

**BPI****Business and Professional People for the Public Interest**

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June 13, 1983

Ivan W. Smith, Chairman
 Administrative Judge
 Atomic Safety and Licensing Board
 U.S. Nuclear Regulatory Commission
 Washington, D.C. 20555

Dr. A. Dixon Callahan
 Administrative Judge
 Union Carbide Corporation
 P.O. Box Y
 Oak Ridge, Tennessee 38730

Dr. Richard F. Cole
 Administrative Judge
 Atomic Safety and Licensing Board
 U.S. Nuclear Regulatory Commission
 Washington, D.C. 20555



Re: In the Matter of Commonwealth
 Edison Company (Byron Station,
 Units 1 and 2)
Docket No. 50-454 and 50-455

Dear Administrative Judges:

The enclosed Region III inspection report was received by this office today. It contains support for Joint Inter-venors position that Commonwealth Edison has neither the willingness nor the ability to maintain an effective quality assurance/quality control program.

Your attention is particularly drawn to the following:

1. The item of noncompliance concerns interim use of lead auditors who are not certifiable under ANSI 45.2.23 (passim).

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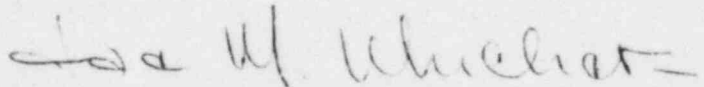
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DS03

2. This appears to be standard Commonwealth Edison practice at all sites. (cover letter at p.1; Notice of Violation at p.5).

This information is being provided pursuant to the disclosure requirements of Duke Power Company (William B. McGuire Nuclear Station, Units 1 and 2), ALAB - 143, 6 AEC623, 625(1973).

Very truly yours,



Jane M. Whicher, attorney
for the Rockford League of
Women Voters and DAARE/SAFE
on all issues and matters
relating to quality assurance/
quality control

JMW/11

encl.

cc: See attached service list

SERVICE LIST

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

MAY 31 1983

Docket No. 50-454

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. R. S. Love of this office on March 21-25, and April 4-8, 1983, of activities at Byron Station authorized by NRC Construction Permit No. CPPR-130 and to the discussion of our findings with Mr. G. Sorensen 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.

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. Information gathered in this inspection indicates that the use of interim lead auditors who are not certifiable per ANSI 45.2.23 may be common practice at CECO construction sites. Please include in your response to the item of noncompliance a discussion of the extent of this practice at all CECO sites, including steps being taken to remedy the problem. Also, include in your response the steps you plan to take to assure that audits conducted by non-certifiable lead auditors were properly conducted.

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, the enclosure(s), and your response to this letter will be placed in the Public Document Room.

MAY 31 1983

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,



W. S. Little, Chief
Engineering Branch II

Enclosures:

1. Appendix, Notice
of Violation
2. Inspection Report
No. 50-454/83-16(DE)

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
DMB/Document Control Desk (RIDS)
Resident Inspector, RIII Byron
Resident Inspector, RIII
Braidwood
Philip L. Willman, Esq.
Assistant Attorney General
Environmental Control Division
Reed Neuman, Esq., Assistant
Attorney General
Ms. Jane M. Whicher
Diane Chavez, DAARE/SAFE

Appendix

NOTICE OF VIOLATION

Commonwealth Edison Company

Docket No. 50-454

As a result of the inspection conducted on March 21-25, and April 4-8, 1983, and in accordance with the NRC Enforcement Policy, 47 FR 9987 (March 9, 1982), the following violation was identified:

10 CFR 50, Appendix B, Criterion II, states, in part, "The program shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained."

Commonwealth Edison Company (CECo) letter, L. O. DelGeorge to D. G. Eisenhut, U.S. NRC, Director, Division of Licensing, dated August 17, 1981, affirmed CECo commitment to Regulatory Guide 1.146, August 1980 and ANSI N45.2.23-1978 as required by Generic Letter 81-01.

ANSI N45.2.23-1978, paragraph 2.3, states, "An individual shall meet the requirements of paragraphs 2.3.1 through 2.3.5 prior to being designated a lead auditor."

ANSI N45.2.23-1978, paragraph 2.3.1, states, in part, "Education and Experience. The prospective lead auditor shall have verifiable evidence that a minimum of ten (10) credits under the following scoring system have been accumulated. Education (4 credit maximum). Experience (9 points maximum). Other credentials of professional competence (2 credit maximum). Rights of Management (2 points maximum).

Contrary to the above, the Commonwealth Edison Company Quality Assurance Lead Auditor performing the Power-Azco-Pope audit was not adequately qualified and/or trained to perform lead auditor functions. Details of apparent non-compliance to the above requirements are delineated in paragraph 3.A.(1) of the attached report.

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) corrective action taken and the results achieved; (2) corrective action to be taken to avoid further noncompliance; and (3) the date when full compliance will be achieved. Consideration may be given to extending your response time for good cause shown.

May 27, 1983
Dated

W. S. Little
W. S. Little, Chief
Engineering Branch II

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-454/83-16(DE)

Docket No. 50-454

License No. CPPR-130

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

Facility Name: Byron Station, Unit 1

Inspection At: Byron Site, Byron, IL

Inspection Conducted: March 21-25 and April 4-8, 1983.

Inspector: *[Signature]*
R. S. Love

Approved By: *[Signature]*
C. C. Williams, Chief
Plant Systems Section

5/27/83

5/27/83

Inspection Summary

Inspection on March 21-25 and April 4-8, 1983 (Report No. 50-454/83-16(DE))
Areas Inspected: Review of licensee action on previously identified items. Reviewed installation of instrument sensing lines, installation and termination of instrumentation cables, and the review of associated procedures and records. This inspection involved a total of 69 inspection-hours by one NRC inspector.
Results: In the areas inspected, one potential item of noncompliance was identified. The licensee failed to assure that CECo lead auditors were properly qualified and certified (Paragraph 3.A.(1)).

DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

#*G. Sorensen, PCD Construction Superintendent
#*R. Tuetkon, PCD Assistant Construction Superintendent
*J. T. Westermeier, PED Project Engineer
*M. A. Stanish, QA Superintendent
#*R. B. Klingler, Staff Assistant
*P. T. Myrda, QA Supervisor
#*R. A. Westberg, QA Engineer
*A. J. Rosenbach, QA Inspector
*F. A. Mazzini, QA Engineer
*M. E. Lohmann, PCD Mechanical Supervisor
K. J. Hansing, QA Supervisor
E. Sager, Field Engineer
J. Binder, Project Electrical Supervisor
R. G. Gruber, QA Engineer

Power-Azco-Pope (PAP)

R. P. Larkin, QA Manager
R. C. Schulz, Project Manager
*D. M. Nelson, QC Supervisor
*M. C. Donohoe, Engineering Manager

Hatfield Electric Company (HECo)

T. Hill, QA/QC Manager
J. D. Spangler, Lead Welding Inspector (PTL)
R. Quias, Welding Inspector (PTL)
G. A. Cason, QC Lead Inspector (PTL)

Westinghouse

*M. D. Pitlyuk, Manager
*G. L. Laughlin, Engineer

The inspector also contacted and interviewed other licensee and contractor personnel during this reporting period.

*Denotes those present at the exit interview on March 25, 1983.

#Denotes those present at the exit interview on April 8, 1983.

2. Action on Previously Identified Items

(CLOSED) Noncompliance (50-454/80-25-13): This item pertained to the failure to apply hold tag on items identified on CECo Nonconformance Report (NCR) F-529. This NCR identified the fact that the cable tray

stiffener welds did not meet the requirements of AWS D1.1 and the purchase order specifications. Weld profile maps were prepared on cable tray stiffener welds that did not meet the acceptance criteria. The design engineer, Sargent and Lundy (S&L), performed an analysis on the identified weld and with a few exceptions, found that the welds met the design intent. The welds that did not meet the design intent were repaired by the electrical contractor. Paragraphs 3.10.3.2.2.a.1 of the FSAR was revised by Amendment 41, February 1983, to state, "Deviations from the AWS requirements for specific weldments are made on the basis of design calculations." This item is closed.

(CLOSED) Unresolved Item (50-454/81-16-03; 50-455/81-12-03): Hatfield procedures did not address methods to verify that maximum cable pulling tension had not been exceeded when small cables were pulled. S&L drawing 6E-0-3000B, Sheets 1 thru 5, and Hatfield Procedure No. 10 were revised to address the required precautions to be taken when small cables are pulled. This item is closed.

(CLOSED) Unresolved Item (50-454/81-16-04; 50-455/81-12-04): This item identified that the safety-related switches, instruments, recorders, etc., in the main control room were not distinctly identified as being in the protection system. Paragraph 8.3.1.3.3 of the FSAR identifies the fact that the switches, instruments, records, etc. in the main control room would not be color-coded to identify the items as being in the protective system. This item is closed.

(CLOSED) Noncompliance (50-454/82-05-09b; 50-455/82-04-09b): This item identified that HECO procedure number 6 did not address corrective action to prevent recurrence when a nonconformance or deviation was identified. Procedure 6, Revision 11, dated October 9, 1982, now addresses corrective action to prevent recurrence. A review of HECO NCRs indicates that the procedure is being implemented. This item is closed.

(CLOSED) Noncompliance (50-454/82-05-09c; 50-455/82-04-09c): This item identified that HECO procedures did not address the precautions to be taken to prevent exceeding maximum cable sidewall pressure during cable installation. Also, this procedure did not address cable rework. HECO Procedure 10, Revision 19, dated February 14, 1983, satisfactorily addresses cable rework and steps to be taken so as not to exceed cable sidewall pressure. This item is closed.

(CLOSED) Noncompliance (50-454/82-05-11d; 50-455/82-04-11d): This item identifies that PAP procedure QC-4 did not address corrective action to prevent recurrence when a nonconforming condition was identified. PAP Procedure QC-4, Revision 10, dated September 21, 1982, satisfactorily addresses corrective action to prevent recurrence. This item is closed.

(CLOSED) Open Item (50/454/82-05-12; 50-455/83-04-12): This item identified that CECO NCRs were remaining open for an extended period of time. A review of the identified NCRs indicates that a concerted effort has been made to implement the disposition and close these NCRs. The CECO PCD Staff Assistant is implementing a tracking system to expedite the closure of NCRs. This item is closed.

(CLOSED) Noncompliance (50/454/82-05-13; 50/455/82-04-13): This item identified that NCRs were being improperly closed/voided by CECo and HECo. Improperly closed/voided NCRs were reopened by preparing a new NCR. These NCRs were then properly closed and procedure were revised so as to mitigate the possibility of this situation re-occurring. This item is closed.

(CLOSED) Open Item (50-454/82-05-15; 50-455/82-04-15): This item identified that there was not a procedure in place that addressed the installation of covers on cable tray and risers. HECo Procedure 9C, Revision 1, was prepared to address the installation of cable tray and riser covers in accordance with S&L drawings. This item is closed.

(CLOSED) Unresolved Item (50-454/82-05-16; 50-455/82-04-16): This item identified that HECo procedure 9E did not meet the requirements of IEEE-384 as relating to marking of cable tray risers. Procedure 9E, Revision 10, Paragraph 5.3.1, now requires risers to be identified every 15'. This is in accordance with IEEE-384. Inspection Reports for the retro-fit of riser markers were reviewed by the inspector. This item is closed.

(CLOSED) Unresolved Item (50-454/82-17-01; 50-455/82-12-01): This item identified the possibility of QC inspectors inspecting items that they had installed or worked on. Hunter, HECo, and PAP are utilizing craft personnel as QC inspectors. These contractors reviewed their records and determined that no QC inspector had final inspected his own work. This item is closed.

3. Functional or Program Areas Inspected

A. Powers-Azco-Pope (PAP)

- (1) The Region III inspector reviewed the last three CECo audits of PAP, (PAP is the licensee's non-electrical instrumentation installation contractor). These audits were conducted on June 8 thru 10, 1982, December 15 thru 21, 1982, and February 1 thru 4, 1983. The findings and concerns identified during the audits were corrected by PAP.

During the review of CECo audit reports, the Region III inspector observed that the CECo lead auditor that performed the PAP audit was classified as an Interim Lead Auditor. The auditor's qualification and certification records contained a letter from the Byron Station Quality Assurance Superintendent to the CECo Manager, Quality Assurance. This letter (BY8067, August 24, 1982) was a request for Interim Lead Auditor Certification for the subject auditor. However, the letter indicated that the lead auditor candidate, based on education, experience, etc,... had accumulated eight (8) points to date. This is less than the minimum of 10 credit points specified by ANSI N45.2.23-1978. Moreover, an approved procedure allowing the use of lead auditors who do not meet the minimum requirements of the referenced code

was not available. This letter received the concurrence of the CECo Manager, Quality Assurance on August 26, 1982.

Interim Lead Auditor Certification is not addressed in the CECo Quality Assurance Manual, CECo Topical Report (CE-1-A), nor in ANSI N45.2.23-1978. CECo letter, L. O. DelGeorge to D. G. Eisenhut, U.S. NRC, Director, Division of Licensing, dated August 17, 1981, affirmed CECo commitment to Regulatory Guide 1.146, August 1980 and ANSI N45.2.23-1978 as required by Generic Letter 81-01.

During interviews with Byron Station Quality Assurance personnel, including site Quality Assurance Superintendent, the Region III inspector was informed that it has been standard practice within CECo to certify an individual as an Interim Lead Auditor when he/she does not meet the qualifications of a Lead Auditor.

The licensee was informed that failure to assure that Lead Auditors were trained, qualified, and certified in accordance with the CECo Quality Program and ANSI N45.2.23-1978, was an item of noncompliance in accordance with Criterion II of 10 CFR 50, Appendix B (50-454/83-16-01).

- (2) During this reporting period, the Region III inspector reviewed three CECo Material Receiving Reports (MRR) for material to be installed in the safety-related instrumentation system by PAP. Following are the results of this review:

- (a) MRR-50225 was for 3/8" x 1/2" U-bolts. The original purchase order stated that three U-bolts were to be manufactured to the ASME Code, Section III, Subsections NF-2130 and NF-2150, 1974 edition through summer 1975 Addenda. The Code edition and addenda was revised (CECo letter to Elcen Metal Products Company, December 12, 1979) to read, 1977 edition through summer 1977 addenda. Certificate of Conformance, September 2, 1980, stated that the 3/8" x 1/2", SA-36, Batch/Lot No. A000812A, U-bolts meet the requirements of Subsection NF of the 1977 ASME Code through 1977 addenda.
- (b) MRR-50554 was for 81 safety-related pressure gauges per Purchase Order 247695. Certificate of Conformance, July 10, 1981, was in the documentation package. Engineering qualification tests (environmental, radiation, seismic, etc.) have been submitted to Sargent & Lundy for their evaluation and approval.
- (c) MRR-52904 was for 3 safety-related Rosemount 1153 pressure transmitters per Purchase Order 261620. Certificate of Conformance, September 21, 1982, was in the documentation package. Preliminary qualification test data to the requirements of IEEE-323 and IEEE-344 has been submitted to

CECo. This data indicates that the pressure transmitter will qualify to the requirements of IEEE-323 and IEEE-344. Final test data is being prepared by Wyle Laboratories.

No items of noncompliance were identified in this area.

- (3) During this reporting period, the Region III inspector reviewed the following PAP procedures:

- . FP-1, Document and Drawing Control, Revision 5
- . FP-2, Control of Procurement and Requisitioning of Material and Services, Revision 9
- . FP-4, Material Storage, Revision 6
- . FP-5, Weld Filler Material Control, Revision 10
- . FP-12, Cold Bending of Pipe and Tube, Revision 6
- . FP-13, Hanger Installation and Control, Revision 9
- . FP-16, Identification and Marking of Pipe and Components, Revision 8

The above listed procedures appeared to be adequate.

- (4) During this reporting period, the Region III inspector reviewed the installation of the instrument sensing lines for the following instruments:

- (a) 1 FT-0434 - Loop "C" flow, instrument mounted on panel 1PL66J, located in the Containment Building at 377' elevation between Radius 1 and 2. The instrument sensing lines were installed in accordance with drawings T4-1FT-0434, Sheets 1, 2, and 3 and were identified in accordance with Field Change Request (FCR) 15437. This FCR modified specification F-2906. The installation and separation appeared to be adequate.
- (b) 1 LT-548 and 1 LT-549 - Redundant level transmitters for Steam Generator No. 4. During a walk down of the sensing lines for these instruments, the Region III inspector observed that there was only a 2" separation (18" required) between the sensing lines near hangers 1LT548H135-12 and 1LT549H136-7. The licensee's instrumentation installation contractor (PAP) prepared Fabrication/Installation Surveillance Report No. 992, March 24, 1983, to document the separation violation identified by the NRC.

In accordance with FCR-15437, the licensee has instituted a program to identify instrument sensing line separation violations for Containment Building safety-related RPS sensing lines:

1. PAP prepares as-built drawing of the installation and submits these drawings to Westinghouse Electric Corporation-Nuclear Technology Division (WNTD) for review.

2. Utilizing their computer system, WNTD reviews the as-built drawings for separation violations.

Violations are then analyzed on a case by case basis to determine acceptability and/or provide recommended resolutions.

To confirm that this method of analysis will in fact identify separation violations, the Region III inspector requested that a computer run be made on the sensing lines for instruments 1LT-548 and 1LT-549. Note the full computer run for instrument sensing lines for Unit #1 is scheduled for June 1983. The inspector also requested that WNTD be provided the information on the separation violation observed.

During the week of April 4-8, 1983, WNTD performed an analysis on the subject sensing lines. This analysis indicated a separation of 3", center to center, in the same area identified by the Region III inspector.

Pending a review of the Unit #1 final separation analysis by WNTD, this item is open (50-454/83-16-02).

- (5) During this reporting period, the Region III inspector reviewed the installation and inspection documentation and as-built drawings for the following instrument sensing lines:

- (a) Pressurized level transmitter 1LT-0460
Installation drawing T146-1LT-0460, Sheet 1 of 4, Revision 5; Sheet 2 of 4, Revision 6; Sheet 3 of 4, Revision 6; and Sheet 4 of 4, Revision 8.

As a result of a previously identified item of noncompliance (Reference 454/82-05-19; 455/83-04-19), PAP has instituted an extensive re-inspection program. During a review of the sensing line installation records for this instrument, it was observed that for Weld Numbers 1 thru 16, 8 of these welds were rejected during the re-inspection. The original weld inspection was performed on October 29, 1980 by Inspector "A". A review of Inspector A's qualification records indicated that he had been certified as a Level I weld inspector on November 1, 1980, and a Level II weld inspector on November 15, 1980. Inspector "A" was terminated on July 8, 1981. It is the Region III inspectors understanding, that, as a minimum, all accessible welds inspected by Inspector "A" through April 1981 will be re-inspected. This understanding is based on interviews with licensee and contractor personnel and a review of the re-inspection program. This re-inspection effort is being tracked by the item of noncompliance referenced above.

- (b) Loop C flow transmitter 1FT-0434
Installation drawing T4-1FT-0434, Sheet 1 of 3,
Revision 4; Sheet 2 of 3, Revision 6; Sheet 3 of 3,
Revision 3.

During a review of the sensing line installation records for this instrument, it was observed that Inspector "A" (Reference paragraph (5).a above) performed a visual inspection on 56 welds in this system in one day. Per the re-inspection program, these welds are scheduled for re-inspection. It was also observed that the Authorized Nuclear Inspector (ANI) performed/observed one visual weld inspection and 6 liquid penetrant examinations (PT) on the welds in this system. The re-inspection effort for this system is being tracked by previously identified item of noncompliance (Reference 454/82-05-19; 455/82-04-19).

- (6) Summary of PAP Re-Inspection Effort, as of April 3, 1983.
 - (a) As a minimum, the first three months of each certified inspectors (21) work will be re-inspected. Depending upon the reject rate as defined in the procedure, the re-inspection for a given inspector's work may encompass an additional three months or longer.
 - (b) The initial scope (three months per inspector) of the re-inspection effort has been defined.
 - (c) Approximately 25% of the re-inspection effort has been completed. To date, April 3, 1983, 125 valid welding rejects have been identified.

B. Hatfield Electric Company (HECo)

- (1) During this reporting period, the Region III inspector verified the installation and termination of instrumentation cables for instrument 1FT0434, 1LT0548, and 1LT0549. This verification consisted of a physical walkdown of the cables, inspection of the terminations, and a review of the associated records.
 - (a) Loop C flow transmitter 1FT-0434 is mounted on instrument rack, 1PL66J. Signal sent to Process I&C Protection Channel 1, Cabinet 1, Panel 1PA01J.
 - 1. Cable 1RC-723 - From transmitter 1FT-0434 to junction box 1JB-428R. As of April 7, 1983, this cable has not been installed.
 - 2. Cable 1RC-364 - From 1JB-428R to electrical penetration E24-1S105E-1K1R. Cable type - 1TW-PR #16 (shielded), 600 volt. Reel No. 02166-39. Installed December 4, 1980 to Revision A of the pull card. Cable routing

is as follows: 1JB-428R, C1R-1303-1K1R, 1JB-334R, C1R-2301-1K1R, 1JB-348R, C1R-2371-1K1R, 1JB-623R, C1R-4326-1K1R, 1377U-1K1R, 1359U-1K1R, terminating (inline splice) at electrical penetration, inside Containment Building.

3. Cable 1RC-363 - From electrical penetration E24-1S105-1K1R to Panel 1PA01J. Cable type 1TW-PR #16 (shielded), 600 volt. Reel No. 02166-41. Installed April 5, 1981 to Revision A of the pull card. Cable routing is as follows: inline splice at penetration, 1823D-1K1R, 1829D-1K1R, 1973D-1K1R, 1828D-1K1R, 1827D-1K1R, 1R319-1K1R, 11885F-1K1R, 11886F-1K1R, 11887F-1K1R, 11888F-1K1R, 11889F-1K1R, 11890F-1K1R, 11891F-1K1R, 1R401-1K1R, Panel 1PA01J.

This installation was in accordance with drawings, cable pull card and S&L Cable Tabulation printout.

- (b) Steam Generator No. 4 level transmitter 1LT-0548. Signal to Process I&C Protection Channel 3, Cabinet 3, Panel 1PA03J.

1. Cable 1FW-057 - From transmitter 1LT-0548 to electrical penetration E51-1S107E-1K3R. Cable type - 1TW-PR #16 (shielded), 600 volts. Reel No. 02166-69. Installed October 21, 1982 to Revision B of the pull card. Cable routing is as follows: 1LT-0548, C1R-4103-1K3R, 1JB074R, C1R-4104-1K3R, terminating at the penetration, inside containment.

2. Cable 1FW-056 - From electrical penetration E51-1S107E-1K3R to Panel 1PA03J. Cable Type 1TW-PR 316 (shielded), 600 volts. Reel No. 0216631. Installed April 2, 1980 to Revision B of the pull card. Cable routing is as follows: inline splice at penetration, 1798J-1K3R, 1797J-1K3R, 1972J-1K3R, * 1C216D-1K3R, 11880A-1K3R, 11881A-1K3R, 11882A-1K3R, 11883A-1K3R, 1R400-1K3R, Panel 1PA03J, terminal block F, landing points 10, 11, and 12.

*Where cable 1FW-056 enters conduit 1C216D-1K1R, it was observed that the cable jacket was damaged at cable footage marker 4684. The shield wire was exposed but did not appear to be damaged. The licensee's electrical contractor, HECO, prepared NCR 597, April 6, 1983, to document the damaged cable jacket. Also, during the labeling of conduits 1C216C and 1C216D, the markings were reversed on both ends of these embedded conduits. Field Change Request (FCR) 22863, April 7, 1983, was prepared to have this error corrected on the as-built drawing. This item is open

pending a review of NCR 537 for proper closure and review of FCR 22863 for approval and correction of as-built drawing (50-454/83-16-03).

Except as noted, this installation was in accordance with drawings, pull cards, and S&L Cable Tabulation printout.

- (c) Steam Generator No. 4 level transmitter 1LT-0549. Signal to Process I&C Protection Channel 2, Cabinet 2, Panel 1PA02J.

1. Cable 1FW-049 - From transmitter 1LT-0549, Rack 1PL57J, to electrical penetration E35-1S106E-1K2R. Cable installed November 5, 1981, to Revision A of the pull card. Cable type - 1TW-PR #16 (shielded), 600 volts. Reel No. 02166-46. Cable routing is as follows: 1LT-0549, C1R4478-1K2R, 1JB088R, C1R5124-1K2R, terminating at penetration, inside containment.
2. Cable 1FW-049 - From electrical penetration E35-1S106E-1K2R to Panel 1PA02J. Cable installed April 8, 1981 to Revision A of the pull card. Cable type 1TW-PR #16, 600 volts. Reel No. 02166-41. Cable routing is as follows: inline splice at penetration, 11458H-1K2R, 1R364-1K2R, 11467H-1K2R, 11485H-1K2R, 11464H-1K2R, 11418H-1K2R, 11417H-1K2R, 11620H-1K2R, 11623H-1K2R, 11624H-1K2R, Panel 1PA02J, terminal block J, landing points 22, 23, and 24.

This installation was in accordance with drawings, pull cards, and S&L Cable Tabulation printout.

- (2) Summary of HEC Co Re-Inspection Effort as of April 3, 1983.

- (a) As a minimum, the first three months of 22 certified inspectors work will be re-inspected. The 22 inspectors equals 1 in 5 of all inspectors employed by HEC Co since start of project. Depending upon the rejection rate as defined in the procedure, the re-inspection for a given inspector's work may encompass an additional three months or 100% of his/her work. In addition, the original sample size of inspectors may be increased 50%.
- (b) The initial scope (three months per inspector) of the re-inspection effort has been defined.
- (c) Approximately 5% of the inspection effort has been completed.

4. Status of Installation Effort

	<u>Unit 1</u>	<u>Unit 2</u>
Cable tray installation	100%	98%
Conduit installation	90%	54%

Cable installation	80%	34%
Cable terminations	80%	30%
Equipment installation	100%	90%
Instruments & sensing lines	98%	01%

5. Open Items

Open items are matters, not otherwise categorized in the report, that need to be followed up on in future inspections. Open items disclosed during this inspection are discussed in paragraphs 3.A.(4).b and 3.B.(1).b.2.

6. Exit Interview

The inspector met with licensee representatives (denoted under Persons Contacted) on March 25 and April 8, 1983. The inspector summarized the scope and findings of the inspection. The licensee representatives acknowledged this information.