UNITED STATES
ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION 1
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

JUN 7 1974

Long Island Lighting Company
Attention: Mr. W. O. Uhl
Vice President
175 Old Country Road
Hicksville, New York 11801

Docket No. 50-382
License No. CPPR-95

Reference: Your letter dated May 6, 1974 and supplement dated May 24, 1974
In response to our letter dated March 29, 1974

Gentlemen:

Thank you for informing us of the corrective and preventive actions you documented in response to our correspondence. These actions will be examined during our next inspection of your licensed program.

Your cooperation with us is appreciated.

Sincerely,

for Robert T. Carlson, Chief
Facility Construction and Engineering
Support Branch

LONG ISLAND LIGHTING COMPANY
175 EAST OLD COUNTRY ROAD • HICKSVILLE, NEW YORK 11801

WILFRED O. UHL
VICE PRESIDENT

May 6, 1974

Mr. Robert T. Carlson, Chief
Facility Construction and Engineering
Support Branch
Directorate of Regulatory Operations
U. S. Atomic Energy Commission, Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Correction of Apparent Violations
Shoreham Nuclear Power Station, Unit No. 1
Docket No. 50-322

Dear Mr. Carlson:

This letter responds to your letter of March 29, 1974, relative to the inspection of construction activities at the Shoreham Nuclear Power Station by Mr. Varela of your office on February 26 - March 1, 1974. Your letter noted that certain activities at the site appeared to be in violation of AEC requirements. These apparent violations and our responses follow:

I. Violation of Criteria V and XVII, Appendix B, 10CFR50

Contrary to the requirements of Criteria V and XVII, There were no records of in-process inspections to verify that cadwelding activities adhered to Site Procedure QC-14.2.

Corrective Action and Results

Field QA/QC personnel were directed to establish and maintain records of in-process inspection of cadwelds. Change 1 to Field Quality Control Procedure QC-14.2 was issued by Stone & Webster on March 6, 1974, requiring documentation of the results of in-process inspection of cadwelding activities on a Cadwelding Inspection Report (Form T-S-12). Documentation of the inspections was commenced on March 6, 1974.

Steps Taken to Prevent Recurrence

LILCO Audit Plans for Cadwelding have been revised to require verification that in-process inspections are documented on Form T-S-12.

Date Full Compliance Will Be Achieved

Full compliance has been achieved.

II. Violation of Criterion V, Appendix B, 10CFR50

Contrary to the requirements of Criterion V, the inspector observed B series cadweld sleeves which were not protected from the weather to prevent accumulation of moisture and rust inside the sleeves as required by Specification No. SH1-64 and Cadweld Procedure No. W-300 A.

Corrective Action and Results

The B series cadweld sleeves, with rebar installed, were inspected on March 5, 1974. The rebar was removed, and the rebar and sleeves cleaned and protected in accordance with the applicable requirements of Section 6.4 of the General Procedure for Cadwelding, W-300, Section A, Revision 1.

The intent of the protection and cleaning requirements of the General Procedure for Cadwelding is to insure that rebar ends and cadweld sleeves are clean and free from moisture prior to firing. Protection was required for sleeves without rebar installed to minimize the amount of cleaning required during the setting up in preparation for firing. However, congestion in the area of the B series sleeves in question made continuous protection with plastic covers impractical. Therefore,

the General Procedure for Cadwelding has been revised to recognize this condition and to emphasize the requirement for cleaning of the sleeve prior to firing.

Steps Taken to Prevent Recurrence

A training session on cadwelding was conducted for Stone & Webster cadweld quality control inspectors on March 4, 1974, as part of the Stone & Webster Continuing Education Program. As part of this session, the requirement to closely monitor the protection and cleaning of cadweld sleeves and rebar ends was re-emphasized.

In addition, LILCO Audit Plans for Cadwelding have been revised to require verification that protection and cleaning requirements have been implemented.

Date Full Compliance Will Be Achieved

Full compliance has been achieved.

III. Violation of Criteria XV and XVI, Appendix B, 10CFR50

Contrary to the requirements of Criteria XV and XVI, visually rejected B series cadweld splices are not being documented in Nonconformance and Disposition reports to identify the cause of the deficiencies, the corrective action taken or to report these defects to the appropriate level of management.

Comment

Our position relative to visually rejected B series cadweld splices is that they do not constitute a significant condition adverse to quality, within the intent of Criterion XVI, since all cadweld splices,

including replacement splices, are inspected, and every rejected splice is removed and replaced. Hence, there is no requirement that they be formally documented on Nonconformance and Disposition (N&D) reports. However, all rejected cadweld splices are documented on a Cadweld Control Record showing, in part, the welder symbol, bar size, position and reason for rejection.

In addition Stone & Webster has been directed to develop a system for identifying and reporting significant trends adverse to quality in cadwelding activities. The system will be implemented by May 15, 1974.

The following additional comments are forwarded to clarify several significant areas of apparent misunderstanding relative to cadwelding activities contained in Enclosure 2 of your letter of March 29, 1974:

(a) Unresolved Item B.1. stated that there was no evidence that licensee had performed any audits of contractor's cadwelding to verify conformance to applicable site construction and quality control procedures.

Actually, LILCO site personnel had conducted and reported the following audits of contractor's cadwelding prior to the referenced inspection:

Field Audit	No. 14 conducted	3/14/73
	No. 20	4/19/73
	No. 41	8/28/73
	No. 60	10/25/73
	No. 79	1/14/74

(b) Under DETAILS, subparagraph 2.d. stated, in part, "...that no records have been kept of visually identified nonconforming cadwelds appears to be a violation of Criteria XV and XVI, Appendix B, 10CFR50".

Contrary to the above, all visually rejected cadwelds are, as noted above, documented on a Cadweld Control Record.

In response to the request, also contained in your letter of March 29, 1974, that we describe those actions taken or planned to improve the effectiveness of our quality assurance program, the following information is furnished:

(a) We feel that we have an effective quality assurance program. However, we continuously monitor the program to insure that it is maintained up-to-date and effective. We have just completed an annual review of our Quality Assurance Procedures and will issue revised procedures as indicated by this review by May 31, 1974.

(b) To keep pace with our increasing quality assurance activities, we have requested authorization for additional quality assurance personnel both for the headquarters office and the construction site.

(c) We periodically review the quality history of Shoreham site activities as evidenced by LILCO Field Audit Reports and modify the Audit and Surveillance schedule, where warranted, to make most effective use of assigned quality assurance personnel.

Very truly yours,

Wilfred O. Uhl
Vice President

WOU/mjt

LILCO
LONG ISLAND LIGHTING

LONG ISLAND LIGHTING COMPANY

175 EAST OLD COUNTRY ROAD • HICKSVILLE, NEW YORK 11801

WILFRED O. UHL
VICE PRESIDENT

May 24, 1974

Mr. Robert T. Carlson, Chief
Facility Construction and Engineering Support Branch
Directorate of Regulatory Operations, Region I
U. S. Atomic Energy Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

DRO Inspection of February 26 - March 1, 1974
Shoreham Nuclear Power Station, Unit No. 1
Docket No. 50-322

Dear Mr. Carlson:

The following information supplements that furnished to you in my letter of May 6, 1974, relative to reporting of all visually rejected cadweld splices on Nonconformance and Disposition (N & D) Reports. My May 6 letter responded to your letter of March 29, 1974, which reported the results of Mr. Varela's February 26 - March 1, 1974, inspection of Shoreham site activities.

The instructions for completing the Field Quality Control (FQC) Cadweld Control Record (Attachment 5.4 to Stone & Webster FQC Procedure Number QC-14.2) did refer to rejected cadweld splices as nonconformities. Further, Stone & Webster FQC Procedure Number QC-6.1 does contain the requirement that nonconformities be documented on an N & D Report.

Nevertheless, it had not been our intention that all visually rejected cadweld splices be documented on N & D Reports for the reasons cited in my letter of May 6, 1974. Accordingly, the instructions for completing the Cadweld Control Record were revised on May 21, 1974, to delete the specific reference to rejected cadweld splices as nonconformities. Thus, full compliance has been achieved.

Rejected cadweld splices will continue to be documented on the Cadweld Control Record, and continued effectiveness of the Cadweld Control Program will be verified through the LILCO audit program.

Very truly yours,

Wilfred O. Uhl
Senior Vice President

DS/mh

UNITED STATES
ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

MAR 13 1974

Long Island Lighting Company
Attention: Mr. W. O. Uhl
Vice President
175 Old Country Road
Hicksville, New York 11801

License No. CPPR-95
Inspection No. 74-02

Gentlemen:

This refers to the inspection conducted by Mr. Varela of this office on February 26 - March 1, 1974 of activities authorized by AEC License No. CPPR-95 and to the discussions of our findings held by Mr. Varela with Mr. T. J. Burke and Mr. T. F. Gerecke of your staff at the conclusion of the inspection, and to a subsequent telephone discussion between Mr. Varela and Mr. T. F. Gerecke on March 5, 1974.

Areas examined during this inspection included: Concrete placement records, audit of cadwelding operations, review of unresolved items in piping and liner plate NDE, inspection of construction accident damage and review of procedures for erection of off-stand welded liner plate rings. Within these areas, the inspection consisted of selected examinations of procedures and representative records, interviews with personnel, and observations by the inspector.

During this inspection, it was found that certain of your activities appeared to be in violation of AEC requirements. The items and references to the pertinent requirements are listed in the enclosure to this letter. This letter constitutes a notice sent to you pursuant to the provisions of Section 2.201 of the AEC's "Rules of Practice", Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office within 30 days of your receipt of this notice, a written statement of explanation in reply, including: (1) corrective steps which have been or will be taken by you, and the results achieved; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full compliance will be achieved. In addition to the need for corrective action regarding these specific deficiencies, we are concerned about the implementation of your quality assurance program that permitted these deficiencies to occur. Consequently, in your reply, you should describe in particular, those actions taken or planned to improve the effectiveness of your quality assurance program.

In accordance with Section 2.790 of the AEC's "Rules of Practice", Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed inspection report will be placed in the AEC's Public Document Room. If this report contains any information that you (or your contractor) believe to be proprietary, it is necessary that you make a written application within 20 days to this office to withhold such information from public disclosure. Any such application must include a full statement of the reasons on the basis of which it is claimed that the information is proprietary, and should be prepared so that proprietary information identified in the application is contained in a separate part of the document. If we do not hear from you in this regard within the specified period, the report will be placed in the Public Document Room.

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

for Robert T. Carlson, Chief
Facility Construction and Engineering
Support Branch

Enclosures:
1. Description of Violations
2. RO Inspection Report No. 50-322/74-02

ENCLOSURE 1

DESCRIPTION OF VIOLATIONS

Long Island Lighting Company
Docket No. 50-322
License No. CPPR-95

Certain activities under your license appear to be in violation of AEC requirements. These apparent violations are considered to be of Category II Severity:

1. Criterion V, Appendix B, 10 CFR 50 states, in part,... "Activities affecting quality shall be prescribed by documented instructions, procedures ... and shall be accomplished in accordance with these instructions, ...," and Criterion XVII states, in part ... "records shall be maintained to furnish evidence of activities affecting quality."

   Contrary to the above, there were no records of in-process inspections to verify that cadwelding activities adhered to Site Procedure QC-14.2.

2. Criterion V, Appendix B, 10 CFR 50 states, in part,... "Activities affecting quality shall be prescribed by documented instructions, procedures, ... and shall be accomplished in accordance with these instructions, procedures ..."

   Contrary to the above, the inspector observed B series cadweld sleeves which were not protected from the weather to prevent accumulation of moisture and rust inside the sleeves as required by Specification No. SH-1-64 and Cadweld Procedure No. W-300 A.

3. Criterion XV states, in part,... "Measures shall be established to control materials ... non-conforming items shall be reviewed ... in accordance with documented procedures." Criterion XVI states, in part,... "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected ... The identification of significant conditions adverse to quality, the cause of the conditions, and the corrective action taken shall be documented and reported to appropriate levels of managements."

   Contrary to the above, visually rejected B series cadweld splices are not being documented in Non-Conformance and Disposition Reports to identify the cause of the deficiencies, the corrective action taken or to report these defects to the appropriate level of management.

U.S. ATOMIC ENERGY COMMISSION

DIRECTORATE OF REGULATORY OPERATIONS

REGION I

RO Inspection Report No: 50-332/74-02 Docket No: 50-322

Licensee: Long Island Lighting Company License No: CPPR-95

175 East Old Country Road Priority:

Hicksville, New York 11801 Category: A

Location: Shoreham Unit No. 1
Shoreham, Long Island, New York

Type of Licensee: BWR, 819 MWe (General Electric)

Type of Inspection: Routine, Unannounced

Dates of Inspection: February 26 - March 1, 1974

Dates of Previous Inspection: January 24-25, 1974 (Vendor Inspection)

Reporting Inspector: A. A. Varela, Reactor Inspector — Date: 3-27-74

Accompanying Inspectors: NONE — Date

Date

Date

Date

Other Accompanying Personnel: NONE — Date

Reviewed By: J. H. Tillou, Senior Reactor Inspector — Date

SUMMARY OF FINDINGS

Enforcement Action

A. There were no QC records to document the required in-process inspection of cadwelding activities. This is a violation of Criteria V and XVII, Appendix B, 10 CFR 50. (Details, Paragraph 2.s)

B. Series B cadweld sleeves were observed without required protection from weather and with formation of rust on internal surfaces. This is a violation of Criterion V, Appendix B, 10 CFR 50. (Details, Paragraph 2.c)

C. Failure to document all deficient or rejected "B" series cadwelded splices in non-conformance and disposition reports for identification of causes, develo corrective action and alert appropriate levels of management of the repetitive deficiencies. This is a violation of Criteria XV and XVI, Appendix B, 10 CFR 50. (Details, Paragraphs 2.d and 2.f)

Licensee Action on Previously Identified Enforcement Action

Not Applicable

Design Changes

Not Inspected

Unusual Occurrences

None

Other Significant Findings

A. Current Find gs

1. Status of Construction as of March 1, 1974 - Construction progress on the overall project is estimated by the licensee to be 11% completed. Work on installation of the primary containment is estimated by the licensee to be 30% completed.

2. An audit of records on the reactor containment building concrete placements performed since the last inspection (November 12-14, 1973) disclosed no deficiencies. (Details, Paragraph 5)

3. An accident on February 11, 1974 caused some damage to equipment and surface damage to some Class 2 concrete. No personal injuries occurred. This was reported to RO:I by telephone on February 12, 1974. Inspection of damage and an audit of contractor's report verify that the accident resulted in no significant damage to plant structures which would require a formal report under 10 CFR 50.55. (Details, Paragraph 6)

4. Three "off-stand" site fabricated 360° sections of the drywell liner plate are scheduled to be lifted to their final locations, probably during the month of March. Two 220 foot boom cranes are now on the site being prepared for erection of these sections. The contractor has developed formal procedures for this erection and safe rigging practices have been developed to meet applicable standards of OSHA, ANSI and the State of New York Safety Regulations. (Details, Paragraph 7)

B. Unresolved Items Found This Inspection

1. There was no evidence that licensee had performed any audits of contractor's cadwelding to verify conformance to applicable site construction and quality control procedures. (Details, Paragraph 2b)

2. There is no requirement or provision in Procedure No. QC-14.2 for requalification of cadweld teams who repeatedly produce defective joints. (Details, Paragraph 2e)

3. Sister splices tensile tested for evaluation of production cadwelding, are not prepared in a manner which represents production conditions and normal construction activities. (Details, Paragraph 3)

4. There is no procedural revision establishing quantative or qualitative acceptance criteria for amount of slag at tap hole as discussed in Regulatory Guide 1.10. (Details, Paragraph 2.f)

C. Status of Previously Reported Unresolved Items

The unresolved items in RO Report No. 73-06 relating to the use of ultrasonic in place of radiography of flange welds in the drywell head are now considered resolved. (Details, Paragraph 4)

Management Interview

The management interview was held at the site March 1, 1974.

Personnel Attending

Long Island Lighting Company

R. E. Black, Resident QA Engineer
T. J. Burke, Project Manager
T. F. Gerecke, QA Manager
W. M. Hunt, Construction Engineer
J. M. Kelly, QA Engineer

Stone and Webster

R. Bernard, Assistant Senior QC Engineer
R. L. Cusick, Superintendent of Construction
T. A. Hill, Resident Manager
S. A. Kalat, QC Engineer
S. J. Stratis, QA Coordinator
W. C. Taylor, Field QC Engineer
E. C.Turner, Superintendent of Field QC

The following items were discussed:

A. Unresolved Items Previously Reported

An open item identified in RO Report 73-06, inspection of November 12-14, 1973 is now considered closed. This is the liner plate contractor request to use ultrasonic test methods in place of radiographic examination on the site welded removable head flange of the drywell. Licensee agreed and acknowledged this information. (Details, Paragraph 4)

B. Audit of Records on Concrete Placed Since Last Inspection

The inspector stated that his audit of the contractor's records covering the containment building 2,000 psi concrete revealed no deficiencies or deviations from the specifications and procedural requirements. Licensee acknowledged this comment. (Details, Paragraph 5)

C. Cadwelding Activities

1. The inspector stated there were no QC records of "in process" inspection to verify cadweld operators adherence to procedural requirements. This appears to be a violation of Criterion V and XVII, Appendix B, 10 CFR 50. Licensee acknowledged this statement. (Details, Paragraph 2.a)

2. The inspector stated he had observed numerous unfired cadweld "B" series splice sleeves which were not protected from the weather to prevent accumulation of moisture and rust inside the sleeve. This is required by the applicable procedures. This appears to be a violation of Criterion V, Appendix B, 10 CFR 50. (Details, Paragraph 2.c)

3. The inspector stated, in a subsequent telephone conversation with licensee 3-05-74, that audits by licensee of contractor's quality control records and cadwelding, activities did not identify his failure to document in process inspection. Licensee had no comments on this subject. (Details, Paragraph 2.b)

4. The inspector stated, in a subsequent telephone conversation with licensee 3-05-74, that there was no evidence that deficient or rejected B series cadweld splices were identified and documented as repeated nonconformances for attention of appropriate levels of management. This appears to be a violation of Criterion XV and XVI, Appendix B 10 CFR 50. Licensee made no comments on this observation. (Details, Paragraph 2.d)

5. The inspector stated, in a subsequent telephone conversation with licensee 3-05-74, that QC procedure 14.2, Revision A does not contain appropriate quantitative or qualitative criteria to evaluate or require cadweld operator's requalification when his work is repeatedly rejected on visual inspection. Licensee acknowledged this without any comments. (Details, Paragraphs 2.e and 2.f)

6. The inspector discussed the validity of the test results conducted on "Sister Splices" used to confirm the acceptance of production cadwelds, since the configuration, shop preparation and cadwelding of the test specimens was not representative of the construction conditions existing for

production welds. Licensee acknowledged the observation and agreed to provide data to justify the practices. (Details, Paragraph 3)

D. Equipment Accident February 11, 1974

The inspector stated that he had inspected the damage caused by the crane accident on the evening of February 11, 1974. The inspector's observations and review of the accident reports indicated that there were neither personal injuries nor significant damage to plant structure. A formal report to RO, under 10 CFR 50.55 is not required. The licensee acknowledged these remarks. (Details, Paragraph 6)

E. Contractor Preparations for Erection of Off-Stand Fabricated Liner Plate

The inspector stated that his review of erection procedures which require testing of all rigging and attachments, as well as load testing of equipment before erecting the off-stand welded liner plate rings, indicated no apparent deficiencies. Licensee acknowledged the inspector's comments. (Details, Paragraph 7)

DETAILS

1. Persons Contacted

LILCO

R. E. Black, Resident QA Engineer
T. J. Burke, Project Manager
T. F. Gerecke, QA Manager
W. M. Hunt, Construction Engineer
J. M. Kelly, QA Engineer

S&W

R. Bernard, Assistant Senior QC Engineer
R. L. Cusick, Superintendent of Construction
T. A. Hill, Resident Manager
S. A. Kalat, QC Engineer
S. J. Stratis, QA Coordinator
W. C. Taylor, Field QC Engineer
E. C. Turner, Superintendent of Field QC

DRAVO

D. Somers, QC Inspector, Cadwelding
W. McLaughlin, Construction Foreman, Cadwelding

2. Cadwelding Activities

a. Site Procedure QC-14.2, Section 4.3 under "In Process Inspection" requires that field QC shall assure that cadweld procedures are being adhered to during cadwelding activities, and these key points require periodic inspection.

1. Heating of bar, sleeve, crucible, and pouring basin to remove moisture.
2. Spacing between bar ends
3. Centering of cadweld sleeve
4. Installation of asbestos packing
5. Assembly of cadweld apparatus
6. Agitation of cadweld powder
7. Seating of steel disc in crucible
8. Removal of packing and tap hole riser after cooling of cadweld

No documentary records were maintained by field QC covering periodic inspection of the above key points until the RO:I inspector identified this deficiency.

b. Audits performed by licensee's site QA previous to the RO:I site inspection did not identify this deficiency in contractor's QC records of in-process inspection.

c. Site Procedure QC-14-2 references Specification No. SH1-64 and Cadweld Procedure No. W-300 A. These require that an installed and unfired cadweld joint sleeve be covered with plastic and protected so that rain and moisture will not enter the unfired splice joint. Additionally, W-300 A cautions that the sleeve filter tap hole is to be covered to aid rust prevention. The inspector, accompanied by the licensee's QA representative, observed and counted about 60 Type "B" sleeves, unprotected and without rebar installed. These showed various stages of rusting inside the sleeve and were located at Elevation 8' of the reactor pedestal support. About 50 other Type "B" sleeves, without rebar, in the location above noted, were inadequately protected to prevent entry of moisture. Also, two Type "B" sleeves, with rebar installed, for the reactor pedestal support were observed with advanced rust on the rebar and inside the sleeve. This non-compliance with site procedures appears to be a violation of Criterion V, Appendix B, 10 CFR 50.

d. The inspector audited "Cadweld Control Records" for "B" series sleeves. A chronological summary of visual rejects extracted from QC records follows:

Inspection Date	Splice Number	Welder Identification	Unsatisfactory Condition	Splice Location at Elevation 8'
12/13/73	7-37	D-6	Slag in tap hole	Reactor Pedestal
12/14/73	-99	E-6	Slag in tap hole	Reactor Pedestal
12/19/73	-02	D-6	Slag in tap hole	Reactor Pedestal
12/19/73	-140	D-2	Slag in tap hole	Reactor Pedestal
12/19/73	-297	D-6	Slag in tap hole	Reactor Pedestal
1/04/74	-258	G-9	Slag in tap hole	Reactor Pedestal
1/14/74	-221	E-7	Blowout	Reactor Pedestal
1/25/74	-445	G-7	Blowout	Column
1/28/74	-443	G-4	Slag in tap hole	Column
1/28/74	-55	D-5	Blowout	Reactor Pedestal
1/30/74	-443	H-2	Excess Void	Column
2/04/74	-408	F-6	Blowout	Column
2/11/74	-90	D-5	Blowout	Reactor Pedestal

2/11/74	-183	D-5	Slag in tap hole	Reactor Pedestal
2/12/74	-53	E-7	Slag in tap hole	Reactor Pedestal
2/13/74	-334	H-2	Slag in tap hole	Column
2/13/74	-339	H-2	Blowout	Column
2/21/74	-207	G-9	Excess Void	Reactor Pedestal
2/21/74	-224	G-9	Excess Void	Reactor Pedestal

Non-conformance and Disposition Report (NC&DR) No. 91, dated December 18, 1973 states, in part,... "The following "B" series cadwelds are rejected for excessive voids or blowouts in accordance with (specification) SH1-64:

Y-39	Y-140
Y-99	Y-297
Y-02	

Disposition Instructions:

Remove rejected cadweld sleeves and replace with new sleeve.

Non-conformity closed

The inspector was informed by contractor's QC Engineer that no subsequent NC&DR had been written on defective "B" series splices to identify them as rejects found by visual inspection. The contractor stated that NC&DR No. 91 provided sufficient disposition instructions to remove and replace any cadweld sleeves that were visually rejected. The RO inspector stated in a telephone conversation with licensee March 5, 1974 that deficient and rejectable conditions in cadwelding identified by visual inspection are required by QCP-14.2, Attachment 5.4, to be documented as non-conformance. That no records have been kept of visually identified non-conforming cadwelds appears to be a violation of Criteria XV and XVI, Appendix B, 10 CFR 50.

e. With reference to the RO inspector's audit of "Cadweld Control Records", (2.d above) the inspector was informed by the licensee on March 8, 1974 that Cadweld Operators D-6, D-5, H-2 and G-9 were not requalified on "B" series splices following the QC inspector's rejection through visual inspection of their work. Specification SH1-64 and QCP-14.2 doe not contain a requirement for cadweld operator's requalification when his work is found to be in non-conformance.

f. Specification SH1-64 and QCP-14.2 do not contain quantitative or qualitative acceptance criteria for determining an acceptable (or rejectable)amount of filler metal (or slag) at the tap hole of the cadweld sleeve. SH1-64, referenced in QCP-14.2, states that all the completed joints will be inspected by the QC inspector at both ends for proper filling, such that filler metal is is visible at both ends of the sleeve and at the tap hole of the cadweld

sleeve (as discussed in Regulatory Guide 1.10; C.2). SH1-64 adds, in the same paragraph: "Splices randomly selected by the QC inspector will be removed and strength tested for compliance with the specification."

The RO inspector was informed by the licensee that "B" series splices which were removed, in accordance with disposition of NC&DR No. 91, reference paragraph 2.d, were not strength tested. Notwithstanding, QC was instructed by S&W Engineering (Dalton), in a memorandum of a telephone conversation on February 12, 1974: "Cadwelds are to be inspected in accordance with SH1-64, which requires filler metal to be present in the tap hole. Presence of slag with filler metal is not to be cause for rejection. (This has previously been a cause for rejection by QC). Effective February 14, 1974 the presence of filler metal in the tap hole will be satisfactory..."

The existence of the above interpretation and decision was unknown to the licensee until the RO inspector audited the cadweld records and asked for documentation of non-conforming conditions in cadwelding and for corrective action taken to preclude repetition.

3. Validity of Test Results from Cadweld Sister Splices as a Basis for Accepting Production Splices

Cadweld splices using "B" series sleeves, welded to base plate, are required by Specification SH1-64 to be tested by sister splices, made in the same position, adjacent to and in sequence with the production splice they represent. QCP-14.2 defines a sister test splice as a removable cadweld test sample which is made in place next to production splices and under the same conditions. The RO inspector observed a "B" s series splice in the vicinity of the column at 180° azimuth, prepared and fired on February 27, 1974. The inspector observed the preparations of the test block assembly with "B" sleeves that had been shop welded back-to-back to the block. The following items were noted: Heating and wire brushing of sleeves after removal of plastic caps from sleeve ends and from tap holes; heating and wire brushing sleeves and rebar ends before inserting rebar; placing and centering rebar individually in sleeve, securing of hardware and crucible; pouring and mixing of power and firing. These were observed performed at bench level, not in place next to production splices, and not under the same congested by other splices and rebar. Production "B" splices for the columns and reactor pedestal are made at Elevation 8', floor level, with limitations in working conditions that were not duplicated in sister splices.

The RO inspector was informed in interviews with cadweld operators, Dravo's QC inspector and cadweld foreman that rebar for columns is precleaned and coated with an approved resin-base protective coating. A column rebar bundle is crane handled. The column bundle with assembly of 12 vertical rebars is lowered into the "B" series sleeves without prior reheating and removal of the protective coating. General Procedure for cadwelding W-300, Section A, Revision 1, referenced in QCP-14.2, does

not address the removal of preservative coating from rebar for "B" series cadwelds but, in general, states: "Remove the preservative using an oxy-acetylene torch with a heating tip, then blow off the residual scale." The inspector was informed by Dravo's QC inspector that the protective coating on column rebar in the sleeve is removed by heating the sleeve and rebar assembly and then blowing into the sleeve with rebar installed to remove residue.

The RO inspector questioned sister splices as being representative of production splices because they were not made in place next to production splices and under the same conditions. This is considered an unresolved item which the licensee answered that a report would be prepared to justify the validity of tests on sister splices prepared in this manner.

4. Resolution of Item in RO Report No. 73-06

Having satisfactorily fulfilled the prerequisites specified in S&W's EDCR No. F-222, dated October 31, 1973, the liner plate contractor has been permitted to employ UT as an alternative to RT on-site welded flange joints on the removable head for the drywell. Corrective Action Report No. F-36, dated December 31, 1973, documents the satisfactory close out of this item.

This item is considered resolved.

5. Audit of records on Concrete Placed Since Last Inspection

A sampling audit was made of QC records, documenting concrete placements made since the last RO inspection. Random selection involving 103 cubic yards in the reactor containment building secondary wall. There were no apparent deficiencies in the following records:

a. Preplacement check-off field data sheet.

b. Aggregate gradation analysis.

c. Cement mill test certicate and user test verification of compliance with ASTM-C-150.

d. Mix water laboratory test results.

e. Rebar mill certificates and user test for compliance with ASTM-A-615, Grade A.

f. Batch plant inspection records, batch weights/truck tickets.

g. Test controls at placement location for slump, air and weight.

h. Test cylinders at placement location and results of seven and 28 day compressive strength tests.

i. Placement method and consolidation.

j. Concrete curing records.

6. Equipment Accident February 11, 1974 Caused No Significant Damage

The inspector audited contractor reports of an equipment accident which occurred on February 11, 1974. Two cranes were involved in a combined effort to support the boom of one that was being repaired. No personal injury occurred. Only superficial minor damage was observed on Class 2 concrete of the turbine building beam between pedestal supports. Licensee conveyed this information to RO:I by telephone on February 12, 1974. The RO inspector verified that the accident did not inflict significant damage to plant structure. A formal report by licensee under 10 CFR 50.55 is not required.

7. Contractor Preparation for Erection of Off-Stand Fabricated Liner Plate

The inspector audited formal procedures for testing, erection and safe rigging of equipment to handle the erection of three "off-stand welded" liner plate rings of the drywell. Test records and certificates were reviewed for wire rope slings, lifting shackles, yoke, lifting lugs and lifting beams. A test lift of concrete weights at different crane boom extensions will be accomplished prior to the erection. Safe rigging practices and procedures appear to meet the applicable standards of OSHA, ANSI and the State of New York Safety Regulations.

END

DATE FILMED

7 / 24 / 74