

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-456/84-07(DRS); 50-457/84-07(DRS)

Docket Nos. 50-456; 50-457

Licensees No. CPPR-132; CPPR-133

Licensee: Commonwealth Edison Company  
P. O. Box 767  
Chicago, IL 60690

Facility Name: Braidwood Station, Units 1 and 2

Inspection At: Braidwood Site, Braidwood, IL

Inspection Conducted: March 26, 28-29, April 3-5, 10-12 and May 23 and 31, 1984

Inspectors: *W. Schulz*  
R. Schulz

7/20/84  
Date

*J. Malloy*  
J. Malloy

7/20/84  
Date

*W. Kropp*  
W. Kropp

7/20/84  
Date

Approved By: *F. Hawkins*  
F. Hawkins, Chief  
Quality Assurance Programs Section

7/20/84  
Date

Inspection Summary

Inspection on March 26, 28-29, April 3-5, 10-12 and May 23 and 31, 1984  
(Reports No. 50-546/84-07(DRS); 50-457/84-07(DRS))

Areas Inspected: Special safety inspection by regional inspectors of activities pertaining to the qualification and certification of quality control inspectors. The inspection involved a total of 64 inspector-hours onsite by three NRC inspectors.

Results: In the areas inspected, four items of noncompliance were identified (failure to suitably establish and implement a personnel training and indoctrination program - Paragraphs 2.b.(2)(b)2.c, 2.b.(2)(b)4. and 2.b.(5); failure to provide adequate training - Paragraph 2.b.(2)(b)5; failure to identify nonconforming conditions - Paragraph 2.b.(2)(b)6; and failure to take appropriate corrective action - Paragraph 2.b.(4)(b)).

DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

R. Cosaro, Construction Site Superintendent  
L. Tapella, Project QC Coordinator  
\*C. D. Gray, Project Structural Supervisor  
C. Mennecke, Project Electrical Supervisor  
T. Quaka, Site QA Superintendent  
T. R. Sommerfield, BCAP Representative  
G. Watts, Licensing and Compliance Staff Assistant  
\*S. Reutcke, QA Engineer  
\*C. Schroeder, Licensing and Compliance Superintendent  
D. Brown, QA Supervisor  
M. Curinka, Field Engineering  
R. Tate, QA Engineer  
\*R. Wrucke, Licensing and Compliance Engineer  
\*D. Shamblin, Project Construction Superintendent  
\*K. Steele, Electrical Supervisor-Project Field Engineering  
\*C. Tomashek, Startup Engineer  
\*M. Gorski, PCD Engineer  
\*W. D. Burns, Staff Assistant  
\*E. R. Netzel, QA Supervisor  
\*R. Farr, Project Mechanical Engineer

Gust K. Newberg Construction Company (Newberg)

J. Harriston, QA Manager  
J. Perryman, Records Clerk  
D. Gorham, Level II Inspector  
C. Zavada, Level II Inspector

Pullman Power Products (Pullman)

R. Waterfield, QA Coordinator  
D. Grant, QA Manager

L. K. Comstock (Comstock)

N. Conner, Level II Weld Inspector  
L. Bossong, Level II Weld Inspector  
M. Gerrish, Level II Weld Inspector  
J. Miner, Level II Weld Inspector  
J. Sumrow, QA, Engineer

Pittsburg Testing Laboratory (PTL)

F. Forest, QC Site Manager

U. S. Nuclear Regulatory Commission (NRC)

L. McGregor, Senior Resident Inspector

\*Denotes those also attending the exit on May 31, 1984.

2. Functional or Program Areas Reviewed

a. Procedures Reviewed

- (1) Newberg Quality Control Procedure, Section 37, Revision 3, "Personnel Qualifications"
- (2) Newberg Quality Control Procedure, Section 31, Revision 9, "Erection and Inspection of Structural Steel"
- (3) Comstock Procedure 4.1.3, Revision B, "Qualification Classification and Training of QA/QC Personnel"
- (4) Napoleon Steel Procedure No. 8, Revision 0, "Personnel Qualification and Certification Program"
- (5) Pullman Procedure B2.1F, Revision 3, "QC Personnel Qualifications"
- (6) CECo Directive BRD 7921, dated January 11, 1983
- (7) CECo Memo, BRD-3630, dated March 11, 1980
- (8) CECo Memo, dated March 27, 1980 (To: Newberg, Phillip-Getshow and L. K. Comstock, From: CECo Construction Manager)

b. Site Contractor QC Inspector Certification Process

(1) General

The inspectors reviewed the present QC certification procedures to verify compliance to ANSI N45.2.6-1978, CECo directives and CECo commitments to Regulatory Guide 1.58. The inspectors also reviewed the certification of selected past and present QC inspectors. The review of the procedures and personnel certification records was performed pertaining to the following contractors:

- (a) Newberg (civil and structural)
- (b) Napoleon Steel (structural and post tensioning)
- (c) Pullman (HVAC)
- (d) L. K. Comstock (electrical)

A CECo directive (BRD 7921), dated January 11, 1983 was not in conformance to Regulatory Guide 1.58, in that, the directive allowed site contractors to certify individuals as Level I or Level II inspectors when they did not meet the specified experience requirements.

Specifically, the directive allowed this practice when on-the-job training was increased to the satisfaction of site contractor Level III. The CECo commitment to Regulatory Guide 1.58 as stated on Amendment 33 (October 1981) to the FSAR committed the licensee to the experience requirements specified in Section 3.5 of ANSI N45.2.6-1978.

The CECo directive (BRD 7921) required the following minimum training for individuals being certified as a Level I or Level II inspector:

- 1 Required Reading
- 2 Formal Lecture (9 hours)
- 3 40 hours of mock inspections (on the job training)
- 4 General Test
- 5 Specific Test

Even though the CECo directive (BRD 7921) is in conflict with the CECo commitment to Regulatory Guide 1.58, it appears the training and certification program described is an acceptable alternative to the experience levels defined in ANSI N45.2.6. This matter is considered an open item pending resolution of the conflict between CECo directive BRD 7921 and the FSAR (456/84-07-01; 456/84-07-01).

The inspectors reviewed CECo correspondence BRD 3630, dated March 11, 1980, and a memo dated March 27, 1980. Correspondence BRD 3630 required that each site contractor prepare a personnel qualification procedure which met the intent of ANSI N45.2.6. This correspondence further stated that if a qualification procedure already existed, the site contractors were to review and revise it to conform with ANSI N45.2.6. Correspondence BRD 3630 was sent to site contractors Newberg, Phillip-Getshow, and Comstock. Site records indicated that the correspondence was not sent to site contractor Napoleon Steel. As a result, Napoleon Steel did not have a procedure for certifying QC inspectors. The lack of a personnel qualification procedure for Napoleon Steel was identified during a CECo audit (QA-20-80-22) in May, 1980. Paragraph 2.b.(4) of this inspection report documents further details regarding the audit finding.

(2) L. K. Comstock

(a) Present Certification Program

The present Comstock certification procedure, "Qualification, Classification and Training of QA/QC Personnel," Revision B was reviewed by the inspector and verified to be in compliance with ANSI N45.2.6-1978. Individuals were required to participate in 40 hours of mock inspections, eight hours of lecture/demonstration, and one hour of formal lecture prior to certification as a Level I or

Level II inspector. Individuals were also required to pass (80% or above) a general test of 40 questions and a specific/practical exam using a checklist and inspection tools.

(b) QC Inspector Certification

1 The NRC inspectors reviewed certification documentation of four QC inspectors who were certified on October 20, 1981; June 22, 1982; July 7, 1981; and July 8, 1981. The certification documentation was reviewed to verify compliance to the Comstock procedure in effect at the time the inspectors were certified. The procedure allowed certification of individuals without related experience when other factors provided reasonable assurance that an individual could competently perform a particular task. Two of the inspectors were certified without any related experience. The basis for certifying these individuals consisted of field training and an open book test. The certification process of these two individuals was determined to be in compliance with the regulatory requirements and the procedural requirements of the Comstock certification procedure in effect at the time of their certification.

2 One aspect of the prospective inspectors' training consisted of a Familiarization Log which identified specific codes and procedures to be read. Discussion with Comstock's QA Department revealed that there was no formal system for identifying required reading for a specific inspection activity. As a result, the required reading completed by weld inspectors was not consistent for each individual. The inconsistencies were as follows:

a One QC Inspector did not read QC Manual, Section 4.8.15 ("Document Control") and the AWS D.1.1 Code

b One QC Inspector did not read QC Manual, Section 4.8.2 ("MIG Welding Inspection") and Section 4.3.14 ("Manual Shielded Metal Arc Welding Stainless Steel")

c One QC Inspector did not read QC Manual, Section 4.8.2 ("MIG Welding Inspection")

This failure to establish and implement an indoctrination and training program documented by written policies, procedures or instructions is considered to be an item of noncompliance with 10 CFR 50, Appendix B, Criterion II. (456/84-07-02(a); 456/84-07-02(a))

3 The review of the certification folders for three inspectors revealed that the folders did not contain the written QA test as required by Comstock Procedure 4.1.3 and CECO directive BRD 7921. The tests were subsequently located by the licensee and reviewed by the inspector. The test consisted of three questions with each question being weighted respectively, (45%, 40%, 15%). Therefore, the third question, which appeared to be the most difficult, could be missed and the individual would have a passing grade of 85%. Licensee personnel stated that the test was being revised to resolve the inspector's concern. This matter is considered an open item (456/84-07-03; 457/84-07-03).

4 The inspector reviewed the practical test given to four prospective weld inspectors. The practical tests included the inspection of installed items under the supervision of a Level II weld inspector. The practical test performed by these four inspectors did not test the individuals' capability of identifying weld defects because the items which were inspected did not contain weld defects (i.e., undercut, cracks, porosity, etc).

This failure to establish a suitable program for conducting practical tests is a further example of noncompliance with 10 CFR 50, Appendix B, Criterion II (456/84-07-02(b); 456/84-06-02(b)).

5 Interviews were conducted with four Level II weld inspectors to assess their working knowledge of the AWS D1.1 Structural Welding Code. The AWS Code was the applicable welding code for Comstock activities. The NRC inspectors concluded from the interviews that the Comstock inspectors had not achieved the necessary level of competency to perform their assigned weld inspection tasks. This was evidenced by the inability of the weld inspectors to state the correct tolerance for weld fit-up and the proper technique for the repair of cracks as required by AWS D1.1. This failure to provide for indoctrination and training of personnel performing activities affecting quality is considered to be an item of noncompliance with 10 CFR 50, Appendix B, Criterion II (456/84-07-04; 457/84-07-04).

6 Mock inspections totalling at least 40 hours had been performed by prospective weld inspectors. These mock inspections were performed on installed items (i.e. cable hangers, cable trays, etc.) under the direct supervision of a Level II weld inspector. The inspector checklist for one mock inspection report

contained the statement, "welds repaired prior to acceptance." Discussions with the four Level II welding inspectors revealed that defects identified during a final QC inspection were allowed to be reworked/repared by craft personnel. This practice, in effect, circumvented the Comstock nonconformance reporting system. Comstock Procedure 4.11 ("Nonconforming Items and Corrective Action") requires that a nonconformance report be initiated by QC personnel on detection of deviations that conflict with specifications and/or drawings. This failure to assure that nonconforming items are reviewed and accepted, rejected, repaired, or reworked in accordance with documented procedures is considered to be an item of noncompliance with 10 CFR 50, Appendix B, Criterion XV (456/84-07-05; 457/84-07-05).

(3) Pullman Power Products

The inspectors reviewed the present Pullman certification procedure and it was determined to be in compliance with ANSI N45.2.6-1978. The certifications of four previously employed QC inspectors and four present QC inspectors were reviewed. The practical tests administered to prospective weld inspectors consisted of weld coupons with known defects that the inspector was required to identify. No items of noncompliance or deviations were identified.

(4) Napolean Steel

The NRC inspectors reviewed the QC inspector certification process for Napolean Steel. Although no longer on site, Napolean Steel had performed concrete preplacement, reinforcing steel, cadwelding, post-tensioning, and inprocess containment structural steel weldments inspections.

Prior to August 4, 1980, Napolean did not have an approved procedure to qualify and certify QC inspectors. Review of CECO audits performed on Napolean Steel revealed the following:

- (a) Audit QA-20-78-23, performed on June 30, 1978, was a special audit to verify Napolean was in compliance with the intent of ANSI N45.2.6. No significant audit findings were noted by the licensee.
- (b) Audit QA-20-80-22, performed on May 30, 1980, identified Napolean did not have a procedure for qualifying and certifying QC Inspectors. The specified corrective action required Napolean to write and issue a procedure for certifying QC inspectors. The corrective action did not assess the adequacy of the inspectors' qualifications for potential impact on work performed prior to the audit

finding. These inspectors had performed inspection in the areas of concrete preplacement, reinforcing steel installation, cadwelding activities, and containment structural steel welding. This failure to take appropriate corrective action in regard to an identified nonconformance is considered to be an item of noncompliance with 10 CFR 50, Appendix B, Criterion XVI. (456/84-07-06; 457/84-07-06)

The inspector reviewed the Napolean Procedure NSCI-8, Revision 0 ("Personnel Qualification and Certification Program"). The procedure was written and issued as a result of CECO audit QA-20-80-22. The procedure allowed individuals with a high school diploma and no related experience to be certified with indoctrination in the QA program and six hours of on-the-job training in each specific quality control procedure applicable to the area of certification. Amendment 33 of the Braidwood FSAR, dated October 1981, stated that CECO complied with Regulatory Guide 1.58 (September 1980), position 6, with no exception to experience requirements. However, Napolean Procedure NSCI-8, Revision 0, was not revised subsequent to Amendment 33 of the FSAR to comply with CECO's commitment to Regulatory Guide 1.58. A review of certification files of QC inspectors certified after October 1981 revealed that one inspector was certified without any previous related experience. The review of the file for the inspector revealed that he was hired August 6, 1982, and certified as Level I in field button heading of post tensioning tendons (8/10/82); post tensioning tendon installation (8/18/82); and stressing of post tensioning tendons (8/18/82). The inspector had no previous related experience and certification was based on eight days of on-the-job training and a written examination. The certification of this individual was in accordance with Napolean procedure, NSCI-8. Even though Napolean procedure NSCI-8 did not meet the requirements of CECO's commitment to Regulatory Guide 1.58, the training received by the individual was appropriate for the narrowly defined area of inspection responsibility. The inspector has no further questions regarding this matter at this time.

(5) Gust K. Newberg Construction Company

The inspector reviewed the Newberg Quality Control Procedure, "Personnel Qualification", Section 37, Revision 3, to verify compliance with ANSI N45.2.6-1978. The procedure was reviewed to ensure inclusion of experience and education requirements for the inspectors.

The inspector reviewed the certification records for eight Newberg inspectors. The certification review included the verification of experience, education, and certification tests. The tests included a general written test, specific written test, and practical oral test administered by a Level II or Level III inspector. The method of conducting the practical tests was reviewed and found to be acceptable.

Additionally, six general tests were reviewed and three were found to be graded incorrectly. According to Table 1 of Section 37, the requirement for passing the general test was a score of 80%. One Newberg structural steel and concrete expansion anchor Level II inspector answered 31 of 40 questions correctly; constituting a failing score of 77.5%. This general test was erroneously scored 80% and the 80% score was documented on Form 37-1, "Qualification Examination Form." When identified to the Newberg Quality Assurance Manager, he stated that the inspector would be retested. Also, general tests for two other inspectors were incorrectly graded. Two questions for each individual were marked correct when in fact they were the wrong answers. After the correction, the scores for both individuals were still above 80%. These three instances of failing to carry out the training and indoctrination program in accordance with written policies, procedures, and instructions is considered to be a further example of noncompliance with 10 CFR 50, Appendix B, Criterion II (456/84-07-02(c); 456/84-07-02(c)).

Newberg began conducting QC inspections at Braidwood as early as March 1, 1976. The Newberg Quality Control Procedure, "Personnel Qualifications", Revision 0, was dated March 19, 1980. Prior to March 19, 1980, no procedural requirements existed for personnel qualification. However, a review of qualification records for three QC inspectors who performed inspections prior to March, 1980, indicated the inspectors were qualified to perform their assigned tasks.

### 3. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspectors, and which involve some action on the part of the NRC or licensee or both. Open items disclosed during the inspection are discussed in Paragraphs 2.b.(1) and 2.b.(2)(b)3.

### 4. Exit Interview

The inspectors met licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on May 31, 1984. The inspectors summarized the scope and results of the inspection.