



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA ST., N.W., SUITE 3100
 ATLANTA, GEORGIA 30303

DEC - 5 1979

Report Nos. 50-400/79-23, 50-401/79-23, 50-402/79-22 and 50-403/79-22

Licensee: Carolina Power and Light Company
 411 Fayetteville Street
 Raleigh, North Carolina 27602

Facility Name: Shearon Harris Nuclear Power Plant

Docket Nos. 50-400, 50-401, 50-402 and 50-403

License Nos. CPPR-158, CPPR-159, CPPR-160 and CPPR-161

Inspection at Shearon Harris site near Raleigh, North Carolina

Inspector: R. D. Bradley
 R. D. Bradley

12/5/79
 Date Signed

Approved by: J. C. Bryant for
 J. C. Bryant, Section Chief, RCES Branch

12/5/79
 Date Signed

SUMMARY

Inspection on November 6-9, 1979

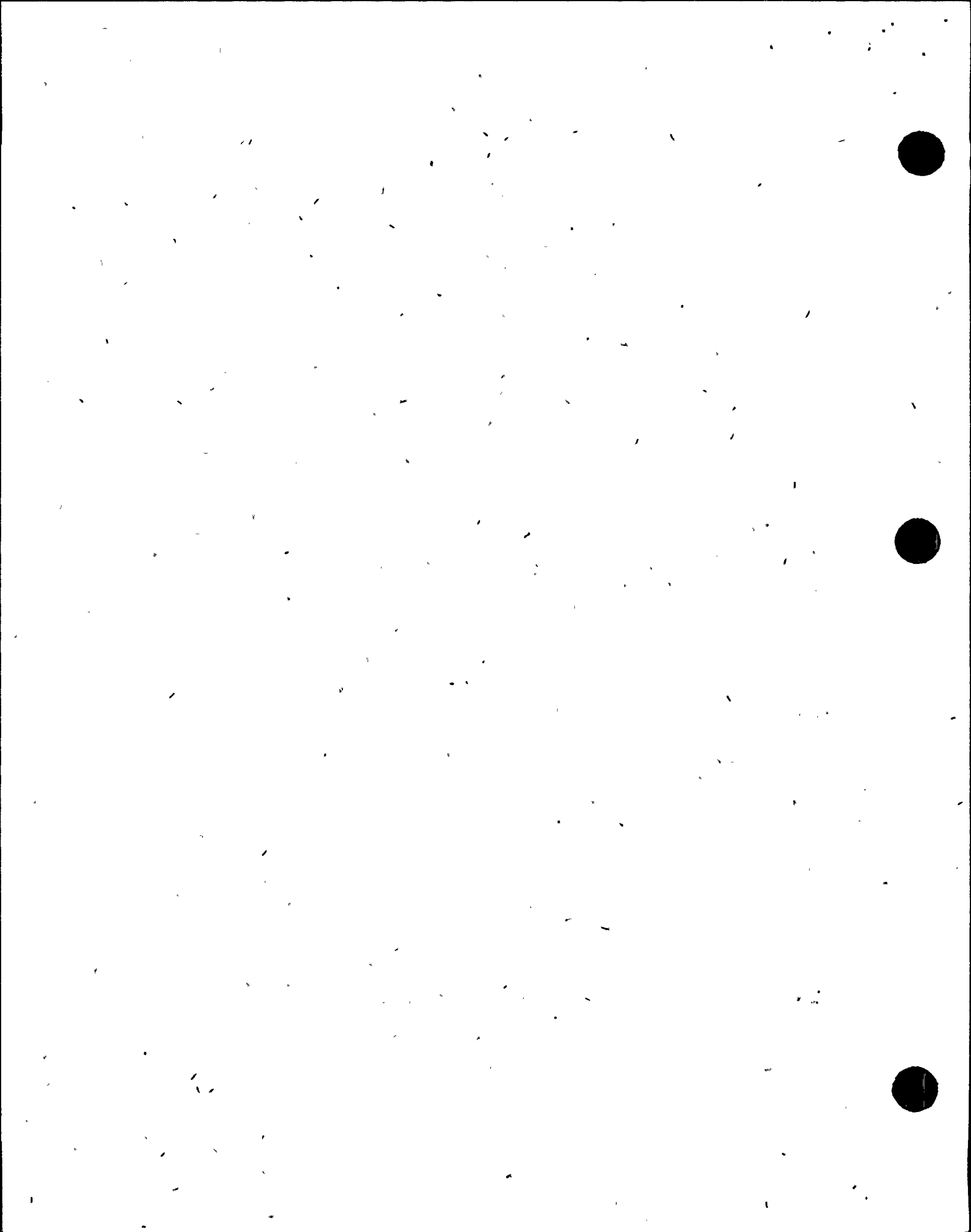
Areas Inspected

This routine, unannounced inspection involved 35 inspector-hours on-site in the areas of construction progress; licensee action on previous inspection finding; inspector followup item; licensee identified items; and IE Bulletins 79-15 and 79-23.

Results

Of the five areas inspected, no items of noncompliance or deviations were identified in four areas; one item of noncompliance was found in one area (Deficiency-Failure to follow procedures-paragraph 3).

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DETAILS

1. Persons Contacted

Licensee Employees

- *S. D. Smith, Vice President, Power Plant Construction
- *P. W. Howe, Vice President, Technical Services
- *R. M. Parsons, Site Manager
- *N. J. Chiangi, Manager, Engineering and Construction QA
- *A. M. Lucas, Senior Resident Engineer
- *G. L. Forehand, Principal Site QA Specialist

Other licensee employees contacted during this inspection included construction craftsmen, technicians, specialists and office personnel.

*Attended exit interview.

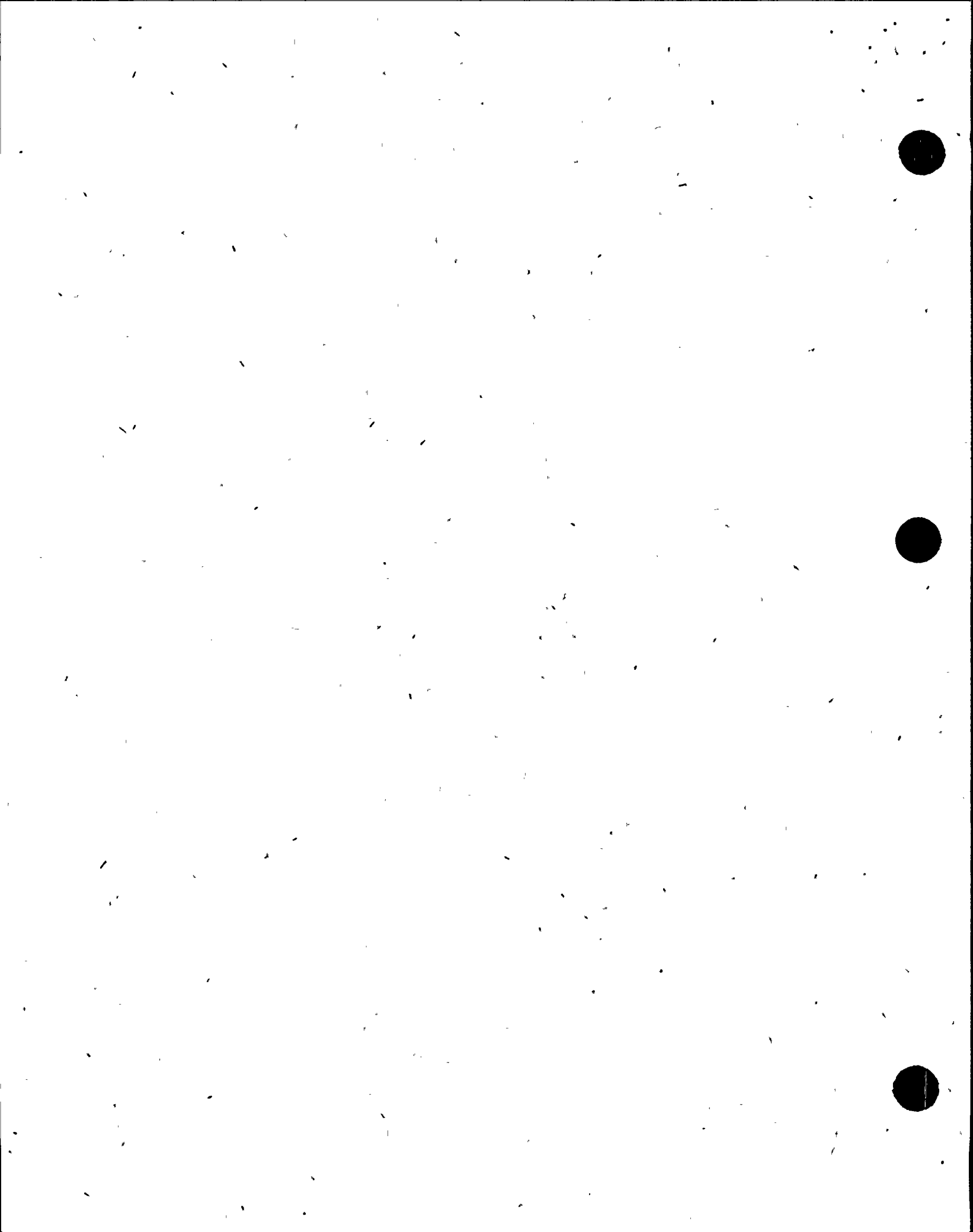
2. Exit Interview

The inspection scope and findings were summarized on November 9, 1979 with those persons indicated in Paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (401/79-21-02): Damage to Reactor Auxiliary Building. Discussions were held by the inspector with site management regarding repairs which had been accomplished on reinforcement steel in areas damaged as the result of an industrial crane accident on August 22, 1979. It was determined that the number of rebar affected in the damaged areas described in Discrepancy Report C-286 was in error. That is, the count was made with the crane boom lodged in the damaged area and many of the bars straightened up when the boom was removed. Column F-61 was replaced and rebar bent in excess of 10° from the vertical position were cut and new bars cadwelded in place. Only twelve number eight rebar in interior wall number four were restraightened; however, this repair was accomplished prior to obtaining approval from the architect-engineer, Ebasco. This is in noncompliance with Criterion V of 10 CFR 50, Appendix B in that activities affecting quality were not being accomplished in accordance with documented procedures, namely:

Administrative Procedure AP-IX-06, "Handling of Noncompliances", paragraph 3.2.3, which states, "...A Permanent Waiver processed and approved in accordance with Reference 2.1 is required prior to starting work on the item".



A permanent waiver was initiated on October 23, 1979 and a subsequent engineering evaluation determined that the deviation described on DDR 312 was nonreportable under the requirements of 10 CFR 50.55(e). The inspector pointed out that the referenced procedure requires a documented repair procedure be approved by the appropriate engineering organization (Ebasco) prior to starting work on an item. The licensee has committed to preparing a procedure for repairing any reinforcement steel which becomes damaged during construction activities. This item has been identified to the licensee as Noncompliance Number 400/401/79-23-01, "Failure to Follow Procedures" and is one of two examples noted during this inspection. The other example can be found in paragraph 6.b. Collectively, these two examples constitute one item of noncompliance, a deficiency. There was no evidence to indicate that either deficiency example would have resulted in an event with safety significance.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Inspector Followup Items

(Closed) Inspector Followup Item (400/401/79-18-01 and 402/403/79-17-01): Concrete repair procedure. The inspector reviewed revision 5 of work procedure WP-27, "Repairing of Concrete Surfaces", and held discussions with responsible construction inspection personnel. Procedure WP-27 has been revised to include a new concrete repair report form which references the applicable procedure and provides signature blocks for the appropriate disciplines involved.

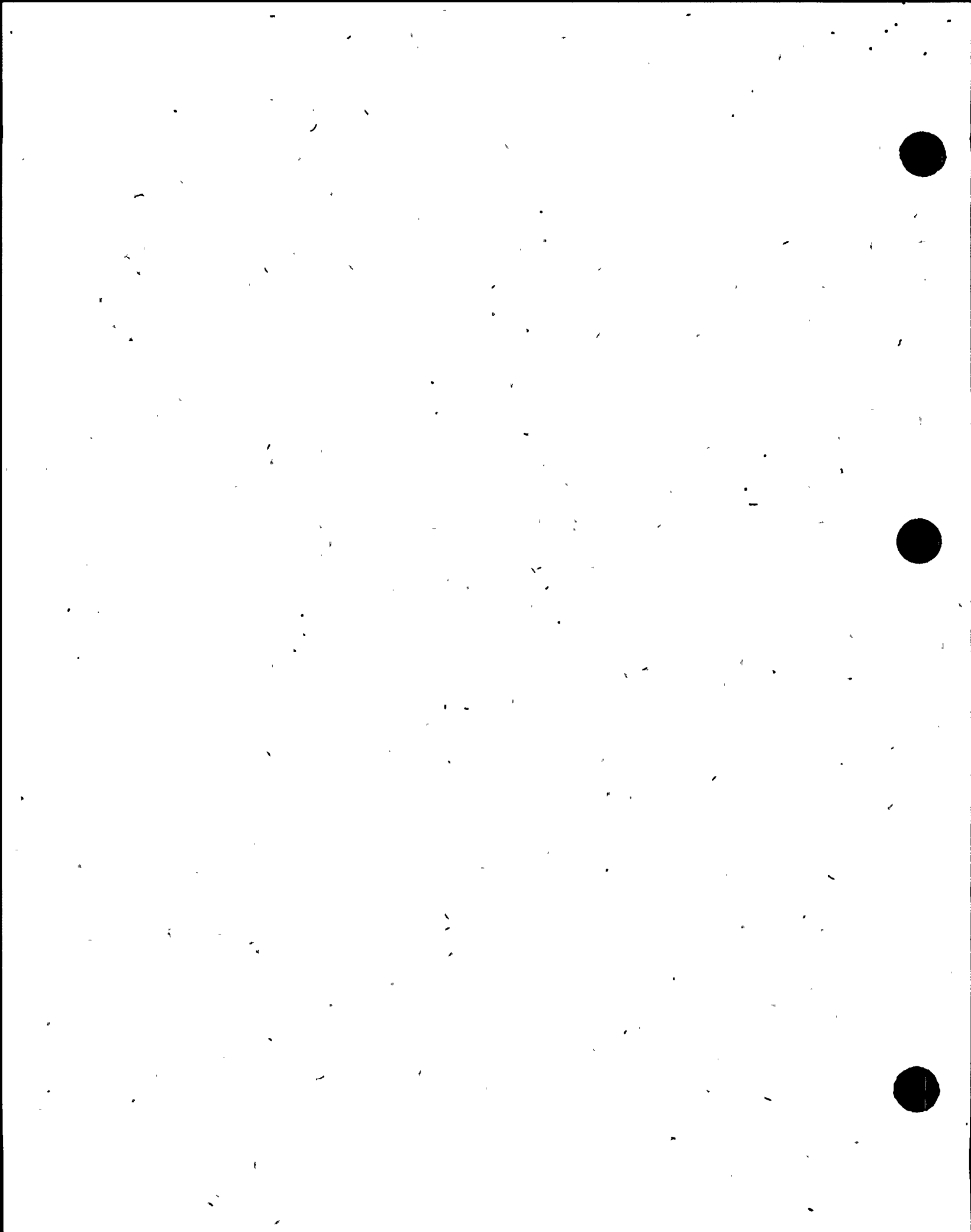
6. Independent Inspection

a. Construction Progress

The inspector conducted an inspection of the diesel fuel oil tank building, containment buildings for Units 1 and 2, reactor auxiliary building for Unit 2, waste processing building, storage yard 12, receiving, warehouse storage, and the west auxiliary dam. Work practices were observed and discussions were held with various craft and inspection personnel. Particular attention was given to activities underway at the Unit 1 containment spray header erection area.

b. Field Erection of the Unit 1 Containment Spray Header

The inspector observed activities and listened to conversation underway at the field erection area for the containment spray header assembly. Discussions were held with members of the QA Unit and the inspection folder was requested and reviewed. It was determined that the spray piping spools had been fabricated and shipped to the site with support lug welds left in an as-welded condition. It was later determined by the inspector through a review of correspondence between Ebasco, CP&L, Bergen-Paterson (B-P), and Southwest Fabricating and Welding (SF&W)



and discussions with CP&L engineering, that a misinterpretation of piping stress analysis procedures had resulted in the release of B-P drawings to SF&W which permitted welds to be left as-welded instead of being radius ground to a specific RMS finish as required by the Ebasco analysis procedure. It was noted that sixteen out of twenty-five attachment lugs have been identified as having stresses exceeding allowables. These lugs have been identified to the site and Ebasco, B-P, and SF&W are coordinating with CP&L to bring all spools into compliance with latest approved drawings. The inspector requested CP&L to confirm Ebasco's evaluation of the lug deficiency for reportability under 10 CFR 21 and to document its findings for review during the next inspection. This matter is designated as Inspector Followup Item 400/79-23-03, Containment spray header lug welds.

During the review of documents associated with the spray header deficiency, the inspector noted a SF&W preliminary drawing dated August 20, 1979 in the QA inspection files that was being used for reference purposes. A check with the Document Control Center (DCC) disclosed that this drawing had been superseded by revision 0 on September 7, 1979. There was no control stamping on the drawing or any record of this drawing having been received and distributed by the DCC. This is in noncompliance with Criterion V of 10 CFR 50, Appendix B in that activities affecting quality were not being accomplished in accordance with documented procedures, namely:

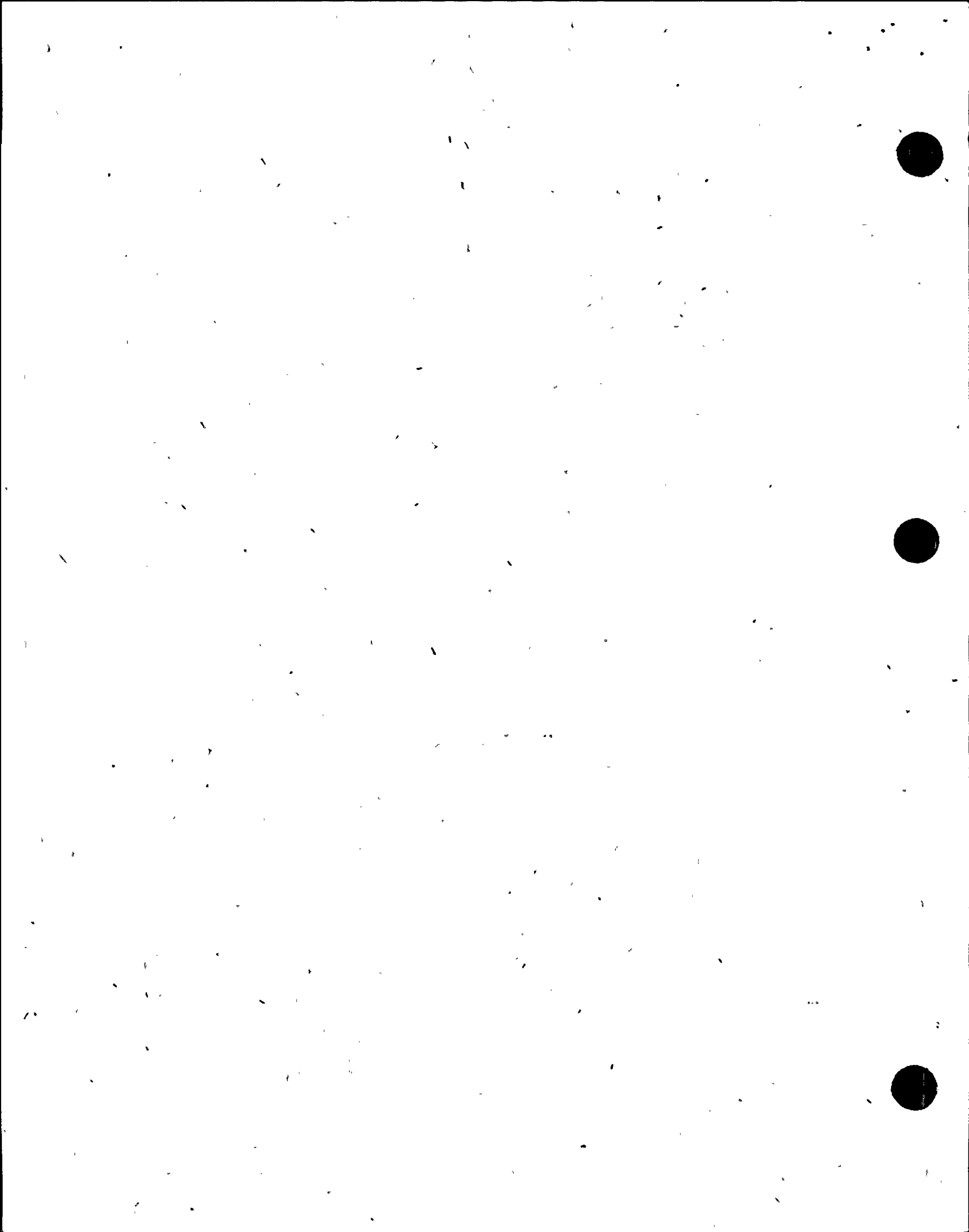
- Administrative Procedure AP-IX-02, "Document Distribution and Control", paragraph 3.5 which requires all drawings to be received distributed and otherwise controlled by the Document Control Section.
- The licensee immediately issued a memorandum requesting that all advance transmittals be checked for proper stamping and any found not stamped be brought to the DCC. This is the second example within this report of a failure to follow procedures which has been classified as a Deficiency. The other example can be found in paragraph 3.

Within the above areas of inspection, one item of noncompliance and no deviations were noted.

7. Licensee Identified Items [10 CFR 50.55(e)]

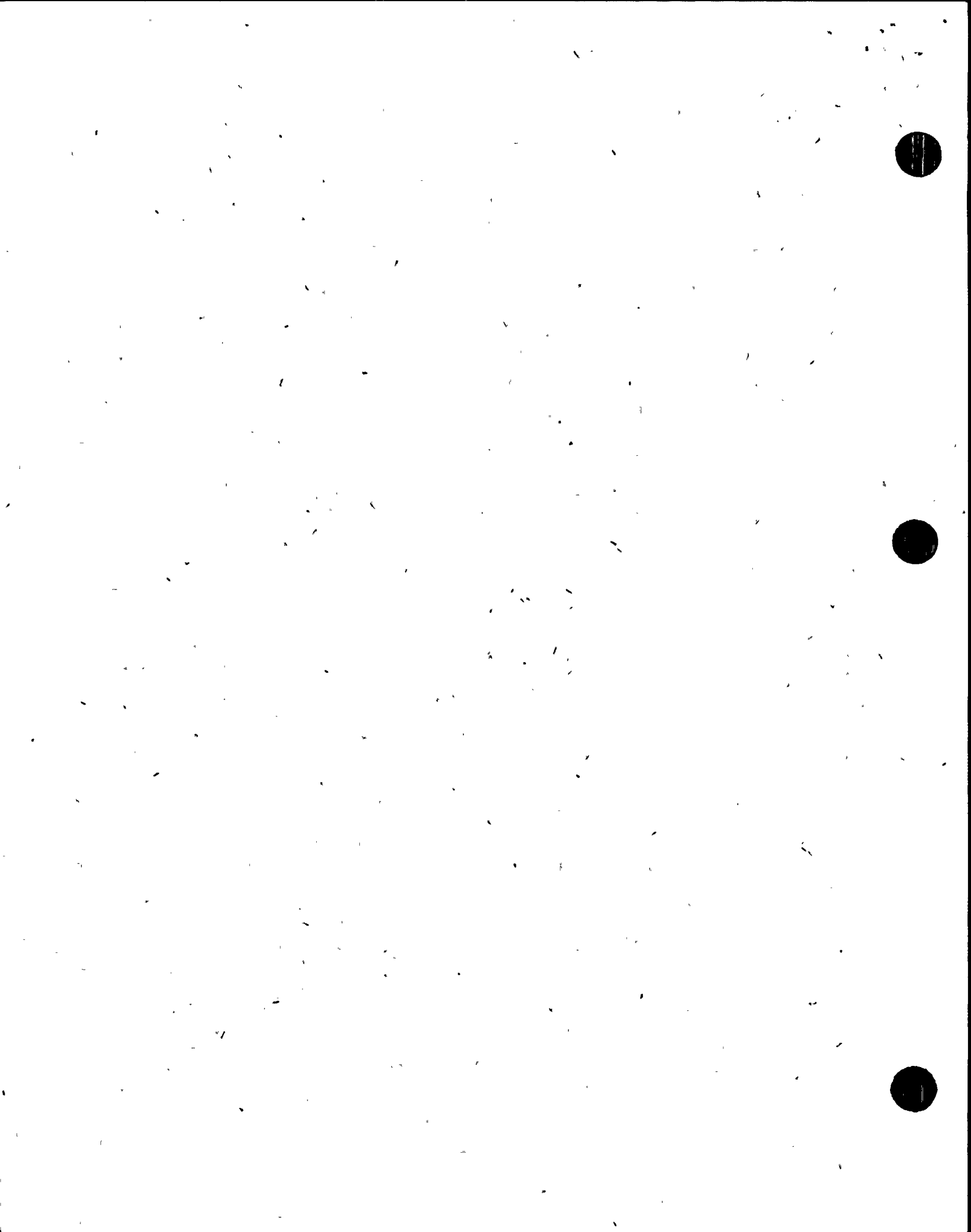
Prior to this inspection, the licensee identified the following items under 10 CFR 50.55(e):

- a. (Closed) Item (400/79-23-02), Defective piping. On October 25, 1979, CP&L notified Region II of a potentially reportable event concerning one piece of 6-inch schedule 40 piping which contained a base metal grind defect 1/8-inch deep into a .280 nominal wall thickness. On



October 26, 1979, CP&L reported that their evaluation had determined the deficiency to be nonreportable. The inspector reviewed the licensee's engineering evaluation report and found the conclusion to be acceptable. The architect-engineer and CP&L concluded that the remaining wall thickness of the pipe exceeded the design minimum wall thickness based on design temperature and pressure.

- b. (Open) Item (400/401/79-23-04 and 402/403/79-22-04), Ultrasonic test not performed on vendor supplied spool pieces. Region II was informed by the licensee on October 25, 1979 that a potential 55(e) deficiency had been identified to them by Southwest Fabrication and Welding. Two spool pieces for the liquid radwaste system had been shipped without being subjected to required ultrasonic tests. The inspector determined that the subject spool pieces had been returned to the vendor for required ultrasonic tests. A review of the subject deficiency report, DDR 307, was performed and discussions were held with receiving inspection personnel. It was determined that the subject spool pieces had been accepted by CP&L although the required NDE had not been performed. This was attributed to the difficulty in determining waste system operating temperatures and pressures where the particular pipe spools will be installed, which in turn dictates NDE requirements. This item will remain open pending completion of the engineering evaluations, and implementation of adequate corrective measures to preclude acceptance of similar deficient items.
- c. (Open) Item (400/401/79-23-05), Defective hanger welds. Region II was notified on November 2, 1979 that a potentially reportable deficiency involving hanger welds had been found by the licensee. Nine previously accepted emergency service water line hangers were rejected for incomplete weld, undercut, porosity and arc strikes. The visually rejectable welds were accepted by a new inspector who has since resigned. All work previously accepted by this individual is being reverified by the QA staff.
- d. (Open) Item (400/401/79-14-01 and 402/403/79-13-01), Improper welds on engineered embedment plates. Due to the nature of this problem, all investigation/corrective action has not been completed. Interim reports dated September 5 and November 2, 1979 have been reviewed by the inspector and discussions are being held as the evaluation continues. This weld deficiency can be attributed to misinterpretation and misapplication of design documents by both site and vendor personnel. Training on weld symbol identification and weld inspection has been conducted and site specifications utilized to procure fabrication steel have been reviewed in detail and changes were initiated to ensure fabricators and inspectors can readily ascertain welding and NDE requirements. Ebasco has provided an alternate fillet weld design to repair existing fabricated plates. This detail requires increasing the fillet weld size to develop the full strength of the associated anchor bolt. It is estimated that all corrective action will be completed on or about December 31, 1979.



- e. (Open) Item (400/79-23-06), Omission of rebar in the Unit 1 containment building exterior wall.

(Open) Item (401/79-23-02), Omission of rebar in a Unit 2 reactor auxiliary building south shear wall.

On October 26 and again on October 29, 1979, CP&L informed Region II that quantities of reinforcement steel had been omitted during placements of Class I concrete in the subject structures. The licensee and Region II agreed on October 29 that Class I concrete containing rebar would not be placed without the concurrence of Region II pending completion of an investigation of the rebar omission circumstances, an audit of previous placements, an analysis of structural integrity considering rebar omission, and preventive actions by the licensee.

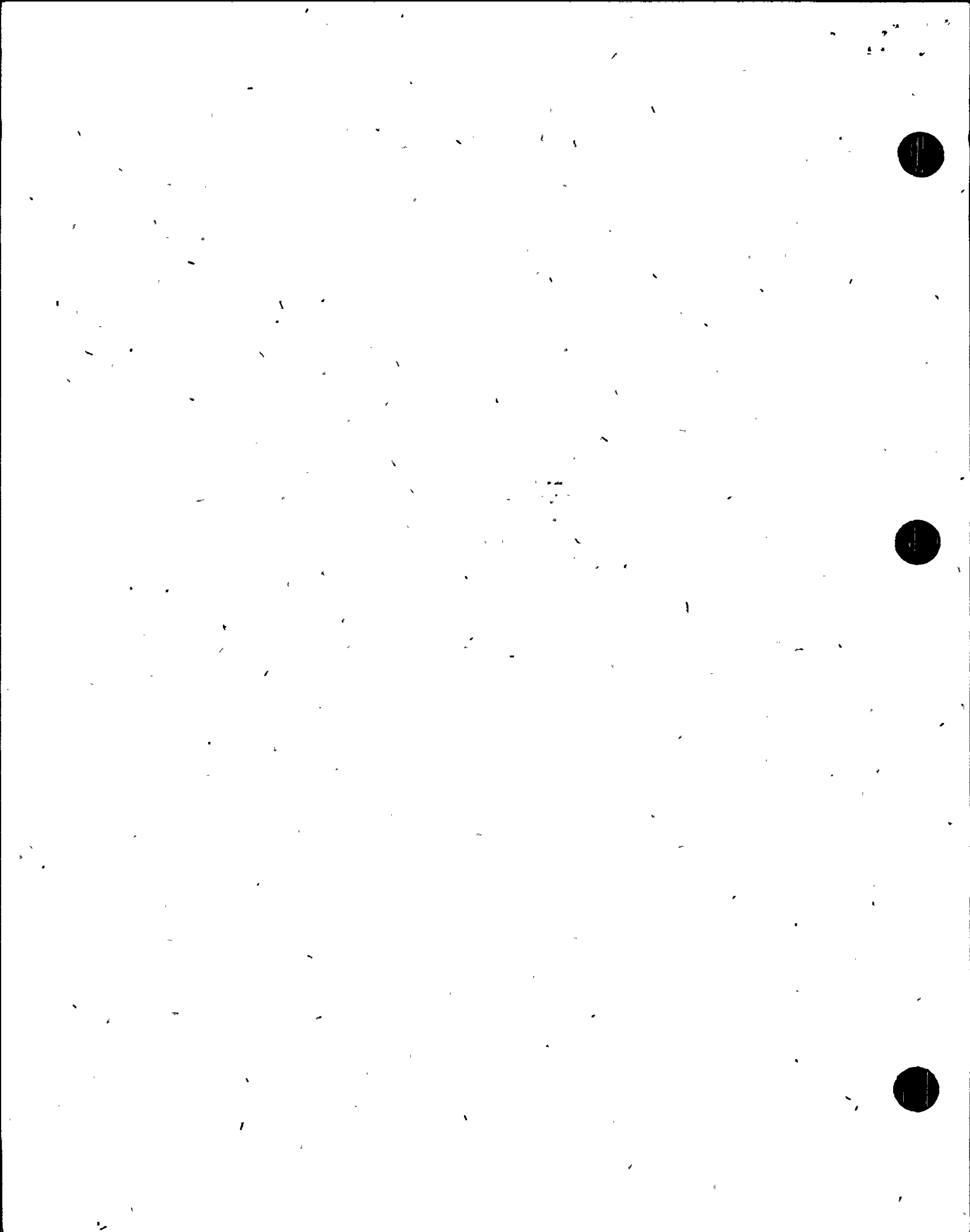
At the request of CP&L, a management meeting was held in the Region II offices on October 31, 1979. The licensee presented the results of their investigation and corrective actions as of that point in time and provided pertinent documents that further defined the nature of the problem. Based on the information presented and the licensee's correspondence dated November 1 and 2, 1979, CP&L on November 2 was released to resume placement of Class I concrete containing rebar in all areas except the Unit 1 containment building exterior wall and the Unit 2 reactor auxiliary building south shear wall.

- (1) Item 400/79-23-06, Unit 1 containment building exterior wall

Field change request/permanent waiver PW-C-984 was telecopied to the Region II staff on November 13, 1979. This document together with existing project procedures detail the repairs required to ensure the exterior wall is restored to original design requirements. The repairs required will be done in accordance with existing, approved work procedures. No special tests or procedures are required. Region II authorization on proceeding with repairs and concrete placements on the exterior wall was given on November 14, 1979 based on the review of pertinent documentation provided and the implementation by CP&L of their architect-engineer's recommended actions.

- (2) Item 401/79-23-02, Unit 2 reactor auxiliary building south shear wall

Field change request/permanent waiver PW-C-983 was telecopied to the Region II staff for their review on November 9, 1979. This document together with existing project procedures detail the repairs and confirmatory testing required to ensure the south shear wall is restored to original design requirements. The repair and associated installation and testing procedures were discussed with Region II on November 9 and concurrence was obtained to drill holes for replacement reinforcing bars and test bars as well as to install and grout test bars. Region II will be notified



prior to the pull test on test bars which will be on or about December 17, 1979. The pull test will follow the 28 day cure period for the grout. Installation of replacement bars will follow engineering evaluation of pull test data and Region II concurrence.

8. Inspection and Enforcement Bulletin Status

- a. (Open) 79-BU-15: Deep Draft Pump Deficiencies. The licensee's response of September 10, 1979 states that the only similar pumps that will be installed for safety-related application are the emergency service water pumps. (Delivery for Unit 1 is scheduled for December 1980 and Unit 2 in October of 1982.) No response for items 4, 5 and 6 of the bulletin was included as the pumps have not been received. During this inspection, the licensee stated that inspections will be performed at the manufacturer's facility prior to shipment to confirm that specified clearances have been maintained and that dimensions for mechanical parts are within specified tolerances. Assembly procedures will specify bolt torques for critical bolts. Threaded connections will be inspected to verify that no galling has occurred. CP&L will accumulate the on-site information for inspection requested by the bulletin as it becomes available. This item will remain open pending further review by IE Headquarters.
- b. (Closed) 79-BU-23: Potential Failure of Emergency Diesel Generator Field Exciter Transformer. The licensee's response of October 29, 1979 reported that the neutral of the generator and the neutral of the primary windings of the excitation power transformer are not directly connected and furthermore, the neutral point of the excitation power transformer is not grounded. Therefore, circulating currents as described in the bulletin will not be developed in the generators. The response stated that full load testing could not be performed as the generators have not been delivered. Based on discussions with site management, the diesel generators will be fully tested, including the 24-hour load test identified in the bulletin, as part of their pre-operational testing program.

