



Commonwealth Edison
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April 8, 1985

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Mr. James G. Keppler
Regional Administrator
U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

SUBJECT: Braidwood Station Units 1 and 2
Corrective Action Programs
NRC Docket Nos. 50-456/457

Dear Mr. Keppler:

In early March, 1985, Mr. L. O. DelGeorge of Commonwealth Edison, in a discussion with Mr. Bert Davis of your staff, agreed to provide an update of the current "top twenty" corrective action programs at Braidwood. The purpose of this letter is to provide a summary of each of these programs including a description of actions taken or planned, the current status of such actions, and expected completion dates where available.

The programs summarized on the attachments have been selected for special attention at Braidwood. The selected programs are subject to change as issues are resolved or new issues arise.

Please address any questions that you or your staff may have concerning this matter to this office.

Very truly yours,

Handwritten signature: David H. Smith

David H. Smith
Nuclear Licensing Administrator

/klj

cc: NRC Resident Inspector - Braidwood

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Braidwood
Corrective Action Program
ASME Material Procurement

NCR-655
50.55(e) 84-16

A sample review of records of past site-procured ASME material revealed that the records do not always indicate that the material was supplied in accordance with the ASME Material Manufacturers and Material Suppliers Quality System Program requirements. Program statements or ASME Quality System Certificates are not always referenced on the documents received with the material.

The problem with the records was partially identified in 1981 but adequate measures were not established to control the materials and provide complete corrective action to the identified records. An initial review has indicated the following inadequacies which have contributed to the problem:

1. Quality requirements not included on site procurement records.
2. Inadequate documentation reviews during receipt inspections.
3. Inadequate corrective action for ASME material suppliers removed from CEC Co Approved Bidder List.
4. Procurement of ASME material from vendors with only Safety-related Approved Programs.

Based on initial reviews of the records, site-procured ASME materials received prior to October 27, 1981, which were still in stock were put on hold. Project Procedure PFE-100-1 was approved for the review of the site-procured ASME material documentation.

Essentially all documentation for materials received prior to October 27, 1981, has been reviewed. At this time, the documentation review for materials received since October 27, 1981, is still in progress. It is estimated that the entire review effort is over 90% complete.

For the records which have been reviewed, approximately 1600 heat/lot numbers out of an estimated 4000 heat/lot numbers require some type of revised or additional documentation from the original manufacturers and/or material suppliers. Materials with questionable documentation received since October 27, 1981 are being placed on hold until the documentation problems are resolved. Of the estimated 4000 heat/lot numbers, approximately 2% require other corrective actions to bring the documentation into conformance with ASME Section III requirements.

Commonwealth Edison Company is working expeditiously with vendors to obtain revised or additional documentation which meets ASME Section III requirements or resolves technical questions. Issue resolution is anticipated by December, 1985.

Braidwood
Corrective Action Program
ASME Nameplates

NCR-639
50.55(e) 84-12

ASME NPT symbol nameplates were removed from piping subassemblies during installation without proper controls and documentation. Nondestructive examinations of the nameplate removal areas, required by ASME Section III, were not subsequently performed. In addition, the removal of ASME NPT nameplates leaves installed spool pieces without ASME Code-required positive identification. This issue affects 2-1/2 inch and larger piping spools fabricated by Southwest Fabricating and Welding under Sargent & Lundy Specification L-2741.

Phillips Getschow Company has developed procedure PGCP-51, "Verification of Code Nameplate Data and Resolution of Discrepancies." This procedure defines the following corrective actions:

1. Spools without nameplates will be positively traced using vendor fabrication documentation.
2. An examination of the spools without nameplates will be performed to locate nameplate removal areas.
3. Where nameplate removal areas have been located, ASME Section III required nondestructive examination will be performed and pipe wall thickness measurements will be made.
4. Any required repair to the nameplate removal area will be performed per established procedures.
5. With the concurrence of Commonwealth Edison Co. and the Authorized Nuclear Inspector, replacement identification plates will be attached to the installed spool pieces.
6. Spools for which the nameplate removal area can not be located will be dispositioned on a PGCO Nonconformance Report which will be submitted to Commonwealth Edison Company for disposition on a case-by-case basis.

Spool identification was conducted as part of the Material Verification Program. A list is being developed by Phillips, Getschow Company of isometric drawings not within the scope of MTV. Piping not within the scope of MTV that was not subject to installation procedures to properly control removal of NPT nameplates will have a separate visual exam to verify nameplate attachment.

As of March 1, 1985, 480 spools with missing nameplates have been identified. It is projected that the total population of deficient spools will be about 600. Field verification actions relative to the identified spools are in progress. A completion date of October 1, 1985, is currently projected for this program.

Braidwood

Corrective Action Program

Corroded Pipe

NCR-633R1
50.55(e) 84-10

Initial inspections of two-inch schedule 80 carbon steel pipe, Heat Number KD6751 purchased as ASME Class II, determined that approximately 25% of the pipe in storage had wall thicknesses less than that required by the ASTM material specification. The reduced wall thickness, which is primarily present as pits and grooves, apparently is the result of excessive corrosion. This pipe was stored outdoors for an extended period of time after receipt in 1977. In 1981, corroded conditions were observed in the field and the pipe was subsequently chemically cleaned and stored indoors. The chemical cleaning process was purchased as a non-safety related standard commercial service. Specific chemical cleaning procedures were documented, however, and incorporated into the purchase order.

Other lots of small bore safety-related carbon steel pipe were received in bulk quantities during the same time period (1977) and also subjected to prolonged outdoor exposure. A large quantity of this pipe suffered excessive corrosion and was chemically cleaned along with Heat Number KD7651. Continuing investigations by Commonwealth Edison Company have indicated that the wall thickness problem is not confined to Heat Number KD6751. Consequently, all small bore safety-related carbon steel pipe, which was stored outdoors for extended periods, has been categorized as suspect pending further evaluations. Nine heats of material (ten size/schedule combinations) are affected. Quantities of the suspect pipe have been installed in various plant systems including Class B, C and H safety-related systems.

Commonwealth Edison Company NCR 633 (Rev. 1) was written to track issue resolution. All suspect pipe in storage has been placed on hold pending the dispositioning of installed pipe.

A corrective action program has been developed by Commonwealth Edison Company and Sargent & Lundy to disposition the subject pipe that has been installed. The corrective action program includes the following elements.

1. Laboratory testing to verify the design significant properties of the suspect pipe.
2. Analysis to evaluate the effect of prolonged outdoor storage and subsequent chemical cleaning.
3. Measurement of the actual wall thickness of samples of suspect pipe taken from both installed pipe and pipe on hold in storage.

4. Analytical analysis of laboratory testing results and pipe wall thickness measurements to determine the acceptability of installed piping relative to ASME Section III design requirements.

As of March 1, 1985, the laboratory testing program has been completed. A final report is being prepared for evaluation by PED/S&L. The procedure for selecting pipe samples and thickness measurements has been developed and has received interim approval. Pipe inventories are being taken to support sample selection and subsequent thickness measurements. Program completion is expected by July 1, 1985, at which time the extent of rework, if any, will be identified.

Braidwood
Corrective Action Program
Material Traceability Verification

NCR-541
50.55(e) 83-07

At the time of issue identification, Phillips, Getschow Company Procedure QCP-B21, Installation and/or Field Routing of Two Inch and Under Process Piping Systems - ASME Classes 1, 2 and 3, established the procedural controls for inspection and verification of correct small bore process piping material. Phillips, Getschow Company Audit No. 83-BR3 (April 26, 1983) identified a Finding, that the verification of different heat numbers on the Production drawings was not completed in cases where more than one heat number per drawing was being used. In response to NRC concerns related to material traceability, Commonwealth Edison Company filed a potential 10 CFR 50.55(e) deficiency report in July, 1983. This 50.55(e) report stated that the quality control verification of heat or mark numbers of installed piping systems was not adequately documented.

Procedure QCP-B21 was revised in June, 1983 to require verification of Code small bore material heat numbers on drawings. Specifically, the Quality Control inspector would verify all entries of traceability numbers made by Production and this verification would be documented by initial and date.

In order to establish a level of confidence that material traceability exists for previous Code small bore piping installations, Phillips, Getschow Company began traceability verifications in August, 1983. This verification was based on random samples of previously installed Code small bore piping. The samples were selected in accordance with Military Standard MIL-STD-105D.

The preliminary results of the sample inspection program were reviewed by NRC personnel as documented in the NRC Inspection Report Nos. 50-456/83-09 and 50-457/83-09. The sample inspection program identified a small number of cases in which installed piping material was not in compliance with design requirements. Additionally, a Commonwealth Edison Site QA Audit 20-83-33 dated July 15, 1983, identified a case in which installed piping material was of a code class different from that required by the design. As a result of the sample inspection program and subsequent discussions with NRC personnel, CECO developed the Piping Heat Number Material Traceability Verification (MTV) Program.

The scope of the MTV Program includes ASME small bore piping installed prior to August 31, 1983, and ASME large bore piping installed prior to November 30, 1982. (Documentation of the verification of material traceability by QC personnel has been generated for piping installed subsequent to these dates.) This Program will ensure that the installed material is traceable and that the material is in accordance with design requirements.

Program Details are contained in Phillips-Getschow Procedure QCP B31. The procedure requires completion of the following steps:

1. A material verification field walkdown on 100% of previously installed piping will be completed. The material heat number will be recorded and/or verified by a Quality Control inspector. A check will be made to ensure that the field verified heat number is approved for use at Braidwood Station.
2. A Quality Control verification will be made of field verified material heat numbers against the heat numbers recorded on the Stores Request for each installation package. This verification will establish that material withdrawn from Stores was installed in the correct location.
3. A Quality Control verification will be made of field verified material heat numbers to ensure that the correct material is installed for the specific application.
4. For those cases where material heat markings are no longer available in the field, a Quality Control review will be made of the Stores Request to verify that the material was approved for use at Braidwood Station and was the correct material for specific application.

As of March 1, 1985, all field inspections and verifications are complete. Phillips, Getschow is in the process of compiling, sorting and reviewing all data prior to turnover to CECO. Nonconformance reports have been written to disposition unvarified material. In conjunction with nonconformance resolutions, a procedure for heat number verification via chemical sampling is being developed.

Braidwood
Corrective Action Program
CEA Inspections

NCR-658
50.55(e) 84-17

A review of the Braidwood Station Contractor Programs for concrete expansion anchor (CEA) installations has revealed that:

1. The number and types of attributes considered significant to the quality of a CEA installation and verified by Quality Control personnel are not consistent with those observed in CEA Installation Programs at our LaSalle County and Byron Stations.
2. A small number of those attributes considered significant to the quality of a CEA installation have not been verified by Production and/or Quality Control personnel.
3. An apparent trend exists of CEA installation rejections by the Quality Assurance Department's Independent Inspection Agency for attributes they have inspected.

The procedures affecting the installation of Concrete Expansion Anchors for the four contractors performing Safety Related installations (Phillips Getschow Co., L. K. Comstock, G. K. Newberg and Pullman Sheet Metal) have been revised to include increased Production verification and Quality Control verification of all attributes considered significant to the quality of a CEA installation.

In an effort to provide assurance that future CEA installations will be installed, inspected and documented in a consistent manner, the Commonwealth Edison Company, in conjunction with Sargent & Lundy, has developed a generic procedure for the installation and inspection of CEA's. This generic procedure includes recommendations of The Institute of Nuclear Power Operations (INPO) contained in INPO Good Practice (Draft) - "Installation of Concrete Expansion Anchors". This procedure, PCD-08 "On Site Contractor Installation and Inspection of Concrete Expansion Anchors", was transmitted to the contractors performing CEA installation activities for implementation on March 4, 1985.

In an effort to ascertain the quality of past CEA work, a sampling reinspection program is under development which will determine if the lack of Quality Control involvement in CEA activities has resulted in nonconforming installations. A new procedure, PCD-30, "Evaluation of Concrete Expansion Anchor Installations", has been distributed to applicable site contractors. Sample populations are currently being selected based on lists of prior installations supplied by the Contractors. It is anticipated that reinspections will be initiated in April.

Braidwood
Corrective Action Program
CEA's In Repaired Areas

NCR-634
50.55(e) 84-07

Contrary to Sargent and Lundy Specification BY-BR-CEA, Section 3.1.9, the embedment length of Concrete Expansion Anchors (CEAs) installed through surface repaired concrete extending beyond the reinforcing steel cover was not increased by the "X" dimension shown in figure 38-5 (X=thickness of concrete cover plus nominal diameters of outside reinforcing steel). As a result, CEA installations have anchor embedment lengths which are potentially less than the required minimum.

For new installations in surface repaired concrete areas, all contractors installing CEAs were sent a set of drawings showing major patches (repairs to areas which had exposed rebar). As any new major patches are made, revised drawings are being transmitted to all CEA installation contractors. Additionally, major patched areas have been physically demarcated.

For previous installations in surface repaired concrete areas, Sargent & Lundy completed a walk down in order to map the size and location and to determine the acceptability of previous CEA installations. Walkdown results are currently being evaluated. When evaluation of the walkdown results is finished, a completion date will be determined.

Braidwood

Corrective Action Program

CEA's In Finished Slabs

NCR-617
50.55(e) 84-07

Contrary to Sargent and Lundy Specification BY-BR-CEA, Section 3.1.5. the embedment length of Concrete Expansion Anchors (CEAs) installed in finished slabs was measured from the elevation of the finished floor rather than from that of the rough concrete. As a result, CEA installations have anchor embedment lengths which are potentially less than the required minimum.

For new installations in finished floors, all contractors installing CEAs have been instructed to notify Sargent & Lundy and obtain the correct embedment length prior to installation.

For previous installations in finished floor areas, Sargent & Lundy completed a walkdown of the finished floor areas in order to map the size and location, and to determine the acceptability of previous CEA installations. Forty-five installations were identified during the review of the data obtained during the walkdown. Even though none were of design significance, they are currently being reworked in accordance with Sargent and Lundy requirements. Completion is expected in June, 1985.

Braidwood

Corrective Action Program

Welded and Bolted Connections - Block Wall Columns

NCR-434
50.55(e) 82-10

During a Site Quality Assurance review of contractors' work procedures, it was determined that inadequate provisions exist to ensure bolt torque and weld inspection for structural steel installation. The provisions for performing the structural steel installation were found to be generally adequate. The deficiency is limited to G. K. Newberg's installation of blockwall columns and miscellaneous structural steel in the Auxiliary Building.

All accessible welded and bolted connections which had missing QC inspection records have been either QC inspected and accepted, or have been repaired and QC accepted.

A review of installation inspection records identified a total of 2436 inaccessible welded and bolted connections with missing inspection records. The block walls have been removed from around a sample of 180 inaccessible bolted and welded connections and the connections have been inspected and evaluated by Sargent & Lundy. The types of discrepancies found during the sample inspection program include: (1) AWS weld quality deficiencies such as overlap, undercut, included slag, fit-up gaps, undersize welds; (2) incomplete welds; (3) bolting deficiencies such as bolt locations in the slots and width of slots; (4) member and connection angle size changes; and (5) expansion anchor embedment lengths. None of the inspected connections were determined to have discrepancies with design significance (i.e., design margin remains within specified limits and code allowable stresses).

Commonwealth Edison Company has decided to repair or upgrade and inspect all inaccessible connections with inadequate records. One of the reasons for this decision is that Byron loads were used in the evaluation for design significance. The actual Braidwood loads, when they become available near completion of construction, may in some cases be greater than the Byron loadings. From a construction standpoint, it is more prudent to make modifications now, and upgrade the walls to increase design margins, rather than making modifications shortly before fuel load when the actual Braidwood loadings become available.

There are 83 miscellaneous structural beam connections embedded in concrete and/or masonry. Of these, nine connections do not require inspection or rework since the beam reaction can be transferred directly to the concrete wall in which they are embedded. Thus, these connections were required only during construction. The remainder of the beam connections will be included in the inspection and rework program.

While performing the sample inspections, it was also noted that some shop welds on the blockwall columns had some discrepancies similar to those found for field welds. Sargent & Lundy developed a sample inspection program to address the adequacy of blockwall column shop welds. Blockwall columns were supplied by American Bridge, Mid City, or Ramco. The inspections were performed as part of the inspection and rework program for field welds. Those shop weld discrepancies were evaluated by Sargent & Lundy for engineering significance and none was found.

Inspections, rework, and/or modifications of the field installations without inspection records and examination of the shop welds are being performed in accordance with Gust K. Newberg Procedure 57. There are approximately 1050 inaccessible members to be resolved. As of March 1, 1985, 473 members have been exposed and inspections are ongoing. It is anticipated that Unit 1 related work will be complete by September, 1985.

Braidwood

Corrective Action Program

HVAC Installation Tolerances

NCR-460R1
50.55(e) 83-01

A number of HVAC safety-related hangers, auxiliary steel, and bracing were not installed in accordance with dimensional tolerances and typical details as shown on the Sargent and Lundy design drawings.

The following actions were taken to resolve this issue:

1. The Pullman Sheet Metal procedure addressing configuration inspection of all hangers, auxiliary steel, and bracing was revised.
2. Design tolerances were clarified and additional tolerances were provided in order to achieve proper installation and inspection of the HVAC system.
3. Safety-related HVAC field installation work is being inspected in accordance with the revised inspection procedure to insure compliance with design details and tolerances.
4. A backfit program has been established for the inspection of hangers, braces and auxiliary steel installed prior to the implementation of Pullman's revised configuration inspection procedure.

The total scope of the backfit program involved 1676 hangers, 918 auxiliary steel components, and 228 braces (2822 total). Reinspections identified 813 items which required rework. As of March 1, 1985, 611 items remain unresolved.

Braidwood
Corrective Action Program
NSSS Supports

NCR-489
50.55(e) 83-03

As a result of reviewing the as-built locations of Unit 1 and 2 Steam Generators and Reactor Coolant Pump Support Columns (NSSS), it was determined that the locations exceeded the tolerances shown on S&L drawing S-1105.

S&L revised drawing S-1105 to incorporate tolerances based on the functional requirements of the NSSS components. Based on the review of field verification data, it has been determined that all subject component installations are adequate. FCR's developed in association with acceptance of the reactor coolant pumps were approved in June, 1984. One FCR (17027) was required for Steam Generator acceptance. This FCR is currently at PCD for approval.

Braidwood
Corrective Action Program
Southwest Fab Radiographs

NCR-606

During the NRC Mobile Van Inspection at Braidwood, Radiographs for ASME Section III Code piping supplied by Southwest Fabrication were found to have degraded film quality due to improper processing. The yellowed film was not acceptable for ASME extended archive storage requirements. This issue was an Item of Noncompliance in Inspection Report 84-05 (Item No. 84-05-08).

In order to prevent recurrence, Pittsburgh Testing Lab is performing testing of film for archive quality on a daily sample basis. Additionally the radiograph turnover Procedure SQI-24 was revised to require sample checking for film yellowing caused by inadequate fixer removal prior to turnover to the Station.

The initial S & L disposition of NCR-606 consisted of:

- 1) Review of sample of film for visible yellowing and
- 2) Determination of potential for future deterioration by chemical testing.
- 3) Corrective actions to be based on results of Items #1 and #2

The preliminary review for visible yellowing was completed with 553 welds consisting of 2500 views. Five views associated with five (5) different welds were found to exhibit sign of visible yellowing represents two tenths of one percent (0.2%). (It should be noted that the recent CAT inspection included a review of approx. 160 Southwest Fab welds with no visible film yellowing noted.)

The chemical testing referred to in Item 2 of the recommended disposition was found to be unsuitable for determination of the potential for future deterioration. An alternate test is available; however, it requires destruction of a sample cut from the film. This is felt to be an unacceptable alternative.

As a result of the limitations encountered with the options for determining and dispositioning the yellow film issue, CECO intends to rewash Southwest Fabrication radiographs and return to file. Any film found to exhibit conditions which render the film uninterpretable will be reshot as required to comply with Code requirements. The current completion date is projected for July, 1985.

Braidwood

Corrective Action Program

PTL Radiograph Density

NCR-609-R1
50.55(e) 84-04

This issue is associated with radiographs which were originally reviewed/interpreted by the Site Independent Testing Agency, Pittsburgh Testing Laboratory (PTL). The issue developed when, upon re-review of radiographic film representing pipe weldments, it was noted that certain views of the film contained out of tolerance densities. The initial discrepancy was found in a limited number of field-shot, site evaluated radiographs. Preliminary investigation seemed to indicate that one individual was responsible for the questionable density interpretations for radiographs taken prior to September, 1979 (July, 1976 to construction shutdown). Reviews of radiographs shot prior to September, 1979 also indicated the presence of some marginal interpretations of film indications.

The re-review of film was then expanded to include all film interpreted by the questionable reviewer through 1980, and a sample of film reviewed by all others through 1980. The results of the expanded review indicated that the problem radiographs dated only from the July 1976 to September, 1979 period. The following tabulation identifies, by contractor, the total population of radiographs requiring investigation.

1) Production Radiographs (Phillips, Getschow)	974
2) Phillips, Getschow Welder Qualifications	279
3) G. K. Newberg Welder Qualifications	19
4) Power Systems Inc. Welder Qualifications	84
5) Universal Power Piping Welder Qualifications	2
Total	<u>1358</u>

The re-review conducted by qualified Level II and/or III Interpreters, as necessary, has yielded the following results:

- 1) Of the 965 production radiographs reviewed for both density concerns and quality related indications, 104 were not accepted. The current status of these 104 radiographic packages indicates that 59 have been repaired and/or re-radiographed to comply with Code requirements. Approximately 30 remain that are accessible for radiography and PGCo Q.C. is preparing these welds for radiography. Approximately 20 are on the Unit 2 Containment spray header which is currently inaccessible.

The 9 additional production radiographic packages needed to account for all 974 radiographic packages have yet to be located. Consequently, Commonwealth Edison Company has directed PTL to re-radiograph these 9 welds and provide results to Commonwealth Edison Company. These actions are also underway.

- 2) In regard to the 279 Phillips, Getschow welder qualification packages, all have been re-reviewed with 62 identified as not acceptable. Commonwealth Edison is currently developing a program to satisfactorily address the rejected Phillips, Getschow welder qualifications.
- 3) For G. K. Newberg, 19 welder qualifications required review, with all 19 found acceptable. As a result of these welder qualifications meeting Code requirements, no further action is required.
- 4) For the period of interest 84 welder qualifications were radiographed for Powers Systems Inc. Because Power Systems Inc. has completed their scope of work relative to the Braidwood Project, they are no longer on site. Consequently, Powers System Inc. was contacted and requested to provide these radiographs to Commonwealth Edison Company for additional review. The written response from Powers Systems Inc. indicates that all welder qualification radiographs have been discarded and were no longer available for review.

As a result, Commonwealth Edison Company will establish if the work performed by Power Systems was safety related or non-safety related. If the work is determined to be non-safety related, no additional actions need to be taken. If the work performed is determined to be safety related, the program under development for Phillips, Getschow discussed above will also be used to resolve Powers Systems Inc. welder qualification packages.

- 5) The final contractor qualifying welders by radiography during the subject time frame was Universal Power Piping Inc. Only 2 welder qualifications were performed during this period for work conducted at the Commonwealth Edison Company's Dresden facility. Universal Power Piping Inc., has indicated that these radiographs have been discarded and are no longer available for review. After further investigation with Commonwealth Edison Company personnel at Dresden, it was determined that during the time frame referenced, Universal Power Piping Inc. was only performing work on Dresden Unit 1. Because Dresden Unit 1 is currently being decommissioned, no further action needs to be taken.

Issue resolution is contingent on development of a disposition for PGCo and Power Systems Welder Qualification. No completion date is forecast at this time.

Braidwood
Corrective Action Program
NSSS Support Steel

NCR-446

NSSS Support Steel was installed by G. K. Newberg without Q.C. Inspection. This issue is being resolved by NISCO as a part of the NSSS backfit program. NISCO procedure ES-3009-CECo-1, which addresses the backfit program, requires inspections to verify:

1. The traceability of all materials installed by G. K. Newberg.
2. Proper location and orientation of NSSS components.

Untraceable or nonconforming materials are written up and tracked by NISCO NCR's. In general, accessible materials without traceability are being replaced. This includes all A-490 bolting. Inaccessible materials are being dispositioned by S&L.

This issue, as of March 1, 1985, is nearing completion with only the replacement of approximately 500 nuts and bolts remaining. Completion is expected by May, 1985.

Braidwood

Corrective Action Program

Electrical Butt Splices

NCR-598
50.55(e) 84-13

L. K. Comstock procedures did not include the manufacturer's (AMP Industries) installation instructions or inspection criteria for conductor extension butt splices. A small sample (29 total) of the installed butt splices indicated a rejection rate of 38% (11 total). Consequently, the quality of the butt splice installations in this application are suspect.

A program was developed to ensure that all potentially deficient safety related butt splices are identified and inspected. Deficient splices will be repaired and reinspected in accordance with revised installation and inspection procedures. This program also provides for adequate documentation of corrective action activities. Currently, a listing of all cables/equipment potentially utilizing butt splices is being developed using documentation associated with completed and accepted terminations. Training sessions will be conducted for personnel involved in the implementation of the corrective action program. List completion, training, and initiation of inspection activities is anticipated by April 1, 1985. Overall program completion is projected for September, 1985.

Braidwood

Corrective Action Program

SSIT Document Review

50.55(e) 84-05

An overview of certain G. K. Newberg Structural Steel Installation Traveler (SSIT) packages has revealed some inconsistencies in the documentation which include: heat numbers that have been changed on the fabrication tickets, recorded length of welds on weld inspection requests that have been changed, and use of alternate details that were not noted. These changes have been lined out, initialed, dated, and there is no explanation as to why these changes were made.

Document reconciliation will be accomplished thru a review of all SSIT packages generated by Gust K. Newberg. This review will begin upon approval of G. K. Newberg's document review procedure (Procedure 29-1). The procedure is expected to be finalized by April 1, 1985. It is anticipated that the SSIT review will take approximately 3 months.

Braidwood

Corrective Action Program

G. K. Newberg Welding Program

NCR-646
50.55(e) 84-15

A review of Gust K. Newberg welding has revealed some inconsistencies in the Gust K. Newberg welding program. These inconsistencies can be categorized as 1) Gust K. Newberg engineers specified AWS weld process specifications (WPS) that had not been incorporated into the Gust K. Newberg welding procedure for flux core welding, specified improper WPS's or did not specify WPS's for all joints, 2) Gust K. Newberg ironworkers welded to AWS pre-qualified details that were not approved by Sargent & Lundy for the flux core procedure or were not specified by the Gust K. Newberg Engineer, and 3) Gust K. Newberg ironworkers listed procedures on traveler packages as being used that they did not use or did not list all WPS's used.

Investigations indicate that the problem is confined to cover plate installations in Unit 1 and Unit 2 Containments, and box beam end connection modifications in the Unit 1 Containment. Based on applicable Structural Steel Traveler Packages (SSIT) reviewed to date, documentation problems occur, in varying combinations, in approximately 82% of the Flux Core Arc Welding (FCAW) SSIT's and 18% of the Shielded Metal Arc Welding (SMAW) SSIT's.

Commonwealth Edison believes that the problems relate to documentation only and that no associated physical defects exist. This belief is based on the following:

1. The welders involved were qualified according to American Welding Society (AWS) to use all welding processes involved.
2. The weld joints detailed by engineering and installed in the field conform to AWS pre-qualified details.
3. The welding processes used were pre-qualified by AWS and the size and type of electrodes used were limited, thereby limiting the variables available to the welder.
4. Electrode wire size, voltage, and amperage parameters are the same for all FCAW and SMAW welds regardless of joint detail or orientation.
5. All welds were visually inspected and in some cases, Nondestructive Examinations (NDE) were conducted. No physical defects were identified.

SSIT review to identify and correct document deficiencies will be part of the Gust K. Newberg final document review program. This program will be conducted in accordance with Gust K. Newberg Procedure 29. This procedure, which is under development, is expected to be finalized by April 1, 1985. It is anticipated that the documentation review effort will take approximately 3 months.

Braidwood

Corrective Action Program

HVAC Housings and Air Risers

NCR-632
50.55(e) 84-08

The quarter-inch liner plates for the Auxiliary Building Ventilation (VA System) Exhaust Filter Housings and the Unit 1 and 2 Reactor Containment (VP System) Fan Cooler Housings, and eighty-four inch Return Air Risers were not installed by Pullman Sheet Metal (PSM) in accordance with the appropriate drawings and specifications. Welding configurations do not match drawings in some cases, and weld quality inspections were incomplete in some cases.

PSM is in the process of reviewing and organizing existing documentation to identify missing weld quality inspections records. This effort is approximately 15% complete.

In addition to the PSM documentation review, S&L is field verifying and evaluating the as-built conditions of the housings and risers. Following evaluation, S&L is developing sketches and drawings to be used by PSM to conduct the necessary inspections to develop a complete inspection record.

Sargent & Lundy field verification began January 3, 1985. This field verification is being conducted in accordance with normal Sargent & Lundy design/as-built procedures. The field verification is approximately 33% complete for the VA exhaust filter housings and 30% complete for the VP system (RCFC) housings & risers.

As-built drawings for the VA system at elevation 451'-0" were issued March 4, 1985. PSM has not initiated configuration/welding quality inspections at this time. The inspection effort will begin shortly after all necessary procedures and personnel are in place. It is anticipated that the PSM inspections will be complete by October 31, 1985.

Braidwood
Corrective Action Program
Duct Fittings

NCR-540
50.55(e) 83-08

HVAC duct fittings such as Y-branches, nested elbows, and square-to-rounds were fabricated by Pullman Sheet Metal (PSM) without Sargent & Lundy approved design documents or vendor documents. Corrective actions include the development of the required documents and inspections to confirm compliance.

PSM revised their duct brochure to include generic fabrication details of duct fittings. The revised duct brochure was submitted to S&L for review and was subsequently approved in October, 1983. PSM then initiated evaluations to determine which fittings did not comply with the approved design. Fittings not in conformance were to be reworked or have their as-built details shown on FCR's and be submitted to S&L for review.

As a result of the as-builts developed and subsequent S&L review, additional duct fitting details were incorporated into plant design through ECN generation and follow-up duct brochure revisions. In addition, PSM conducted a review of shop fabrication tickets to identify which fittings could be confirmed by shop QC inspections to be in compliance with the now-approved design. As of March 1, 1985, PSM Field Engineering personnel have reviewed all fittings for compliance with the revised duct brochure and/or S&L approved design drawings. The total number of fittings evaluated was 2,823.

The evaluations identified 950 fittings which were not in conformance with design. As-builts were prepared for 619 of these fittings and submitted to S&L for review. To date, S&L has reviewed 552 as-builts and identified 67 fittings which require rework. S&L's review of the remaining 67 as-builts should be complete by June 1, 1985. The additional 331 fittings identified as nonconforming were not as-built. These fittings will be reworked to achieve design conformance. All reworked fittings will be QC inspected by PSM. Completion is expected in December, 1985.

The fittings' review by PSM field engineering identified 1873 conforming fittings. A random sample review program to verify the adequacy of the field engineering review is currently being established. Sample populations will be selected by S&L and inspections conducted by PSM QC. Completion of the sampling program is scheduled in June, 1985.

Braidwood

Corrective Action Program

Comstock Document Review

50.55(e) 84-01

As early as March, 1982, Commonwealth Edison Company Quality Assurance audits and the Technical Support Evaluation of September, 1982, identified deficiencies indicating the need to improve the L. K. Comstock documentation/filing system.

As a result of identified deficiencies, Commonwealth Edison Company felt that improvements could be made in the areas of:

1. Timeliness of records retrievability.
2. Better accountability of the production records which support the status of installation.
3. Reconciliation of outdated forms.

In October, 1982, it was determined that progress was poor in the document review. In November of 1982 the L. K. Comstock Quality Control Manager was replaced because he lacked administrative abilities. However, poor progress in the document review continued. In March, 1983, Project Construction Department held a meeting with L. K. Comstock's Regional Vice President and in April, 1983 with L. K. Comstock's Executive Vice President, Corporate Quality Assurance Manager and Regional Vice President to discuss the poor progress being made on the document review. As a result, L. K. Comstock committed to provide four inspectors to complete the document review and provide a plan for completion.

The plan to complete the review was submitted to Commonwealth Edison Company for concurrence on March 9, 1983. The plan's scope and depth was to reconcile audit deficiencies of document retrievability, as well as assuring record completeness and correctness.

In June, 1983, CECO Project Construction Department and Quality Assurance met with L. K. Comstock to discuss the status of the document review. It was determined that L. K. Comstock was not proceeding as scheduled to meet their September, 1983, completion date. As a result of the June meeting, Commonwealth Edison Company again replaced the L. K. Comstock Quality Control Manager. The intent of this change was to more adequately organize and complete the document review as projected for February 1, 1984.

The corrective measures which provide improvements to the L. K. Comstock document system were presented to the NRC. In order to prevent incomplete or unacceptable documents from being filed, L. K. Comstock has provided for multi-level review prior to filing. In addition, the use of a computerized document tracking system was authorized. This system is used to document the status of installation and inspections.

In March, 1984, L. K. Comstock was considered 100% complete with their review of all documents on file and the reconciliation of identified deficiencies was in progress. By January, 1985, the reconciliation effort was nearing completion. No deficiencies had been identified which required extensive rework and only limited field work had been required.

In early 1985, however, the L. K. Comstock Document Review Program was placed on administrative hold. Recent observations documented by BCAP (Braidwood Construction Assessment Program) and concerns by Project Construction Department identified inconsistencies in the thoroughness of the review. Not all of the inspection records were sufficiently reconciled as intended.

In order to lift the administrative hold, L. K. Comstock has been directed to revise their existing document review program. Following necessary revisions, a complete document review will again be performed to assure that each record in the Quality Control file is identifiable, complete, comprehensive and properly reconciled. No completion date is projected at this time.

Braidwood

Corrective Action Program

Systems Control - Control Board Welding

NCR-235

During a 1980 NRC Inspection (80-06), the adequacy of welds on Main Control Board Panels supplied by Systems Control was questioned. Inspections were conducted and it was found that welding on the structural members of the panels did not meet applicable criteria. Weld defects included overlap, undercut, insufficient length, lack of fusion, and improper configuration. NCR-235 was initiated in July, 1980 to document the unacceptable welds and track issue resolution.

Corrective actions required panel inspection and preparation of weld maps which were evaluated and dispositioned by S&L. Weld repairs were made by L. K. Comstock in accordance with the S&L dispositions and subsequently QC inspected and accepted.

In order to confirm the adequate completion of corrective action, CECO QA conducted Surveillance 3563 in June, 1984. It was found that final documentation packages were incomplete. This issue is now addressed by Finding 2 of QA Audit 20-84-545. As of March 1, 1985, LKC is in the process of assembling complete files for the 14 panels included in the scope of this issue. Two panels require additional LKC QC inspections and three panels require PTL overview inspections.

The adequacy of corrective actions relative to NCR-235 was also recently addressed by General Office Audit G-85-02 of S&L. Open Item 3 was developed to compile and review NCR-235 documentation. The required documentation is currently being assembled. A completion date of June 28, 1985, is currently projected for this program.