



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

PRC

OCT 10 1984

Docket Nos.: STN 50-454
and STN 50-455

MEMORANDUM FOR: The Atomic Safety and Licensing Board for Byron:
Ivan W. Smith
Dr. Dixon Callihan
Dr. Richard F. Cole

The Atomic Safety and Licensing Appeal Board for Byron:

Alan S. Rosenthal
Dr. Reginald L. Gotchy
Howard A. Wilber

FROM: Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing

SUBJECT: BYRON QUALITY ASSURANCE RELATED DOCUMENTS (BOARD
NOTIFICATION 84-167)

In accordance with present NRC procedures for Board Notifications, the following documents related to Byron quality assurance are being provided:

1. Letter dated July 3, 1984 from T. R. Tramm (Commonwealth Edison) to James G. Keppler (NRC) concerning spot-welded electrical connections in Westinghouse motor control centers.
2. Letter dated August 9, 1984 from R. L. Spessard (NRC) to Cordell Reed (Commonwealth Edison) acknowledging Commonwealth Edison July 23, 1984 letter regarding item of noncompliance.
3. Letter dated September 21, 1984 from James G. Keppler (NRC) to Cordell Reed (Commonwealth Edison) containing an Appendix to the SALP Board report (SALP Board report provided in Board Notification 84-135, July 27, 1984).
4. Letter dated August 10, 1984 from R. L. Spessard (NRC) to Cordell Reed (Commonwealth Edison) enclosing Inspection Report No. 50-454/84-41 (DRS).
5. Letter dated August 31, 1984 from R. L. Spessard (NRC) to Cordell Reed (Commonwealth Edison) enclosing Inspection Report No. 50-454 84-40/ (DRS) and a Notice of Violation.
6. Letter dated September 24, 1984 from R. L. Spessard (NRC) to Cordell Reed (Commonwealth Edison) enclosing Inspection Report No., 50-454/84-67; 50-455/84-45; and 50-456/84-26, 50-457/84-25 (DRS).

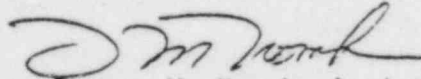
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OCT 10 1984

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7. Letter dated September 27, 1984 from David H. Smith (Commonwealth Edison) to James G. Keppler (NRC) which provides follow-up to the July 3, 1984 letter mentioned above in Item 1.



Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing

cc: EDO
ACRS (10)
Parties to the Proceeding
See next page

DISTRIBUTION LIST FOR BOARD NOTIFICATION

Byron Units 1&2
Docket No. 50-454,455

Dr. A. Dixon Callihan
Doug Cassel, Esq.
Ms. Diane Chavez
Dr. Richard F. Cole
Joseph Gallo, Esq.
Dr. Reginald L. Gotchy
Mrs. Phillip B. Johnson
Michael Miller, Esq.
Ms. Pat Morrison
Alan S. Rosenthal, Esq.
Ivan W. Smith, Esq.
John Streeter, Reg. III
Dr. Bruce von Zellen
Howard A. Wilber, Esq.
Steven P. Zimmerman, Esq.
Mr. Dennis L. Farrar
Mr. William Kortier
Atomic Safety and Licensing
Board Panel
Atomic Safety and Licensing
Appeal Panel
Docketing and Service Section
Document Management Branch
Mr. Edward R. Crass
Mr. Julian Hinds
Mr. James G. Keppler
David C. Thomas, Esq.
Ms. Lorraine Creek



Commonwealth Edison
One First National Plaza Chicago Illinois
Address Reply to Post Office Box 767
Chicago, Illinois 60690

July 3, 1984

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

Subject: Byron Generating Station Units 1 & 2
Braidwood Generating Station Units 1 & 2
Westinghouse Motor Control Centers
NRC Docket Nos. 50-454, 50-455, 50-456,
and 50-457

Dear Mr. Keppler:

On June 1, 1984 Commonwealth Edison Company notified Mr. Robert Lerch of a deficiency apparently reportable pursuant to 10 CFR 50.55(e) regarding spot-welded electrical connections in Westinghouse motor control centers at both Byron and Braidwood stations. This letter provides an interim report to satisfy the 30-day report requirement. For NRC tracking purposes this deficiency is numbered 84-04 for Byron and 84-09 for Braidwood.

Description of Deficiency

During 1 line maintenance of 480 volt circuit breakers within a Westinghouse 5 star series motor control center, a questionable connection was identified on the wire that runs between the breakers and the 480 volt bus. The wire has a lug at the breakers end. At the other end the wire is spot welded to a clip (or stab) which engages the 480 volt bus. Visual inspection disclosed that some of the spot welds did not include all of the strands of wire in the connector. Any loose strands would not be available to carry current.

Analysis of Safety Implications

Depending on the number of loose strands and the amount of current in the wire, the circuit problems could vary from no problems to moderate overheating or burning off the wire, with the possible failure of the circuit to carry any load.

These breakers supply load to motor-operated valves, small motors, instrument inverters and other safety related equipment. A case-by-case analysis would be necessary to determine the actual consequences of individual circuit failures.

~~84-04-1000-1068~~

JUL 5 1984

J. G. Keppler

- 2 -

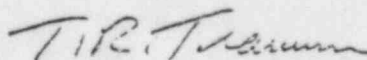
July 3, 1984

Corrective Action

The potentially defective spot welds are all being inspected. Unacceptable connections will be replaced. Another report will be submitted by August 3, 1984 to document the results of the inspections and the schedule for repairs.

Please address any further questions regarding this matter to this office.

Very truly yours,



T. R. Tramm
Nuclear Licensing Administrator

lm

cc: Director of Inspection and Enforcement

8927N



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION III
 799 ROOSEVELT ROAD
 GLEN ELLYN, ILLINOIS 60137

AUG 9 1984

Docket No. 50-454
 Docket No. 50-455

Commonwealth Edison Company
 ATTN: Mr. Cordeil Reed
 Vice President
 Post Office Box 767
 Chicago, IL 60690

Gentlemen:

Thank you for your letter dated July 23, 1984, which provides supplemental information for the noncompliance which we brought to your attention in Inspection Report No. 50-454/84-27 and 50-455/84-19 forwarded by our letter dated June 6, 1984. We will examine these matters during a subsequent inspection.

Your cooperation with us is appreciated.

Sincerely,

A handwritten signature in dark ink, appearing to read "R. L. Spessard".

R. L. Spessard, Director
 Division of Reactor Safety

cc: D. L. Farrar, Director
 of Nuclear Licensing
 V. I. Schlosser, Project Manager
 Gunner Sorensen, Site Project
 Superintendent
 R. E. Querio, Station
 Superintendent

cc w/ltr dtd 7/23/84:
 DMB/Document Control Desk (RJDS)
 Resident Inspector, RIII: Byron
 Resident Inspector, RIII
 Braidwood
 Phyllis Dunton, Attorney
 General's Office, Environmental
 Control Division
 Ms. Jane M. Whicher
 Diane Chavez, DAPF SAFE
 Mr. [unclear] EIC
 Mr. [unclear] NPP LPM

~~848811229~~

July 23, 1984

Mr. James G. Keppler,
Regional Administrator
United States Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: Byron Generating Station Units 1 and 2
I&E Inspection Report Nos. 50-454/84-27
and 50-455/84-19

- References (a): June 6, 1984 letter from R. L. Spessard
to Cordell Reed.
- (b): July 10, 1984 letter from D. Farrar
to J. Keppler.

Dear Mr. Keppler:

This letter provides revised information regarding one of the items of noncompliance identified in I&E Inspection Report Nos. 50-454/84-27 and 50-455/84-19. During the week of July 19, 1984, the data which provided the basis for our response to Violation 2 (50-454/84-07-01; 50-455/84-19-01) was reviewed by a Region III Inspector. As a result of this re-review the categorization of certain inspection results has been changed.

The information provided on pages 5 and 6 of Attachment A to reference (b) should be revised as shown below. The changes are underlined.

2. 38 deficiencies were reported for wrong connection detail, wrong weld length, elevation, auxiliary steel plate size, or missing bolts. After review, it was found that 43 deficiencies on 40 hangers were actually recorded. These 43 deficiencies fall into the following classes:
- a) 9 occur because the drawing revision had not changed a detail which had been previously approved by a Field Change Request or Engineering Change Notice, or were because of drafting errors resulting in inconsistent dimensions;
- b) 10 were due to center size and in some cases appear to be errors by the first inspector;

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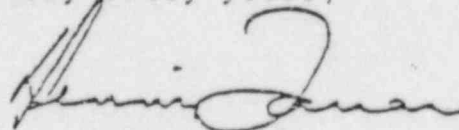
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July 23, 1984

After review, the data on the use of Memorandum 295 indicates that 12 actual deficiencies existed: 1 was a result of damage, 1 was a result of missing bolts, and 10 were a result of member size. The 4 weld quality deficiencies have not been included in the population assessed to exist as a result of Memorandum 295, due to fact that 295 required that weld inspections with acceptable results were a requisite. With regard to the 12 deficiencies, we do not find that these constitute a failure to assure that nonconforming cable tray hangers were identified and corrected. Rather than failing to assure that nonconforming hangers were identified and corrected, there may have been an error of judgment in using accepted weld traveler records as an alternative means of accepting hanger connection details which were not visible due to fireproofing.

Please address any questions you may have regarding this matter to this office.

Very truly yours,



D. L. Farrar
Director of Nuclear Licensing

lm

Attachments

8999K



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
795 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

September 21, 1984

Docket No. 50-454
Docket No. 50-455

Commonwealth Edison Company
ATTN: Mr. Cordell Reed
Vice President
Post Office Box 767
Chicago, IL 60690

Gentlemen:

This refers to the NRC's Systematic Assessment of Licensee Performance (SALP) Board report for the Byron Nuclear Station, our meeting of July 19, 1984, to review the contents of the report, and your written comments dated August 21, 1984, relative to the report. Enclosed is an Appendix to the SALP Board report consisting of a summary of our July 19, 1984, meeting, and your August 21, 1984, response.

We have reviewed your written response and are encouraged by your responsiveness and remedial actions. Your written comments coupled with your verbal comments made during our July meeting indicate to us that Commonwealth Edison Company management has an understanding of the performance problems identified by the SALP Board and is taking action to remedy them. The overall improving trend observed by the NRC in your performance during the assessment period along with your stated goal of improving the regulatory performance in all areas suggest that the results of the next assessment should be much better.

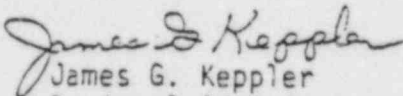
In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter with the enclosure will be placed in the NRC's Public Document Room.

~~510289/2115~~

September 21, 1984

No reply to this letter is required; however, should you have questions regarding the SALP Board report, or Appendix thereto, please let us know and we will be pleased to discuss them with you.

Sincerely,


James G. Keppler
Regional Administrator

Enclosure: Appendix to SALP
Board Report Nos. 50-461/84-22;
50-455/84-15

cc w/encl:

D. L. Farran, Director
of Nuclear Licensing
V. I. Schlosser, Project Manager
Gunner Sorensen, Site Project
Superintendent
R. E. Querio, Station
Superintendent
DME/Document Control Desk (RIDS)
Resident Inspector, RIII Byron
Resident Inspector, RIII
Braidwood
Phyllis Dunton, Attorney
General's Office, Environmental
Control Division
D. W. Cassel, Jr., Esq.
Diane Chavez, DAARE/SAFE
W. Paton, ELD
L. Olshan, NRR LPM

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

COMMONWEALTH EDISON COMPANY

BYRON NUCLEAR STATION, UNITS 1 AND 2

Docket No. 50-454
Docket No. 50-455

Report No. 50-454/84-22
Report No. 50-455/84-15

Assessment Period

January 1, 1983 through April 30, 1984

~~50-454/84-22~~

1. Meeting Summary

a. Attendance

NRC

K. A. Connaughton, Byron Resident Inspector
W. L. Forney, Chief, Reactor Projects Section 1A
W. P. Gammill, Chief, Meteorology & Effluent Treatment Branch (NRR)
W. G. Guldmond, Chief, Operational Programs Section
D. W. Hayes, Chief, Reactor Projects Section 1B
J. G. Keppler, Regional Administrator
R. M. Lerch, Project Inspector
R. J. Marabito, Public Affairs Officer
L. G. McGregor, Senior Resident Inspector - Braidwood
J. I. McMillen, Chief, Operator Licensing Section
C. E. Norelius, Director, Division of Reactor Projects
L. N. Olshan, Byron Project Manager (NRR)
C. B. Ramsey, Reactor Inspector
L. A. Reyes, Chief, Test Programs Section
M. A. Ring, Reactor Inspector
R. L. Spessard, Director, Division of Reactor Safety
J. F. Streeter, Director, Byron Project Division
C. C. Williams, Chief, Plant Systems Section

CECo

R. E. Jortberg, Assistant to Vice President
T. J. Maiman, Manager of Projects
R. E. Querio, Superintendent Byron Station
C. Reed, Vice President
V. I. Schlosser, Byron Project Manager
C. W. Schroeder, Project Licensing and Compliance Superintendent
W. J. Shewski, Manager of Quality Assurance
T. R. Tramm, Nuclear Licensing Administrator

Other

C. Bukro, Chicago Tribune
E. McGreevy, Rockford League of Women Voters
B. Johnson, Rockford League of Women Voters

b. Summary of Discussion

On July 19, 1984, the findings and conclusions of the SALP Board documented in Report Nos. 50-454/85-22; 50-455/85-15 were discussed with the applicant in a meeting at the Holiday Inn in Glen Ellyn, Illinois. Although the objective of the meeting was for the NRC and the applicant to discuss the SALP Board report, the meeting was open to members of the public as observers and all persons in attendance were given the opportunity to ask questions of the NRC at the conclusion of the NRC and applicant discussion. There were no questions asked of the NRC other than by members of the applicant's staff.

The NRC's conclusions of the applicant's performance, along with the salient bases for those conclusions, were presented for each functional area. The following items which were addressed in the July 19, 1984, letter from J. G. Keppler to C. Reed transmitting the SALP Board report to the applicant were emphasized during the course of the meeting:

- . The regulatory performance at the Byron Nuclear Station was considered acceptable during this assessment period.
- . The rating improved from a Category 3 to a Category 2 in four functional areas (safety-related components; support systems; electrical power supply and distribution; quality assurance), but declined from a Category 1 to a Category 2 in one area (licensing activities) and remained at a Category 3 in another area (preoperational testing). Additionally, of two areas rated that were not rated during the last SALP, one (fire protection) was rated a Category 3 and the other (reinspection program) Category 1.
- . Overall, the regulatory performance showed an improving trend.
- . In the preoperational testing area, problems which surfaced in the previous SALP period relating to the conduct of preoperational tests were largely corrected following an enforcement conference early in this assessment period. However, toward the end of the period other concerns were identified relating to the adequacy of review of preoperational test results. Continued high priority management attention is warranted to assure attention to detail and rigorous analysis during the remaining test results reviews.
- . The success rate of operators in passing the operator and senior operator license exams was considerably below the national average and was a factor in reducing the rating to a Category 2 in the licensing activities area. The lower success rate appeared to be largely due to management's determination to achieve a fuel load date which was unrealistic in terms of plant readiness. Such action was not in the best interest of the NRC or Commonwealth Edison Company with regard to optimum utilization of resources. The other factor contributing to the reduced rating in the licensing activities area was the occasional lack of supporting details in submittals made to NRR.

The applicant expended considerable resources during this assessment period in conducting the QC Inspector Reinspection Program at the Byron Station. Substantial management involvement was evident in this effort. The applicant's conduct of the inspections and evaluation of the findings were considered to be of high quality and were the reasons for assigning a Category 1 to this area.

The applicant's performance in the fire protection area was rated separately for the first time in this SALP. The Category 3 rating reflects the NRC view that there was a lack of concerted management attention to the development and implementation of the fire protection program.

The applicant stated at the conclusion of the discussion that it believed the SALP Board report clearly sets forth the bases for the NRC conclusions in each of the functional areas, and that overall the report fairly assesses the applicant's performance. The applicant stated that although it might have given itself higher ratings in some of the areas, it nonetheless understood and generally agreed with the shortcomings identified by the NRC and was taking actions to correct those problems. The applicant made additional comments which were subsequently submitted in the August 21, 1984, written response to the SALP Board report and which are addressed in Paragraph 2 below.

2. Written Comments Received From Applicant

The applicant submitted its written comments to the SALP Board report in an August 21 1984, letter from B. Thomas to J. G. Keppler. A copy of that letter is attached.

Attachment: Letter dated August 21, 1984, from Bide Thomas to James G. Keppler regarding Byron Nuclear Station SALP Report Nos. 50-454/84-22; 50-455/84-15



Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to Post Office Box 767
Chicago, Illinois 60690

August 21, 1984

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

Subject: Byron Generating Station Units 1 and 2
SALP Comments
I&E Inspection Report Nos. 50-454/84-22
and 50-455/84-15

Reference (a): July 10, 1984 letter from J. G. Keppler
to Cordell Reed.

Dear Mr. Keppler:

This letter provides Commonwealth Edison's comments on the recent SALP evaluation regarding Byron Station which was enclosed with reference (a). All of these comments were made known to the NRC during our meeting on July 21, 1984. I will reiterate here our responses to only the SALP Board's most significant comments.

We are pleased to know that the NRC has noticed an overall improvement in our regulatory performance at Byron. The SALP Board has pointed out functional areas where additional improvements can be made. Appropriate increases in management attention will be given to all those areas. Improved regulatory performance in all areas will continue to be an important goal on the Byron project.

We concur with the SALP Board's recommendation that additional attention should be focused upon preparation for NRC RO and SRO license exams. Poor results on the first written examination followed a period of extremely heavy preoperational testing. It appears that the time allocated for exam preparation was inadequate. This was corrected in preparing for the October, 1983 exams. License candidates were not used for preoperational testing activities while they were in training and more time was devoted to review in preparation for the exam. More instructor hours were also provided. These actions seem to have produced the desired improvement in exam results. The percent passing that exam was close to the national average. We expect further improvement in this area.

We also agree that continued high priority and management attention is warranted to assure satisfactory completion of the preoperational test program. Actions taken early in the evaluation period were effective in improving the control and documentation of test activities. Recent improvements in the test review process provide additional assurance of the satisfactory completion of the testing program.

~~549228/278~~

AUG 24 1984

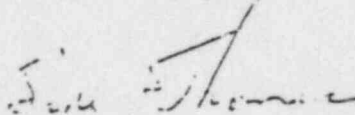
August 21, 1984

The SALP Board's concern regarding the implementation of the Byron fire protection program is understandable. Recent Region III fire protection inspections at other plants have provided new insight into the NRC's expectations regarding the implementation of the requirements for fire protection at nuclear power plants. The Region III inspection at Byron occurred before the programs there could be upgraded. Each of the specific NRC findings are now being addressed. During 1984 we have made a special effort to involve individuals with fire protection expertise in all aspects of the Byron fire protection program. We have also conducted an extensive review of our program and delineated our commitments in much greater detail. Attachment A to this letter summarizes the extent of these efforts. We believe we are adequately addressing the SALP Board's concern in this area.

Finally, we are pleased that the SALP Board made special notice of the efforts expended on the Byron QC Inspector reinspection program. We appreciate the NRC's cooperation in the inspection and prompt review of the results of this work.

Thank you for providing this opportunity to comment upon the SALP evaluations.

Very truly yours,



Bide Thomas
Executive Vice-President

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Attachment A

Involvement of Fire Protection

Experts in the Byron Project

Individuals with appropriate fire protection expertise are involved in all the various aspects of design, testing and operation at Byron Station as described below.

Design

The initial design of all fire protection features for Byron/Braidwood was reviewed by fire protection engineers from M&M Protection Consultants for conformance to Nuclear Mutual Ltd. (NML) Property Loss Prevention Standards. As a result of this review, recommendations were issued stating where compliance with certain standards was mandatory for the plant to be insurable and where non-compliance with certain standards would result in insurance penalties. All recommendations have been resolved to the satisfaction of NML and their consultants.

A fire protection engineer was utilized in conducting the fire hazards analysis for Byron and Braidwood. The individual involved was Mr. Thomas J. Kramer of Schirmer Engineering.

Mr. Kramer participated in conducting the fire hazards analysis and in preparation of the Fire Protection Report. He was involved in all phases of this activity during the initial preparation of this report in 1977. This included the identification of fire zone and fire area boundaries, the identification of fire zone combustible material inventories and the subsequent calculation of fire loading (Btu/ft²) for each fire zone, the identification of the fire protection systems which are present, including detection systems and automatic and manual suppression systems, and the identification and analysis of a design basis fire in each fire zone.

A fire protection engineer was not utilized during preparation of the safe shutdown analysis (Section 2.4 of the Fire Protection Report) or for any of the three subsequent amendments to the Fire Protection Report. The 1982 revision was a general update of the report, meant to incorporate the numerous design changes which had taken place over the years, and to provide more complete design details where such details were not available in 1977. This revision also included the Safe Shutdown Analysis as a new Section 2.4 of the report. Amendments 1 and 2 incorporated changes resulting from the NRC review of the report. Since the basic conclusions presented in the initial report were not changed, the use of a fire protection engineer was not considered to be essential.

In 1983, CECO engineering procedures were established to require copies of drawings and/or calculations involving fire protection of the plant to be distributed to the CECO Fire Protection Engineer and M&M Protection Consultants for their review. Comments are transmitted to the Project Engineering Department and appropriately resolved.

Since January, 1984 fire protection engineers from M&M Protection Consultants have been actively involved in the updating of the Fire Protection Report and formulation of fire protection programs.

Initial Testing

Initial tests of water systems were performed by station personnel and witnessed by vendor representatives and M&M Protection Consultants. Concentration testing of carbon dioxide and Halon gas suppression systems were performed by vendor representatives. The results of these tests were also reviewed by M&M Protection Consultants.

Administrative Controls

The station Fire Marshall oversees the operation and maintenance of fire protection equipment and administrative controls. At Byron, this individual has completed the following specific training: "Firefighting for Nuclear Power Plant Personnel," Texas A&M University; "Operation Phase Fire Protection", General Physics Corporation; and "CECo Seminar", CECo Production Training Department. An operating engineer and an instrument maintenance foreman also attended the Texas A&M class.

Recently, a graduate Fire Protection Engineer was hired to provide onsite engineering expertise.

The initial fire pre-plans were developed with the assistance of fire protection engineers from Schirmer Engineering.

Corporate Support

The Technical Services Nuclear Department staff includes at least one fire protection engineer who meets the requirements for membership in the Society of Fire Protection Engineers. This engineer is involved in inspection and reporting activities concerning property insurance for the nuclear plants. He also ensures that the annual fire protection audits required by the Tech Specs are performed. He is available for reviews of designs, procedures, etc. He is also involved in day-to-day fire protection activities such as answering code related questions or solving problems at all stations. In addition he chairs meetings of the station fire marshals to exchange information and review matters of mutual interest.

He advises the Nuclear Station Division Management with respect to actions or policy for specific fire protection problems and generic issues. When fire protection incidents occur, he advises the fire marshals who may have the potential for a similar episode. He provides corporate overview in the fire protection area while visiting the stations. At those times he advises station and corporate management of potential problems with the station's program.

Quality Assurance

The corporate quality assurance department includes a fire protection engineer who advises individual auditors with regard to the scope, timing, quantity, and technical standards for audits of fire protection program implementation and participate in the audits of fire protection. During 1984 the level of activity in this area has been increased significantly.

Special Task Force

Because of the concerns expressed by the NRC on January 20, 1984, a fire protection task force was established to insure that all engineering, licensing and operating fire protection activities for Byron Station are coordinated and correctly implemented. A qualified fire protection engineer has worked with the task force. The task force has met periodically and is expected to continue operating through the Byron 1 fuel load or beyond if the need exists.

The initial tasks which were addressed by the task force were to assure that:

1. The Fire Protection Report is accurate, particularly with respect to associated circuits and control and instrumentation cables.
2. The testing program for fire protection systems is documented, reviewed, and acceptable in accordance with applicable commitments.
3. Fire Protection expertise used in the overall fire protection program is identified and documented.
4. All deviations from NRC fire protection guidance, including NFPA Codes where applicable, and commitments are identified and documented.
5. A listing of all procedures required to implement fire protection program commitments is prepared.
6. A schedule for the completion of all open items in the fire protection area is prepared.
7. Other fire protection issues arising from the NRC review of the fire protection area or for other reasons are addressed.
8. Review Byron/Braidwood against the specific criteria of Appendix R and BTP 9.5-1. Prepare a report documenting compliance with each item or prepare deviation requests for submittal to NRC.
9. Demonstrate and document that a service water system exists which is an adequate backup to the fire water system.

These tasks have been completed and the results of this work are documented in Appendixes 3 and 4 to the Fire Protection Report.



ENCLOSURE 4
UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

Cy Rautel

AUG 10 1984

Docket No. 50-454 *84-41*

Commonwealth Edison Company
ATTN: Mr. Cordell Reed
Vice President
Post Office Box 767
Chicago, IL 60690

Gentlemen:

This refers to the routine safety inspection conducted by Messrs. N. Choules and M. Moser of this office on June 11, June 13-15, June 19-22, June 26-29, July 2-3, July 5-6 and July 13, 1984, of activities at Byron Nuclear Power Station authorized by NRC Construction Permit No. CPPR-130 and to the discussion of our findings with Mr. Querio and others of your staff on July 6 and 13, 1984.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

No items of noncompliance with NRC requirements were identified during the course of this inspection.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosure(s) will be placed in the NRC Public Document Room unless you notify this office, by telephone, within ten days of the date of this letter and submit written application to withhold information contained therein within thirty days of the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1). If we do not hear from you in this regard within the specified periods noted above, a copy of this letter and the enclosed inspection report will be placed in the Public Document Room.

~~8/11/84~~

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

[Faint signature]

R. L. Spessard, Director
Division of Reactor Safety

Enclosure: Inspection Report
No. 50-454/84-41

- cc w/encl:
- D. L. Farrar, Director
of Nuclear Licensing
- V. I. Schlosser, Project Manager
- Gunner Sorensen, Site Project
Superintendent
- R. E. Querio, Station
Superintendent
- DMB/Document Control Desk (RIDS)
- Resident Inspector, RIII Byron
- Resident Inspector, RIII
Braidwood
- Phyllis Dunton, Attorney
General's Office, Environmental
Control Division
- Ms. Jane M. Whicher
- Diane Chavez, DAARE/SAFE
- W. Paton, ELD
- L. Olshan, NRR LPM

RIII
MCC
Choules/id
07/25/84

RIII
MCC for
Moser

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EB/10
Hawkins

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Hayes

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Walker, R.

RIII
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Spessard
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-454/84-41(DRS)

Docket No. 50-454

License No. CPPR-130

Licensor: Commonwealth Edison Company
Post Office Box 767
Chicago, Illinois 60690

Facility Name: Byron Station, Unit 1

Inspection At: Byron, Illinois

Inspection Conducted: June 11, June 13-15, June 19-22, June 26-29, July 2-3,
July 5-6 and July 13, 1984

Inspectors: *MC Choules*
N. C. Choules

8/10/84
Date

MC Choules for
M. M. Moser

8/10/84
Date

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

8/10/84
Date

Inspection Summary

Inspection on June 11, 13-15, 19-22, 26-29; July 2, 3, 5, 6, and 13, 1984
(Report No. 50-454/84-41(DRS))

Areas Inspected: Routine, announced inspection by regional inspectors of the maintenance program; design change program, surveillance test and calibration control program; test and experiments program; and measuring and test equipment program. The inspection involved 200 inspector-hours onsite, four inspector-hours at Operations Analysis Department (OAD) in Maywood, Illinois, and ten inspector-hours at the corporate headquarters by two inspectors.

Results: No items of noncompliance were identified.

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DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECO)

- *R. E. Querio, Station Superintendent
- *R. C. Ward, Assistant Superintendent Administration and Support Services
- *L. A. Sues, Assistant Superintendent Maintenance
- *G. K. Schwartz, Operating Engineer
- *D. E. St. Clair, Technical Staff Supervisor
- *T. E. Didier, Master Instrument Mechanic
- *R. D. Branson, Master Electrician
- *H. R. Erickson, Master Mechanic
- ** *M. Mudge, Maintenance Staff
- *A. Chernick, Quality Control Supervisor
- *D. A. Sible, Quality Assurance Engineer
- *R. G. Gruber, Quality Assurance Engineer
- ** *R. Poche, Licensing Coordinator
- *D. Ruehlmann, General Instrumentation Supervisor, OAD
- *W. H. Koester, Station Nuclear Design Engineer
- *J. Bitel, Director Quality Assurance for Operations
- ** *R. Rhodes, Maintenance Staff

USNRC

- *J. M. Hinds, Senior Resident Inspector
- K. A. Connaughton, Resident Inspector

Other personnel were contacted as a matter of routine during the inspection.

*Denotes those attending the exit interview on July 6, 1984.

**Denotes those attending a followup meeting on July 13, 1984.

2. Program Areas Inspected

a. Design Change and Modification Program

The inspector reviewed the licensee's design change and modification program to ascertain whether the QA program relating to design change activities had been established in accordance with the licensee's Quality Assurance Program; 10 CFR 50, Appendix B; the Technical Specifications and ANSI N45.2.11-1974.

(1) Documents Reviewed

(a) Byron Administrative Procedures

- 1 BAP 1650-1, "Modification Processing Procedure,"
Revision 1 (Draft) and Revision 1

- 2 BAP 1600-1, "Initiating and Processing a Nuclear Work Request," Revision 3 (Draft)
- 3 BAP 1340-5, "Issuance of Documents that are Controlled," Revision 5
- 4 BAP 1340-3, "Station Drawing Change Control," Revisions 3 and 4
- 5 BAP 400-11, "Preparation of Maint/Mod Procedures," Revision 0, (Draft)
- 6 BAP 400-10, "Preparation of Station Traveler," Revision 0 (Draft)
- 7 BAP 400-9, "Maintenance Alternations," Revision 1
- 8 BAP 400-3, "Setpoint Changes," Revision 2
- 9 BAP 300-5, "Temporary Alteration," Revision 7

(b) Station Nuclear Engineering Department/Project Engineering (SNED/PE) Procedures

- 1 Q.2, "Safety Related ASME Code Design Specifications," Revision 2
- 2 Q.6, "Modifications Originated by Station Technical Staff," Revision 7
- 3 Q.7 "Modifications Initiated by SNED," Revision 1
- 4 Q.8, "Field Change Request," Revision 6
- 5 Q.9, "Design Change Notice," Revision 2
- 6 Q.12, "Classification and Listing of Safety-Related Items and ASME Section III Components," Revision 5
- 7 Q.16, "Drawing Change Request," Revision 3
- 8 Q.51, "Design Document Preparation and Review," Revision 0 (Draft)

(c) Quality Assurance Manual Quality Procedures (QP)

- 1 QP 3-1, "Design Control"
- 2 QP 3-2, "Design Change Control"
- 3 QP 3-51, "Design Control For Operations, Plant Modifications"

(2) Result of Inspection

- (a) QP 3-51 was the Quality Assurance Manual procedure which provided the generic instructions for all operating Commonwealth Edison plants regarding the control of design changes (modifications). The procedure which implemented the instruction for the Station was BAP 1650-1. When the inspector initiated the inspection, a draft BAP 1650-1 procedure had been prepared. Review of the draft procedure indicated that the procedure steps were very brief and provided less guidance in many instances than was provided in QP3-51. During discussions with licensee representatives, the inspector stated that BAP 1650-1 should contain both the details in QP3-51 and additional requirements unique to the Station so that personnel would only have to refer to one procedure. During this inspection, the licensee revised and approved the procedure to

include more details. The inspector reviewed the revised procedure and has no further questions regarding this matter.

(b) Review of the Station's drawing control procedure BAP 1340-3, Revision 3 revealed the following concerns:

- 1 The procedure did not describe how drawing revisions were handled between initiation and completion of a modification. There was no assurance that if two engineers were independently developing modifications which affected the same drawing that they would be aware of other modifications affecting the drawing.
- 2 The procedure required the stamping of all existing drawing aperture cards and control room critical drawings as "Revision Pending." The cards and drawings were stamped upon receipt of construction drawings for a modification rather than at the time of the installation of the modification. There could be considerable time delay between receipt of drawings and initiation of a modification. Stamping the drawings too far ahead of installing the modification could be confusing to the drawing users.

During this inspection, the licensee revised and approved BAP 1340-3 to address the above concerns. The inspector reviewed the revised procedure and has no further questions.

(c) The licensee had not specified appropriate guidelines for reporting modifications to the NRC as required by 10 CFR 50.59. Neither had the licensee established appropriate guidance to assure the review of modifications by the Offsite Review and Investigative Function in accordance with Technical Specification, Section 6.5. The licensee agreed to address these concerns. This is considered open pending further review during a subsequent inspection (454/84-41-01).

(d) The inspectors reviewed the SNED/PE procedures related to modifications and spent one day at the corporate offices reviewing the modification program with SNED and QA personnel. All safety-related modifications are transmitted to SNED for development. SNED then sends the majority of the modifications to architect/engineering firms for development. The procedures have been constructed accordingly.

SNED has recognized that their procedures are not entirely adequate to assume responsibility for the development of the remaining modifications. Accordingly, they have prepared a new draft procedure (Q.51) to cover the preparation and review of design documents. Review of

this draft procedure indicated that the following ANSI N45.2.11 requirements were not completely addressed in the procedure:

- 1 No requirement existed to review the modifications for all of the design input listed in Section 3.2 of ANSI N45.2.11-1974. Provisions for review of some of the design input are provided for in other procedures, but a complete list in Section 3.2 had not been developed.
- 2 All of the items listed in Section 6.3.1 of ANSI N45.2.11 regarding design review were not included in the procedure.

During this inspection, the licensee revised the procedure to include the above. The inspector reviewed the revised procedure and has no further questions.

No items of noncompliance or deviations were identified.

b. Tests and Experiments Program

The licensee had not developed a QA program related to the control of tests and experiments as defined in the Technical Specification and 10 CFR 50.59. The licensee stated that a program would be developed. This is considered to be an open item pending further review during a subsequent inspection (454/84-41-02).

c. Surveillance Testing and Calibration Control

The inspector reviewed the program for the control and evaluation of surveillance testing, calibration, and inspection as required by Section 4 of the Technical Specifications and Inservice Inspection of Pumps and Valves as described in 10 CFR 50.55a(g). The calibration of safety-related instrumentation which is not specifically controlled by the Technical Specifications was also reviewed. The following items regarding the surveillance testing program and the calibration of safety-related instrumentation were considered during this review: master schedules for surveillance testing, calibration, and inservice testing had been established; responsibility had been assigned for the maintenance of the master surveillance schedule; formal requirements for the conduct of surveillance test, calibrations, and inspections in accordance with approved procedures had been established; responsibilities and definition of methods for the review and evaluation of surveillance test and calibration data had been established; responsibility to assure that required schedules were satisfied had been established; and calibration requirements for nontechnical specification safety-related instruments had been established.

(1) Documents Reviewed

(a) Byron Administrative Procedures

- 1 BAP 400-7, "Preventative Maintenance Program,"
Revision 0 and 1
- 2 BAP 400-9, "Maintenance Alterations," Revision 0 and 1
- 3 BAP 1400-1, "Byron Station Surveillance Program,"
Revision 2
- 4 BAP 1400-2, "Surveillance Request Form Completion,"
Revision 2
- 5 BAP 1400-3, "Surveillance Status Tracking By the SYFA
Computer," Revision 1
- 6 BAP 1400-4, "Technical Specification Surveillance By
Frequency," Revision 1
- 7 BAP 1400-5, "Technical Specification Surveillance By
Operating Mode," Revision 1
- 8 BAP 1400-6, "Technical Specification Limiting
Condition for Operation Action Requirement (LOCAR),"
Revision 0
- 9 BAP 1400-7, "Technical Specification Surveillance
Procedure Format," Revisions 1 and 2
- 10 BAP 1400-8, "Procedural Changes Upon Receipt of a
Technical Specification Change," Revision 0
- 11 BAP 1400-9, "Tech Spec Data Package Cover Sheet
Completion and Use," Revision 0
- 12 BAP 1400-T2, "Technical Specifications Surveillance
Procedure Master Listing," Revision 1
- 13 BAP 1400-T5, "Tech Spec-Data Cover Sheet," Revision 0

(b) Byron Surveillance Procedures

- 1 BIP 2000-004, "Frequency of In Plant Instrument
Calibration," Revision 1
- 2 BIP 2000-006, "Control of Master Test Report Forms
for the Instrument Maintenance Department,"
Revision 1
- 3 BIS 3.2.1-002, "Surveillance Functional Test for the
Steam Generator Loop 1A Pressure Compensation
1P-0515 Channel (Prot.II)," Revision 0
- 4 BIS 3.2.1-201, "Calibration of the Steam Generator
Feedwater Mismatch Protection Set II," Revision 1
- 5 BOS 0.1.1, "Shiftly and Daily Operating Surveillance,"
Revisions 0 and 1
- 6 BVS 0.5.2 AF3, "Auxiliary Feedwater Valve Indication
Test," Revisions 0 and 1
- 7 BVS 0.5.3 AB.1, "Boric Acid Transfer Pumps and
Associated Discharge Check Valve," Revision 0
- 8 BVS 0.5.3 AF.1, "ASME Surveillance Requirements for
Auxiliary Feedwater Pumps, Revision
- 9 BVS 5.2.f.2-1, "ASME Surveillance Requirements for
Safety Injection Pumps," Revision 0

- 10 BVS 5.2.f.3-1, "ASME Surveillance Requirements for Residual Heat Removal Pumps," Revision 0
- 11 BVS 6.2.1.b-1, "ASME Surveillance Requirements for Containment Spray Pump," Revision 0
- 12 BVS 6.2.1.c-1, "Containment Spray Automatic Valve Actuation," Revision 0
- 13 BVS 7.1.2.1.a-1, "Motor Driven Auxiliary Feedwater Pump Monthly Surveillance," Revision 0
- 14 BVS 8.2.1.2.d-1, "125 Volt Battery Bank and Charger Operability and Battery Capacity," Revision 0
- 15 Selected calibration records and procedures for safety-related equipment not required to be calibrated by the Technical Specifications.

(2) Results of Inspection

- (a) The licensee had established a master list and schedule of surveillance tests required by the Technical Specifications. The inspector selected 20 surveillance tests required by the Technical Specifications and verified that they had been included in the master schedule and that the planned schedule was in accordance with the Technical Specifications.

The licensee had established a master schedule and list for calibration of safety-related instruments which were not specifically required to be calibrated by the Technical Specifications. Seven instruments in this category were selected at random and it was verified that they were included in the master calibration program, that calibration procedures had been established and that the instruments had been calibrated.

- (b) The procedures which controlled surveillances and calibrations required by the Technical Specification were designated BAP 1400-1 through 1400-9. One concern was identified during the review of BAP 1400-7, Revision 1. The procedure specified that Shift Engineer permission "should" be obtained prior to performing a surveillance, and that surveillance procedures "should" include a "Tech Spec Data Package Cover Sheet." These requirements are mandatory for all Technical Specification surveillance tests and the "shoulds" needed to be replaced with "shalls". During this inspection, the licensee revised and approved BAP 1400-7 to address the concern. The inspector reviewed the revised procedure and has no further questions.
- (c) Review of the licensee's program for the control of calibration and surveillance of safety-related instruments that are not required by the Technical Specification revealed that there was no program procedure describing (1) how instrument calibrations and surveillances are initiated,

(2) closed out, (3) actions to be taken for deviation, and (4) actions to be taken when surveillance and calibrations are not completed on time. Discussion with the licensee's representatives revealed that these instrument and components were to be controlled through the preventative maintenance program. Review of the program procedure for the control of preventative maintenance (BAP 400-7, Revision 0) indicated that it was inadequate to accomplish the above. During this inspection, the licensee revised and approved BAP 400-7 to address the concerns. The inspector reviewed the revised procedures and has no further questions.

- (d) The licensee's procedure for the control of shift and daily operating surveillance was BOS 0.1-1, Revision 1. Review of this procedure indicated that there were several surveillance data sheets which were to be completed each shift, but there was no requirement to assure that all the surveillance data sheets had been completed and submitted to Shift Control Room Engineer (SCRE) at the end of each shift. The licensee revised the procedure to require that surveillance data sheets be submitted to the SCRE and that the SCRE review the data package to assure all surveillance data sheets are attached prior to signing the cover sheet for the data package. The inspector has no further question regarding this concern.
- (e) The inspector reviewed several surveillance and calibration procedures to determine if independent verification as required by Section 1.C.6 of NUREG-0737 had been addressed. The following concerns were identified:

1 Review of instrument surveillance and calibration procedures indicated that the provisions for independent verification for equipment returned to the normal lineup was inadequate. The procedures had the following statement related to independent verification:

"1. The functional test shall be considered complete and acceptable if:

b. The loop reflects current plant condition after it is returned to service."

There was no required signoff that step b. had been accomplished and there were no directions to have independent verification of valve and/or switch positions if the plant status was such that the loop was not indicating.

To correct these problems on a temporary basis, procedure BAP 400-9 was revised to require independent verification requirements to be determined and attached to each applicable instrument calibration or surveillance procedure. This is to be done until the procedures are revised to include the proper independent verification. The licensee committed to revise the monthly functional test procedures first and then the 18 month calibration procedures. All procedures are planned to be revised by the first refueling outage. Approximately 300 procedures will require revision. This item is considered to be open pending further review during a subsequent inspection (454/84-41-03).

- 2 Review of several BVS surveillance procedures revealed that only some of the procedures required independent verification of valve and breaker lineups after testing. Examples of tests which did not require independent verification were BVS 5.2.f.3-1, Revision 0; BVS 5.2.f.2-1, Revision 0; BVS 6.2.1.b-1, Revision 0; and BVS 8.2.1.2.d-1, Revision 0. Examples of tests that did require independent verification were BVS 0.5.3.AF-1, Revision 0; BVS 0.5.3.AB-1, Revision 0; and BVS 7.1.2.1.a-1, Revision 1.

Based on the sampling of procedures, it was apparent that a complete review of all surveillance procedures needed to be performed to identify all independent verification problems. The licensee stated they would perform this review and revise procedures to include independent verification where applicable prior to using the procedures. This is considered to be an open item pending further review during a subsequent inspection (454/84-41-04).

- 3 Review of procedures BVS 0.5.3AF.1, Revision 0 and BVS 0.5.3.AB.1, Revision 0 indicated that valve lineup was being independently verified. The verification was documented by two independent signoffs which stated "System returned to 'As Found' Status." The two signoffs represented verification of the positions for approximately 20 valves. Independent signoffs for each valve did not exist on the data sheet. The inspector is concerned that the present system for verification increases the probability for errors relative to valve position. Licensee personnel stated that they would review the concern. Pending further review, this matter is considered open (454/84-41-05).

No items of noncompliance or deviations were identified.

d. Test and Measuring Equipment Program

The inspector reviewed the licensee's test and measuring equipment program to ascertain whether the QA program relating to test and measuring equipment had been established in accordance with the Quality Assurance Program and 10 CFR 50, Appendix B requirements. The following items were considered during this review: equipment inventory lists, calibration frequencies, and calibration procedures had been established; requirements for calibration status marking recall system for calibration and out of calibration controls had been established; and control for adding new equipment to inventory lists had been established. The implementation of the program was also reviewed.

(1) Documents Reviewed

(a) Byron Plant Procedures

- 1 BAP 400-4, "Control of Station Measurement and Test Equipment," Revisions 2 and 3
- 2 BAP 599-47, "Byron Station Chemistry Quality Control Program," Revision 0
- 3 BCP 510-1, "Laboratory Instrumentation Quality Control Calibration Schedule," Revision 1
- 4 BCP 510-2, "Laboratory Instrumentation Quality Control Calibration Log and Data Sheet," Revision 2
- 5 BCP 520-3, "Proper Handling and Storage of Equipment," Revision 0
- 6 BCP 540-1, "Corrective Action-Calibration," Revision 2
- 7 BIP 2000-5, "Control of Instrument Test and Measuring Equipment," Revision 5
- 8 BIP 2400-24, "Certification of Wallace and Tierney Compound Pressure Gauge," Revision 0
- 9 BIP 2400-29, "Certification of Ashcroft Compound Gauge," Revision 9
- 10 BHP 4200-3, "AMP Wire Crimp Tool Calibration," Revision 3
- 11 BNP 3400-1, "Certification of Mechanical Maintenance Measurement Equipment," Revisions 1 and 2
- 12 BRP 1170-1, "Administrative Controls For Health Physics Instrumentation," Revisions 0 and 1

(b) Quality Assurance Manual Quality Procedures (QP)

- 1 QP 12-1, "Calibration of Commonwealth Edison Company Test and Measuring Equipment"
- 2 QP 12-51, "Control of Test and Measuring Equipment for Operations-Portable Test and Measuring Equipment"

(c) Calibration Records for Measuring and Test Equipment

<u>1</u>	<u>QA Number</u>	<u>Instrument or Equipment</u>
	020810BY	Mansfield and Green Pressure Tester
	019803BY	Hydraulic Pressure Tester
	127920BY	Digital Multimeter
	153823BY	Doric Trendicator
	045805A4	Vernier Caliber
	041830BY	Micrometer Standards
	021807BY	Torque Wrench
	054817BY	Clamp on Ammeter
	249810BY	Go-No-Go Gage
	249808BY	Crimper
	052807BY	Insulation Tester
	051064T	AC Ammeter
	0197071T	John Fluke Voltmeter
	052807T	Megohn Tester
	094051T	Standard Resister

<u>2</u>	<u>Serial Number</u>	<u>Instrument or Equipment</u>
	130	Cutie Pie Radiation Detector
	3207	Air Sampler
	8142	Flow Meter
	----	Model 1015 X-Ray Monitor
	----	Conductivity Cell
	----	HRSS DH Meter
	----	AAIS CPP-3002 Proportions Counter

(2) Result of Inspection

(a) The licensee's procedure for the control of test and measuring equipment, except for the Radiation Chemistry Department, was BAP 400-4, Revision 2. Review of this procedure revealed the following:

- 1 There was no requirement that new equipment would not be used until it was calibrated and tagged.
- 2 The procedure required QA stickers to be attached to calibrated equipment. It did not describe the type of QA stickers and what they should contain (e.g., date calibrated and date due for calibration).
- 3 Section 3.c.(2)(a) indicated that a work request was to be used to initiate certification of equipment. Interviews revealed that, in actual practice, either a blanket work request or a computer report was used.

4 Section 3.c.(3)(f) required the identification and assessment of plant equipment/systems that were measured or tested with equipment later found to be out of calibration. However, the procedure did not specify the method to accomplish this.

During this inspection, the licensee revised and approved BAP 400-4 to address the comments. The inspector reviewed the revised procedure and has no further questions.

(b) Review of department procedures revealed the following:

1 BMP 3400-1, Revision 1, was the Mechanical Maintenance Department's procedure for the control of measuring and test equipment. There was no guidance in the procedure regarding the attachment of calibration stickers to equipment.

2 BRP 1170-1, Revision 0, was the Health Physics Department's procedure for the control of measuring and test equipment. The procedure did not specify controls for calibration standards used in the calibration of health physics instruments.

3 There was no procedure addressing the issuance and control of measuring and test equipment assigned to the Instrument Maintenance Shop.

The licensee revised and approved procedures BAP 3400-1 and BRP 1170-1 to address the comments. A new procedure, BIP 2000-5, was prepared and approved to control instrument maintenance test and measuring equipment. The inspector reviewed the revised BMP 3400-1, BRP 1170-1, and the new BIP 2000-5, and has no further questions.

(c) The inspector reviewed the implementation of the test and measuring equipment programs. Calibration records of selected equipment listed in Section 2.d.(1)(c) were reviewed at the Byron station and at OAD to verify instruments were being calibrated at the required frequencies and that they were being properly tagged to indicate calibration status. Traceability to the National Bureau of Standards was also verified.

No items of noncompliance or deviations were identified.

e. Maintenance Program

The inspector reviewed the licensee's maintenance program to ascertain whether the QA program relating to maintenance activities had been established in accordance with the Quality Assurance Program and 10 CFR 50, Appendix B requirements. The following items were considered during this review: written procedures had been

established for initiating requests for routine and emergency maintenance; criteria and responsibilities had been designated for performing work inspection of maintenance activities; provisions and responsibilities had been established for the identification of appropriate inspection hold points; methods and responsibilities had been designated for performing testing following maintenance work; methods and responsibilities for equipment control had been clearly defined; documentation requirements have been established to identify the persons who performed the maintenance, the replacement parts uses, the corrective action taken, and the root cause of the equipment failure; and administrative controls had been established for controlling special processes.

The inspector also reviewed the licensee's preventative maintenance program to verify that a written program had been established which included responsibility for the program, a master schedule for preventative maintenance, and documentation requirements. Implementation of the licensee maintenance and preventive maintenance program was also reviewed.

(1) Documents Reviewed

(a) Quality Assurance Manual Quality Procedures (QP)

QP 3-52 "Design Control for Operations Plant Maintenance"

(b) Byron Station Procedures

- 1 BAP 300-7 "Equipment Lubrication," Revision 2
- 2 BAP 300-18 "Removing and Returning Equipment Out-of-Service," Revision 5
- 3 BAP 300-36 "Locked Equipment Program," Revision 2
- 4 BAP 400-7 "Preventative Maintenance Program," Revisions 0 and 1
- 5 BAP 400-8 "Work Request Coordinating Procedure," Revision 1 (Draft)
- 6 BAP 1100-15 "Station Housekeeping/Equipment Preservation," Revision 4
- 7 BAP 1400-1 "Byron Station General Surveillance Program," Revision 2
- 8 BAP 1600-1, "Initiating and Processing a Nuclear Work Request," Revision 3 (Draft)
- 9 BHP 4200-37 "Setting Geared Limit Switches on Limitorque Valve Operators," Revision 1
- 10 BHP 4200-39 "Setting Torque Switches on Limitorque Valve Operators," Revision 1
- 11 BHP 4200-40 "Remove and Reinstall Torque Switches on Limitorque Valves," Revision 1
- 12 BHP 4200-41 "Limitorque Operator Electrical Checkout," Revision 0
- 13 BHP 4299-A4 "Torque Switch Settings of Motor Operated Valves," Revision 0

- 14 BMP 3000-3 "Control of Personnel Qualification Records for Special Processes," Revision 1
- 15 BMP 3100-3 "Internal Inspection and/or Minor Repair of Valves," Revision 2
- 16 BMP 3100-T4 "Internal Inspection and/or Minor Repair of Valves Checklist," Revision 0
- 17 BMP 3100-008 "Mechanical Closure Procedure," Revision 1
- 18 BMP 3100-T8 "Mechanical Closure Data Sheet," Revision 2
- 19 BMP 3118-5 "Installation of the Upper Internals of the Reactor Vessel," Revision 2
- 20 BMP 3118-6 "Instrumentation Port Column Assembly," Revision 0
- 21 BMP 3118-7 "Reactor Vessel Closure Head Installation," Revision 1
- 22 BMP 3118-T7 "Reactor Vessel Closure Head Installation Checklist," Revision 1
- 23 BMP 3119-1 "Disassembly, Inspection, Parts Replacement and Reassembly of the Residual Heat Removal Pumps," Revision 0
- 24 BMP 3119-T1 "Disassembly, Inspection, Parts Replacement and Reassembly of the Residual Heat Removal Pumps Checklist," Revision 0
- 25 BMP 3300-3 "Cleaning of Parts and Materials," Revision 2
- 26 BMP 3300-T2 "Cleaning of Parts and Materials Checklist," Revision 1

(c) Work Requests

	<u>Number</u>	<u>Description</u>
<u>1</u>	B 07561	1A Diesel Generator
<u>2</u>	B 07593	SX Makeup Pump
<u>3</u>	B 07802	Bus III Battery Charger
<u>4</u>	B 07852	1D Diesel Oil Storage Tank Drain Valve

(d) Work Request Form (New Version) CECO 86-2228(s) 12-83

(e) Selected Preventative Maintenance Tasks

(2) Results of Inspection

(a) The licensee's procedure for the control of corrective maintenance activities was BAP 400-8, Revision 1 (Draft) ("Work Request Coordinating Procedure") and BAP 1600-1, Revision 3 (Draft) ("Initiating and Processing a Nuclear Work Request"). The inspector's review of BAP 400-8 and BAP 1600-1 and the associated Work Request (WR) form revealed that BAP 1600-1 and BAP 400-8 together describe

the initiation and processing of a Nuclear Work Request (WR). The inspector reviewed the draft revisions of the two procedures and noted certain advantages to the licensee that could be derived by combining them as one procedure. The licensee subsequently incorporated the BAP 400-8 procedure into the BAP 1600-1 and included some of the inspector comments. The new draft was reviewed by the inspector and additional concerns were identified. The licensee agreed to provide additional instructions in the revised draft procedure concerning the following issues:

- 1 Indicate what actions the office supervisor is to take when a completed work package is received from computer entry personnel.
- 2 Instructions which specify when a Discrepancy Report (DR) is to be initiated.
- 3 Provide a description of what activities are involved in obtaining shift authorization to perform work for a work request. This should include referencing the out of service procedure BAP 300-18.
- 4 There was no requirement to record the equipment tagout number on the WR form to provide traceability from the WR to the tagout.
- 5 There was no requirement for the cognizant maintenance work analyst to evaluate if the WR was a design change and document this decision on the WR form.

Pending review of the revised draft procedure, these items are considered open (454/84-41-06).

- (b) Several of the maintenance procedures (BMP) did not have instructions for maintaining internal cleanliness during maintenance work. The licensee agreed to review all BMP procedures for adequate cleanliness controls and revise the procedures as required. Pending review of the revised procedures, this item is considered open (454/84-41-07).
- (c) Hold points were not normally specified in the maintenance procedures. QC and QA inspectors identified hold points on a case-by-case basis during their review of the WRs. There was no written guidance on the establishment of hold points; hence, there was no assurance that adequate hold points were being consistently established. Pending further review, this item is considered open (454/84-41-08).

3. Open Items

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

4. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) on July 6 and July 13, 1984, and summarized the purpose, scope, and findings of the inspection.

Cy Kowal

UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION III
 799 ROOSEVELT ROAD
 GLEN ELLYN, ILLINOIS 60137

AUG 31 1984

Docket No. 50-454 84-4 (DRS)

Commonwealth Edison Company
 ATTN: Mr. Cordell Reed
 Vice President
 Post Office Box 767
 Chicago, IL 60690

Gentlemen:

This refers to the routine safety inspection conducted by Mr. H. A. Walker of this office on June 11-15, July 5-6, July 9-12, and August 16-17, 1984, of activities at the Byron Nuclear Power Station authorized by NRC Construction Permit No. CPPR-130 and on July 16-17, 1984, of activities at your corporate offices in Chicago. Our findings were discussed with Mr. R. E. Querio, Mr. J. S. Bitel, and others of your staff at the conclusion of the inspection.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

This inspection constitutes part of our effort to assess the status and adequacy of your operations quality assurance program and its implementation to support readiness for issuance of an operating license to Byron Unit 1. Other inspections in this area have been conducted or planned in order for us to make this overall assessment. We recognize that all aspects of this program are not required by the NRC to be implemented at this time.

During this inspection, certain of your activities appeared to be in non-compliance with NRC requirements, as specified in the enclosed Appendix. A written response is required. These items relate to the adequacy of the audit program being implemented by the Byron Station quality assurance organization. Additionally, other audit program weaknesses are delineated in Paragraph 2.b. of the enclosed inspection report. These weaknesses, as well as the item of noncompliance, need to be resolved in order for us to make a positive assessment regarding the implementation of your operations quality assurance program. Therefore, we request that you address each of these weaknesses in your response to this letter.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosures will be placed in the NRC Public Document Room unless you notify this office, by telephone, within ten days of the date of this letter and submit written application to withhold information contained therein within thirty days of

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the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1). If we do not hear from you in this regard within the specified periods noted above, a copy of this letter, the enclosures, and your response to this letter will be placed in the Public Document Room.

The responses directed by this letter (and the accompanying Notice) are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

Original signed by R. L. Spessard

R. L. Spessard, Director
Division of Reactor Safety

Enclosures:

- 1. Appendix, Notice of Violation
- 2. Inspection Report No. 50-454/84-40(DRS)

cc w/encls:

- D. L. Farrar, Director of Nuclear Licensing
- V. I. Schlosser, Project Manager
Gunner Sorensen, Site Project Superintendent
- R. E. Querio, Station Superintendent
- DMS/Document Control Desk (RIDS)
Resident Inspector, RIII Byron
Resident Inspector, RIII Braidwood
- Phyllis Dunton, Attorney
General's Office, Environmental Control Division
- D. W. Cassel, Jr., Esq.
- Diane Chavez, DAARE/SAFE
- R. Rawson, ELD

al
10/27/84

RIII
E/S
Hawkins

RIII
251
Hawkins

R III
Walker

R III
Street

R III
Spessard
E/S

Appendix

NOTICE OF VIOLATION

Commonwealth Edison Company
Byron 1

Docket No. 50-454

As a result of the inspection conducted on June 11-15, July 5-6, July 9-12, July 16-17, and August 16-17, 1984, and in accordance with the General Policy and Procedures for NRC Enforcement Actions, (10 CFR Part 2, Appendix C), the following violation was identified:

10 CFR 50, Appendix B, Criterion XVIII, as implemented by the Commonwealth Edison Operations Quality Assurance Program including a commitment to ANSI N45.2.12 and ANSI N45.2.23, requires that a comprehensive system of planned and periodic audits be carried out in accordance with written procedures or check lists by appropriately trained personnel to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program.

Contrary to the above, certain deficiencies were identified in the audit program being performed by the Byron Station quality assurance organization as follows:

1. Audit Procedures QP 18-51, QP 18-52, and QP 18-1 which were being used did not address a number of the ANSI N45.2.12 and N45.2.23 requirements.
2. Audit plans were not prepared for project audits as required by Paragraph 4.2.1 of ANSI N45.2.12.
3. Lead auditors were not performing all audit related activities as required by Paragraph 4.2.2 of ANSI N45.2.12.
4. Corrective or remedial action was not required for all audit items noted as deficient, as required by Paragraph 4.5.1 of ANSI N45.2.12.
5. Audit reports did not identify participating auditors as required by Paragraph 4.4.2 of ANSI N45.2.12.
6. An Audit finding was closed without appropriate corrective action as required by Paragraph 4.5.1 of ANSI N45.2.12.

This is a Severity Level IV violation (Supplement II).

Pursuant to the provisions of 10 CFR 2.201, you are required to submit to this office within thirty days of the date of this Notice a written statement or explanation in reply, including for each item of noncompliance: (1)

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-454/84-40(DRS)

Docket No. 50-454

Construction Permit No. CPPR-130

Licensee: Commonwealth Edison Company
Post Office Box 767
Chicago, IL 60690

Facility Name: Byron Station, Unit 1

Inspection At: Byron Station, Byron, IL

Inspection Conducted: Byron Station on June 11-15, July 5-6, July 9-12, and
August 16-17, 1984.
Chicago, IL on July 16-17, 1984.

Inspector: H. Walker

H. Walker

8-31-84
Date

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

8/31/84
Date

Inspection Summary

Inspection on June 11-15, July 5-6, July 9-12, July 16-17, and August 16-17, 1984 (Report No. 50-454/84-40(DRS))

Areas Inspected: Routine, announced inspection by a regional inspector of QA/QC program administration; operations and construction audit programs; and corrective action program. The inspection involved a total of 92 inspector-hours onsite and 15 inspector-hours at corporate headquarters.

Results: Of the three areas inspected, one item of noncompliance was identified (deficiencies in the audit program being performed by the Byron Station QA organization) Paragraph 2.b.(2)(e)).

~~8/31/84~~

DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

- **J. S. Bitel, Director of Quality Assurance (Operations)
- R. D. Branson, Master Electrician
- *W. B. Burkamper, Quality Assurance Supervisor (Operations)
- S. N. Campbell, Office Supervisor
- *A. J. Chernick, Quality Control Supervisor
- T. E. Didier, Master Instrument Mechanic
- H. R. Erickson, Jr., Master Mechanic
- R. A. Flahive, Assistant Technical Staff Supervisor
- *R. G. Gruber, Quality Assurance Engineer
- K. J. Hansing, Quality Assurance Superintendent
- Z. E. Harl, Quality Assurance Staff Assistant
- B. Jacobs, Technical Staff
- *L. M. Johnson, Quality Assurance Engineer
- **G. F. Marcus, Director of Quality Assurance (Engineering & Construction)
- *C. A. Mumford, Quality Control Inspector
- *R. J. Poche, Technical Staff
- *R. E. Querio, Byron Station Superintendent
- R. G. Rhoades, Maintenance Staff
- A. Sailer, Training Coordinator
- *D. E. St. Clair, Technical Staff Supervisor
- H. P. Studtmann, General Supervisor - Quality Assurance
- L. A. Sues, Assistant Superintendent-Maintenance
- T. J. Tulon, Operating Engineer
- *R. C. Ward, Assistant Superintendent Administration and Supplies
- *J. L. Woodridge, Quality Assurance Supervisor (Construction)

USNRC

- *P. Brochman, Resident Inspector
- K. Connaughton, Resident Inspector
- *J. M. Hinds, Jr., Senior Resident Inspector

Other personnel were contacted as a matter of routine during the inspection.

*Indicates those attending the exit meeting on July 12, 1984 at the Byron Station.

**Indicates those attending the exit meeting at the Commonwealth Edison Corporate Offices on July 16-17, 1984.

2. Program Areas Inspected

This inspection was primarily conducted to determine the degree of implementation of the operations QA program to support the issuance of an operating license. Other inspections in this area have been conducted or are planned in order for the NRC to make this assessment. The results of this inspection are documented in the following sections of this report.

a. QA/QC Administration

The administration of the Byron QA/QC program was reviewed to verify compliance with regulatory requirements and operational QA program commitments. The inspection was performed by reviewing applicable procedures and records and conducting personnel interviews.

(1) Documents Reviewed

- (a) Q. P. 2-1, "Procedure for Revision of the Quality Assurance Manual"
- (b) Q. P. 2-52, "Quality Assurance Program for Operations - Training"
- (c) Q. P. 2-53, "Quality Assurance Program for Operations - Classification of Structures, Systems and Components"
- (d) Quality Assurance Memorandum No. 7, "Quality Assurance Engineer/Inspector Qualification Program to Meet the Requirements of ANSI N45.2.6"
- (e) BAP 1000-0, "Quality Control Index"
- (f) BAP 1000-2, Revision 3, "Quality Assurance Hold Tag"
- (g) BAP 1000-3, Revision 4, "Quality Assurance Reject Tag"
- (h) BAP 1000-4, Revision 2, "Discrepancy Record for Stores Material"
- (i) BAP 1000-8, Revision 0, "Quality Control Review of ISI and NDE Personnel Certifications"
- (j) BAP 1210-1, Revision 1, "On-site Review Functions"
- (k) BAP 1210-2, Revision 0, "Selection of Personnel to Participate in the On-site Review and Investigative Function"
- (l) BAP 1210-4, Revision 0, "Signature Alternates for Procedural Content and Technical Review"

- (m) BAG 1300-1, Revision 0, "Station Procedure Manuals"
- (n) BAP 1310-4, Revision 1, "Preparation of Temporary Procedures and Temporary Changes to the Permanent Procedures"

(2) Results of Inspection

- (a) During the review of procedures used by the quality assurance organization, the inspector noted that quality assurance department memoranda were being used as procedures to describe methods for performing quality related activities. The following observations were made with regard to these documents:
 - 1. No documented procedure existed for preparation, review, approval and control of quality assurance department memoranda.
 - 2. Individual quality assurance department memoranda contained only the signature of the Corporate QA Manager and there was no evidence of the required review by a knowledgeable person other than the originator.

These issues were discussed with CECO QA personnel. On July 9, 1984, the inspector reviewed revised copies of all seventeen quality assurance department memoranda. The memoranda contained the required signatures and a new procedure which described the required procedural controls had been developed. The memoranda have been issued for use and the inspector has no further concerns regarding this matter.

- (b) During the review of Quality Assurance Department Memorandum No. 7, dated April 1984, the inspector noted that in some cases the procedure allowed training to be substituted for the experience levels specified by ANSI N45.2.6-1978. This procedure was revised and reissued and is now acceptable. The inspector has no further questions regarding this matter.

CECO QA personnel performed a review of certification records of personnel who were qualified to Memorandum No. 7. The review was performed to determine if QA personnel had been certified to the minimum experience requirements specified by ANSI N45.2.6. Two separate surveillance reports, generated as a result of this review, were reviewed by the NRC inspector. One of the surveillance reports addressed the certification of Byron QA personnel and the other dealt with the certification of QA personnel at other CECO nuclear facilities. A review of the surveillances by the NRC inspector did not indicate a problem with QA personnel assigned to Byron; however,

the certifications of some personnel assigned to other projects appeared to be questionable. A subsequent review of selected certification records at the Corporate QA Office failed to resolve the issue because some of the resumes did not contain sufficient detail. This matter is unresolved pending further review (454/84-40-01).

- (c) During the review of procedure BAP 1210-2, the inspector noted that the Quality Control Supervisor had designated all QC Level II inspectors as unrestricted alternates to the on-site review committee. The inspector questioned whether all these designated alternates were qualified in all areas in which the QC Supervisor would be involved. CECO personnel at Byron indicated they would perform a review of the qualifications of these individuals and would modify the alternate's responsibilities as appropriate. A new assignment of alternate responsibilities was issued on July 12, 1984. The inspector was provided a copy of the revised issue. Pending review of the alternates' qualifications for the revised assignments, this item is considered unresolved (454/84-40-02).
- (d) During a review of QA personnel certification records the inspector noted that one of the QA engineers had not been recertified in one NDE discipline. The QA Supervisor was not aware that the engineer's certification was not current and had not established a method to ensure that only qualified personnel were assigned to work in respective NDE disciplines. There was no indication that the QA engineer had performed work in the uncertified discipline. This matter is unresolved pending review of a controlled method to ensure assignment of qualified personnel to specific work assignments (454/84-40-03).

b. Audit Program

The Byron QA audit program was reviewed to verify compliance with regulatory requirements and QA program commitments. Inspection of the audit program included a review of corporate QA audits of suppliers and the Byron project, operations QA audits of pre-operational testing, and a cursory review of construction QA audits. Audits of construction and operations (including pre-operational testing) were conducted by separate quality organizations who report through separate channels to the corporate QA manager. This inspection primarily covered internal audits by operational quality assurance; however, audits by construction quality assurance were briefly reviewed to determine if the problems noted during the operations QA review, as described below, also existed in the construction QA area. Corporate QA audits were also reviewed. The inspection was performed by reviewing applicable procedures and records and conducting personnel interviews.

(1) Documents Reviewed

(a) Procedures

1. Q. P. 18-1, "Quality Program Audits"
2. Q. P. 18-51, "Audits for Operations - Quality Assurance Program Audits"
3. Q. P. 18-52, "Audit and Surveillance of Maintenance, Spare Parts and In-service Inspection Activities"
4. Quality Assurance Department Memorandum No. 3, "Quality Assurance Audit and Surveillance of Nuclear Station Technical Specification by Station and Off-site Personnel"
5. Quality Assurance Department Memorandum No. 5, "Off-site Audit Plans - Engineering/Construction"
6. Quality Assurance Department Memorandum No. 13, "Quality Assurance Audit and Deficiency Numbering"
7. Quality Assurance Department Memorandum No. 16, "Training"

(b) Audit Schedules for 1983 and 1984

(c) Eight Construction Audit Files

(d) Thirteen Operations Audit Files

(e) Auditor Qualification Records

(2) Results of Inspection

The inspector reviewed audit schedules and records for project QA audits of construction, project QA audits of pre-operational testing, corporate QA audits of the Byron project, and audits of Byron suppliers. Selected auditor certification records were also reviewed.

The supplier audits reviewed were acceptable. Corporate audits of the Byron project were generally acceptable. The construction QA audits, which were reviewed, appeared to be thorough and well controlled even though two programmatic deficiencies were identified. Although two of the problems noted in the operations QA audits also existed in the construction QA audit area, the impact appeared to be minor due to the use of more experienced personnel and more involvement by management and lead auditors. Project QA audits of operations activities (including pre-operational

tional testing) were being satisfactorily conducted, except for those discrepancies noted in the following sections of this report. Specific observations made during the review were as follows:

- (a) The inspector reviewed the three corporate audits of the Byron project conducted during the past two years. The audits appeared to be comprehensive in scope and depth; however, the inspector noted that the Byron project QA organization was not included within the scope of the audit conducted on August 8-12, 1983. This item is unresolved pending further review of periodic corporate audits to verify that they include, within their scope, review of the Byron QA organization (454/84-40-04)
- (b) During the review of auditor certification records for operations QA auditors, the inspector noted that certain personnel had limited nuclear quality assurance experience. Most were recent college graduates with short term quality experience at the Byron Station. This is an open item which will be reviewed at a later date (454/84-40-05).
- (c) During the review and discussion of project QA audit schedules for operations QA for 1983 and 1984, the inspector noted that there was no system to assure that required technical specifications items are audited periodically as required by the technical specifications. The inspector was informed that this system would be prepared in the near future when personnel experienced in operations were available.

Currently, audits of technical specifications requirements only verify that the applicable requirements have been included in procedures. This was because the Byron technical specifications have neither been approved by the NRC nor implemented by the licensee. This item is open pending review of the audit scheduling system and the conduct of audits that verify technical specifications compliance subsequent to plant operation (454/84-40-06).

- (d) In reviewing construction QA audit No. 6-84-05, which was conducted on Westinghouse pipe support calculations, the CECO auditor determined that two errors were found in each of the two calculations reviewed during the audit. These calculations had been checked and used in pipe support design. An observation was issued as a result of the problem. This observation was closed with the following statement: "Due to the fact that none of these errors were significant no further action is required. This item is considered closed." This observation was closed without requiring action by Westinghouse to review additional calculations for errors or to address reasons that persons checking calculations did not detect the errors.

No additional calculations were reviewed by the auditors. The licensee's action taken does not appear to be adequate. This item is unresolved pending NRC review of the calculation errors (454/84-40-07).

(e) During the review of project QA audits, the following observations were made:

1. Audit procedures QP 18-51 and 18-52 (operations QA audits) and QP 18-1 (construction and supplier audits) were found to generally address the requisite requirements of ANSI N45.2.12 and N45.2.23, with the exception noted below.

a. Paragraph 4.4.6 of ANSI N45.2.12 requires that recommendations for correcting program deficiencies be included in the audit report.

b. Paragraph 4.2.2 of ANSI N45.2.12 describes the mandatory audit responsibilities for lead auditors.

c. Paragraph 5.2 of ANSI N45.2.12 and Regulatory Guide 1.144 specify audit record requirements.

d. Paragraph 2.3.4 of ANSI N45.2.23 specifies audit participation time requirements as a basis for lead auditor qualification.

e. Paragraph 2.3.2 of ANSI N45.2.23 requires an evaluation of both written and oral communication skills for lead auditor qualification.

The inspector's review was not performed to the depth which would ensure that all line items in ANSI N45.2.12 and N45.2.23 were procedurally addressed. Accordingly, the corrective action with regard to this item should include an indepth review of the procedures to ensure inclusion of the appropriate requirements.

2. Audit plans required by Paragraph 4.2.1 of ANSI N45.2.12 were not being prepared for operations QA internal audits of the Byron Station. This problem was not noted in construction audits.

3. Lead auditors were assigned as lead auditor for several audits simultaneously. As a result, some of the duties specified in Paragraph 4.2.2 of ANSI N45.2.12 for a lead auditor were not being performed. For example, lead auditors did not actively

participate in the performance of many of the audits and there is no objective evidence that other activities required for lead auditors (e.g., coordination of the audit) were being performed. In most cases, audits appeared to be performed with little participation, guidance or supervision by the lead auditor. The impact of this problem appeared to be minimal in the construction QA area.

4. During the review of records for operations QA audit 84-17 the inspector noted that checklist items indicated as discrepant were not adequately addressed. Two items indicated as discrepant were not covered by findings or observations and records provided no explanations. The checklist for this audit indicated seven discrepant items. Two findings and one observation were issued which addressed only five of the seven discrepant items. This was not in accordance with Paragraph 4.5.1 of ANSI N45.2.12. Similar deficiencies were not noted in the other 12 operations audit reports which were part of this review. Additionally, similar problems were not evident in the construction QA audits.
5. Audit reports did not identify auditors participating in the audit as required by Paragraph 3.2 of Attachment C of Procedure QP 18-51 and Paragraph 4.4.2 of ANSI N45.2.12. Similar problems were not evident in the construction QA audits.
6. During the review of audit finding No. 1 from operations QA Audit 84-15, the inspector noted that the finding was closed without the benefit of appropriate corrective action. Although more than 20 percent of the records reviewed were deficient, the finding was closed without requiring a review of the balance of the respective records. This was not in accordance with Paragraph 4.5.1 of ANSI N45.2.12. Of the 13 operations audits reviewed, this was the only instance where failure to take appropriate corrective action was identified.

These deficiencies (Items 1. through 6.) in the audit program being performed by the Byron stations QA organization are considered to be an item of noncompliance with 10 CFR 50, Appendix B, Criterion XVIII (454/84-40-08).

(f) Concerns noted during the review of project QA audits were as follows:

1. The three audit procedures (QP 18-1, 18-51 and 18-52) were not complete and were difficult to follow. The documents were not consistent in

content. For example, the operations QA audit procedures (QP 18-51 and QP-52) did not describe or define the documents or methods used to report audit findings and audit observations. These issues are defined in QP 18-1. This is an open item pending further procedural review (454/94-40-09).

2. In most cases, project operations QA internal audits verified programmatic requirements but did not verify implementation of those requirements during pre-operational testing activities. In other cases where verification of implementation seemed to be required the verification was not performed. For example, checklist item number 8 of audit 84-04 asks the question, "Is distilled water used to refill station batteries?" The auditor verified the requirement was included in the appropriate procedure; however, there was no actual verification that distilled water was used to refill station batteries. This is an open item pending review on a subsequent inspection (454/84-40-10).

3. Checklists contained general questions with no details as to sample size or methods of verification. These are left to the discretion of the auditor during the audit. In some cases, this appears to result in inadequate verification of checklist items. This is an open item to be reviewed in a subsequent inspection (454/84-40-11).

4. In some cases, audit records (i.e., reports or checklists) did not indicate if the audits were performed by reviewing records, verification of hardware or witnessing of work performed. The inspector noted this in the records for Audit 83-33. This is an open item pending further review of current audits (454/84-40-12).

(g) The auditor certification files at the Byron station were reviewed to determine if the certifications were adequate. There were two items that could not be fully evaluated.

1. A copy of the lead auditor qualification examination required by Paragraph 4.2 of ANSI N45.2.23 was not included in the auditor certification files at the site. Copies of the examinations were on file in the training files of the individuals which are maintained at the corporate QA office.

2. Evidence that auditor training courses completed (as indicated in the certification records) included the specific training required by Paragraphs 2.2.1 and 2.2.2 of ANSI N45.2.23 was not included in the certification file at the site.

This is an open item pending further review of the Byron Station auditor certification records (45484-40-13).

c. Corrective Action Program

The inspector reviewed the corrective action program and its implementation to verify conformance with regulatory requirements and quality program commitments. The review included the quality trending program, action taken as the result of audit findings, and the use of the Action Item Record.

(1) Documents Reviewed

(a) Procedures

1. Q. P. 16-51, "Corrective Action for Operations - Corrective Action System"
2. Quality Assurance Department Memorandum No. 6, "Trending of Audit Deficiencies"

(b) Audit Status Log

(c) Selected Action Item Records

(2) Results of Inspection

During the review, the inspector noted that Byron Operations did not have a procedure for trending of discrepancies by cause or discrepancy type. The inspector was informed that Byron personnel were aware of the need for this procedure and it will be developed in the near future. This matter is unresolved pending further review (454/84-40-14).

3. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during the inspection are discussed in Paragraphs 2.a.(2)(b), 2.a.(2)(c), 2.a.(2)(d), 2.b.(2)(a), 2.b.(2)(d), and 2.c.(2).

4. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, 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.(2)(b), 2.b.(2)(c), 2.b.(2)(f) 1., 2.b.(2)(f) 2., 2.b.(2)(f) 3., 2.b.(2)(f) 4., and 2.b.(2)(g).

5. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) at the Byron plant on July 12, 1984, and summarized the purpose, scope and findings of the inspection. On July 17, 1984, the inspector summarized the inspection results for licensee Quality Assurance representatives at the Corporate Quality Assurance Offices in Chicago.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

SEP 24 1984

Docket No. 50-454
Docket No. 50-455
Docket No. 50-456
Docket No. 50-457

Commonwealth Edison Company
ATTN: Mr. Cordell Reed
Vice President
Post Office Box 767
Chicago, IL 60690

Gentlemen:

This refers to the special safety inspection conducted by Mr. J. W. Muffett of this office on September 4, 1984 of activities at Sargent & Lundy Engineering concerning Byron Station, Units 1 and 2 and Braidwood Station, Units 1 and 2 authorized by NRC Construction Permits No. CPPR-130, No. CPPR-131, No. CPPR-132 and No. CPPR-133 and to the discussion of our findings with Mr. T. Tramm at the conclusion of the inspection.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

No items of noncompliance with NRC requirements were identified during the course of this inspection.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosure(s) will be placed in the NRC Public Document Room unless you notify this office, by telephone, within ten days of the date of this letter and submit written application to withhold information contained therein within thirty days of the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1). If we do not hear from you in this regard within the specified periods noted above, a copy of this letter and the enclosed inspection report will be placed in the Public Document Room.

~~5418166153~~

SEP 24 1984

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

"Original Signed by R. L. Spessard"

R. L. Spessard, Director
Division of Reactor Safety

Enclosure: Inspection Report

No. 50-454/84-67(DRS);
No. 50-455/84-45(DRS);
No. 50-456/84-26(DRS);
and No. 50-457/84-25(DRS)

cc w/encl:

D. L. Farrar, Director
of Nuclear Licensing
V. I. Schlosser, Project Manager,
Gunner Sorensen, Site Project
Superintendent
R. E. Querio, Station
Superintendent
DME/Document Control Desk (RIDS)
Resident Inspector, RIII Byron
Resident Inspector, RIII
Braidwood
Phyllis Dunton, Attorney
General's Office; Environmental
Control Division
D. W. Cassel, Jr., Esq.
Diane Chavez, DAARE/SAFE
W. Paton, ELD
L. Olsan, NRR LPM

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-454/84-67(DRS); 50-455/84-45(DRS);
50-456/84-26(DRS); 50-457/84-25(DRS)

Docket No. 50-454; 50-455;
50-456; 50-457

License No. CPPR-130; CPPR-131
License No. CPPR-132; CPPR-133

Licensee: Commonwealth Edison Company
Post Office Box 767
Chicago, Illinois 60690

Facility Name: Byron Station, Units 1 & 2
Braidwood Station, Units 1 & 2

Inspection At: Sargent & Lundy Engineers, Chicago, Illinois

Inspection Conducted: September 4, 1984

Inspector: *D. W. Muffett*
J. W. Muffett

9/24/84
Date

Approved By: *D. H. Danielson*
D. H. Danielson, Chief
Materials & Processes Section

9/24/84
Date

Inspection Summary

Inspection on September 4, 1984 (Report No. 50-454/84-67; 50-455/84-45; and
50-456/84-26; 50-457/84-25(DRS))

Areas Inspected: Special announced safety inspection to review calculations
concerning the primary shield wall, the reactor pressure vessel shield wall,
and the use of 1/4" concrete expansion anchors. This inspection involved a
total of 9 inspector-hours by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

~~50-454/84-67~~

DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

*T. Tramm, Nuclear Licensing

Sargent & Lundy Engineers (S&L)

*M. McCullough, QA Division

*R. W. Hooks, Assistant Head - Structural Engineering Division

A. Al-Dabbagh, Senior Engineering Analyst

J. N. Diebold, Senior Structural Engineer

*Denotes those attending the exit interview.

2. Allegation Concerning Primary Shield Wall and Reactor Pressure Vessel Shield Wall

a. Allegation

On February 14, and May 27, 1984 anonymous allegations concerning Sargent & Lundy design practices were received by the NRC. One of the allegations is summarized below. The remaining allegations have been addressed in a separate Region III inspection report (50-454/84-13; 50-455/84-09, Section II).

The individual alleged that the Byron plant was unsafe because of foundation problems, and the sacrificial shield foundation was weak by a factor of 50%. The alleged claimed the foundation would move, slide or crack in an earthquake of 4.5 on the Richter scale causing radiation to leak from the containment. The alleged knew that a S&L Division Head knew of the problem, but does not know what CECo was told. The design was made prior to Three Mile Island, but has since been checked by S&L. In checking the design S&L "fixed the books." The alleged stated that data for the sacrificial shield to foundation connection was manipulated to make the books look good. The alleged contended that the quantity of rebar in the sacrificial shield and foundation had been significantly reduced. According to the alleged a group of ten S&L engineers had informed S&L management of these problems. Allegedly, S&L fired one engineer and did not promote the others. The alleged claimed to have in his possession the original records of the manipulated data.

b. NRC Findings

In response to this allegation, inspections were conducted at Sargent and Lundy on April 25, and May 23, 1984. These inspections revealed the following four significant technical issues concerning the Primary Shield Wall and the Reactor Pressure Vessel Shield Wall.

- (1). In the seismic analysis of the Primary Shield Wall (PSW) and other walls in this area, the walls are assumed to act together as a unit (a single cantilever beam). This assumption is also used to apportion seismic loads among the various walls. No analysis is provided to justify this assumption.
- (2) In the thermal analysis of the PSW the affect of the constraint provided by these other walls is neglected (nonsymmetrical affect). This is nonconservative in regard to thermal stresses.
- (3) In the analysis of accident conditions on the PSW, the PSW is assumed to be on a "pinned base" (free to rotate). The angular displacement of the "pinned base" is then applied to the interior base mat. This is nonconservative because it neglects the stress produced by deflections which deviate from the "pinned base" assumption. (Thick shell affect.)
- (4) In the Reactor Presssure Vessel Shield Wall analysis, the connection between the top beams and the embedded plates is identified as "7% over stress under accident conditions." The analysis contains no justification or explanation as to why this condition is acceptable.

These issues were discussed with the licensee and its Architect/Engineer and was classified as an open item. At the close of the discussion the licensee committed to perform analyses to address these issues.

On September 4, 1984, the additional analyses were reviewed. The analyses are contained in the following documents:

- SESD Calculation 4.3.1 which addressed the distribution of loads among the various walls.
- SESD Calculation 4.3.2 which addressed the effect of nonsymmetrical constraint by other walls in relation to thermal stresses.
- Byron/Braidwood Calculation Book 6.1.3 "Primary Shield Wall Final Load Check" which addressed the issue of structural boundary conditions at the Primary Shield Wall - Basemat Interface.
- Byron/Braidwood Calculation Book 8.99.2, Revision 4, "RPV Shield Wall Design", which addressed the previously identified local over stress condition.

All of the above analyses were reviewed in detail and found to be acceptable. The structural adequacy of the structures covered by these analyses has been demonstrated. The allegation concerning an engineer being fired and others not being promoted in response to safety concerns was dealt with in inspection report 50-454/84-13(DE). Interviews conducted during this inspection indicated no evidence of technical concerns among engineers identified by the allegor. The allegation

concerning the "books" being manipulated to "look good" was also investigated. No evidence of manipulation was found, but in light of the additional confirmatory analysis done by S&L this point becomes moot. Also the inspection report 50-454/84-13 deals with the additional allegation concerning hangers. Report 84-13 and this report covers all issues in the allegation. Therefore the allegation could not be substantiated. This closes the open item (454/84-25-01; 455/84-18-01; 456/84-11-01; 457/84-11-01) concerning this allegation.

3. Allegation Concerning The Use Of 1/4" Concrete Expansion Anchors

a. Allegation

In the same body of allegations mentioned in Paragraph 2 above, the following allegation was also made:

The allogger stated that 1/4" expansion anchor bolts holding electrical, HVAC, instrumentation, and mechanical panels to floors and walls were underdesigned by 30-50%. The allogger further advised this problem was identified three years ago at Zimmer and Marble Hill. Allegedly, S&L demoted the engineers after they had identified the problem. The allogger stated this problem was also applicable to Byron, Braidwood, LaSalle and Clinton.

b. NRC Findings

On May 22-23, 1984, various calculations concerning the use of 1/4" concrete expansion anchors (CEAs) were reviewed. These calculations were not sufficient to allow a conclusion to be drawn relative to the use of 1/4" CEAs. Therefore this became an unresolved item.

On September 4, 1984, further calculations and drawings were reviewed concerning the use of 1/4" CEAs. Sargent and Lundy Calculation 7.16/17.5 "4' and 8' Local Instrument Panels" (anchored using 1/4" CEAs), output from Sargent & Lundy's Anchor Assembly Analysis Program (CINCH), and drawing M-33, Revision L, sheet 38 were reviewed and found acceptable. These calculations cover the following Local Instrument Panels:

2PL50J	2PL78JA
2PL52J	2PL78JB
2PL55J	2PL79JB
2PL70J	2PL81JA
2PL74J	2PL81JB
2PL75J	2PL82JA
2PL66J	2PL82JA
2PL67J	2PL82JB
2PL68J	2PL84JA
2PL57J	2PL84JB
2PL72J	OPL50J
2PL77JC	OPL53J
2PL85JA	OPL53JA
2PL85JB	OPL53JB
2PL69J	

The calculations reviewed were acceptable and showed no evidence of underdesign. This review of S&L design method concluded that S&L methodology for the design of 1/4" CEA is correct. This methodology is essentially the same for all other plants (Zimmer, Marble Hill, Braidwood, LaSalle and Clinton). No evidence of technical concerns or adverse personnel actions were indicated in interviews with engineers (who the allegor stated were knowledgible area) as detailed in report 50-454/84-13(DE). Therefore this allegation could not be substantiated. This closes the unresolved item 454/84-25-02; 455/84-18-02; 456/84-11-02; 457/84-11-02) concerning 1/4" CEAs.

4. Exit Interview

The inspector met with representatives (denoted in Paragraph 1) at the conclusion of the inspections. The inspector summarized the scope and findings of the inspections noted in this report.



September 27, 1984

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

Subject: Byron Station Units 1 and 2
Braidwood Station Units 1 and 2
10 CFR 50.55(e) Final Report
Westinghouse Motor Control Centers
NRC Docket Nos. 50-454/455 and 50-456/457

References (a): T. Tramm Letter to J. G. Keppler
dated July 3, 1984.

Dear Mr. Keppler:

On June 1, 1984, the Commonwealth Edison Company notified your office of a deficiency reportable pursuant to 10 CFR 50.55(e) regarding spot-welded electrical connections in Westinghouse Motor Control Centers at our Byron and Braidwood Stations. Reference (a) provided information concerning this matter to fulfill the thirty day reporting requirement. For tracking purposes this deficiency was assigned Number 84-04 for Byron and 84-09 for Braidwood. The purpose of this letter is to update the status of corrective actions being taken to resolve this deficiency. This letter is considered to be a final report.

Westinghouse Electric Corporation has furnished acceptance criteria for the two wire sizes involved. At our Byron Station, a 100% inspection of safety-related motor control centers has been conducted and all defective connections, based on the Westinghouse acceptance criteria, have been identified. A review has been made of the identified connections and some have been found that are adequate to carry their design load. These will be replaced to bring them to design specification in the near future. The remaining connections have been replaced using Westinghouse-supplied replacement wire stabbers.

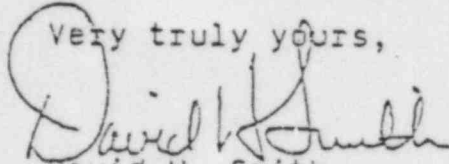
At our Braidwood Station, a 100% inspection of all safety-related motor control centers and necessary repairs will be conducted concurrently and will be initiated following receipt of Westinghouse replacements. It is anticipated that a partial shipment of replacement wire stabbers will be received by mid-October. All Braidwood inspections and repairs will be complete prior to Unit 1 fuel load.

~~241/165-237~~

OCT 1 1984

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

Very truly yours,



David H. Smith
Nuclear Licensing Administrator

cc: NRC Resident Inspector - Braidwood

Director of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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