irsay Company	HVAC Installation	5	1	20
United States Testing Co.	Independent Concrete & Civil Inspector	8	1	12

TABLE II

SUMMARY OF QUESTIONS ASKED QC/QA INSPECTORS DURING INTERVIEWS

1. How long employed as an inspector onsite?

<u>&lt; 3 mo.</u>	<u>3-6 mo.</u>	<u>6 mo.-1 yr.</u>	<u>1-2 yr.</u>	<u>2-3 yr.</u>	<u>3-5 yr.</u>	<u>5 yrs.</u>
1	2	2	3	6	11	3

2. Prior inspection experience?

<u>None</u>	<u>&lt; 1 yr.</u>	<u>1-3 yr.</u>	<u>3-5 yr.</u>	<u>&gt;5 yr.</u>
12	4	4	3	5

	<u>N/A</u>	<u>Nuclear</u>	<u>Non-Nuclear</u>	<u>Both</u>
3. What Discipline(s)?	12	7	5	4

	<u>Yes</u>	<u>No</u>	<u>Indefinite</u>
4. Is there a sense of intimidation based upon the need/requirement to keep up with construction?	2	26	0

5. Is there a reluctance to make adverse findings if they will impact on the construction or audit schedule?	1	27	0
--	---	----	---

6. Is it routine for QC inspectors to be working frequent and/or excessive overtime?	4	24	0
--	---	----	---

7. Do the inspectors feel that their particular section is adequately staffed?	20	8	0
--	----	---	---

8. Do they feel the required inspections are being conducted promptly?	24	4	0
--	----	---	---

9. Do the QC inspectors have stop work and/or stop process authority?	22	6	0
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Have they ever used this authority?	21	7	0
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If so do they feel they were supported or will have the support of management in the event of a stop work?	24	1	3
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TABLE II

-2-

10. Do the inspectors feel the training they have been provided is adequate?	24	2	2
11. Do situations arise where the lack of a QC inspector causes construction activities to come to a stop?	5	23	0
12. Are the QC inspectors provided adequate check lists for all activities they are inspecting?	23	5	0
13. Do they feel that they have an avenue to management if they come across a problem?	26	0	2
Do they feel management will get involved?	24	0	4