

U. S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS

REGION III

Report of Construction Inspection

RO Inspection Report No. 050-329/74-03
RO Inspection Report No. 050-330/74-03

Licensee: Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

Midland Plant, Units 1 and 2
Midland, Michigan

License No. CPPR-81
License No. CPPR-82
Category: A

Type of Licensee: PWR (B&W) - Unit 1, 650 Mwe; Unit 2, 818 Mwe

Type of Inspection: Unannounced, Special

Dates of Inspection: February 6 and 7, 1974

Date of Previous Inspection: January 29, 1974 (Construction)

Principal Inspector: *R. A. Rohrbacher*
R. A. Rohrbacher

3-8-74
(Date)

Accompanying Inspectors: None

Other Accompanying Personnel: None

Reviewed By: *W. E. Vetter*
W. E. Vetter, Chief
Reactor Construction Branch

3-8-74
(Date)

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SUMMARY OF FINDINGS

Enforcement Action

A. Violations

No violations of AEC requirements were identified during the inspection.

B. Safety Matters

No safety matters were identified during the inspection.

Licensee Action on Previously Identified Enforcement Action

It has been determined that appropriate, corrective action has been taken by the licensee relative to apparent violations identified in RO Inspection Reports No. 050-329/73-08 and No. 050-330/73-08, No. 050-329/73-10 and No. 050-330/73-10, No. 050-320/74-01 and No. 050-330/74-01. The adequacy of implementation of the above corrective action measures, previously committed to by the licensee relative to QA/QC program deficiencies, was reviewed during this special inspection. (See Report Details Section)

Other Significant Findings

A. Current Findings

1. Facility Status

The licensee estimated the current project status to be as follows:

<u>Activity</u>	<u>Completion</u>
Engineering	33.5%
Construction	3.1%

2. Construction Activities

Construction activities, in progress at the time of the current inspection, were fabrication (field welding) of containment liner plate assemblies, splicing of rebar by Cadwelding, and placement of rebar.

3. Construction Site QA/QC Personnel

The following Consumers Power Company (CP) and Bechtel Corporation (Bechtel) QA/QC personnel were determined to be assigned and located at the Midland Plant construction site on a full-time basis at the present time.

Consumers Power Company

J. L. Coreley, Field Quality Assurance Engineer
R. E. Whitaker, Field Quality Assurance Coordinator
D. R. Keating, Field Quality Assurance Coordinator
D. E. Horn, Field Quality Assurance Coordinator

Bechtel Corporation

G. L. Richardson, Lead Quality Assurance Engineer (Field)
W. J. Key, Quality Assurance Engineer (Field)
J. P. Connolly, Project Field Quality Control Engineer
L. P. Albert, Lead Civil Engineer (Quality Control)
J. H. Tice, Lead Mechanical Engineer (Quality Control)
A. L. Boulden, Lead Welding Engineer (Quality Control)
F. A. Kapla, Civil Field Engineer (Quality Control)
M. P. Hendrick, Welding - NDE Engineer (Quality Control)
P. T. Carpenter, Laboratory Supervisor (Quality Control)
J. C. Fitzgerald, Civil Field Engineer (Quality Control)
L. (NMI) Shively, Civil Field Engineer (Quality Control)
G. L. Gillie, Assistant Civil Field Engineer (Quality Control)
R. A. Moray, Receiving Field Engineer (Quality Control)
D. C. Thompson, Electrical Field Engineer (Quality Control)
H. D. Foster, Piping Field Engineer (Quality Control)
W. O. Howe, Welding Field Engineer (Quality Control)
J. F. Gibson, Welding Field Engineer (Quality Control)
N. V. Plante, Inspection Planning (Quality Control)
J. W. Miller, Documentation (Quality Control)

B. Unresolved Matters

During a routine vendor audit of Erico Products, Incorporated (Erico) (Cadweld components supplier) three audit findings were identified by Bechtel. This matter remains open pending review of corrective action measures. (Paragraph 3, Report Details)

C. Status of Previously Reported Unresolved Matters

1. CP Site Audit Program (RO Inspection Reports No. 050-329/74-01 and No. 050-330/74-01)

The CP QA construction site audit schedule (Field Audit Program) and the procedures covering field audits were reviewed, and the inspector had no further questions at this time. This matter is considered to be resolved. (Paragraph 2.b, Report Details)

2. Containment Building Tendon Trumplates (RO Inspection Reports No. 050-329/74-01 and No. 050-330/74-01)

Although corrective action has been initiated, this matter remains open pending satisfactory completion. (Paragraph 2.i, Report Details)

3. Additional Work and Inspection Procedures (RO Inspection Reports No. 050-329/74-01 and No. 050-330/74-01)

Implementation is in progress. Work and inspection procedures are being developed and/or revised by Bechtel and have been, and continue to be discussed with CP. Some procedures for concrete placement have been completed, and additional procedures for containment liner plate inspection are being developed. This matter remains open pending review of this effort during subsequent inspections.

4. Inspection Certification Program (RO Inspection Reports No. 050-320/74-01 and No. 050-330/74-01)

Bechtel has documented a formal program covering the qualifications, evaluation, examination, training, and certification of their Midland site inspection personnel. The matter of establishing an inspection certification program and related training is considered to be resolved. (Paragraph 2.f, Report Details)

5. Contacts With Firms Having QA Expertise (RO Inspection Reports No. 050-329/74-01 and No. 050-330/73-01)

As reported previously, CP has met with personnel from the NUS Corporation (NUS) and three other firms having QA expertise. Meetings, discussions, and correspondence between these firms and CP are continuing. (Paragraph 2.c, Report Details)

6. Inconsistencies Between Design Documents and the PSAR (RO Inspection Reports No. 050-329/73-10 and No. 050-330/73-10)

Bechtel has issued an SAR Change Notice to resolve the differences between the Midland Plant PSAR and the Bechtel specification relative to Cadwelding. In addition, Revision 1 to the Bechtel Design Document Requirements Procedure defines the system to be used to assure inclusion of all design and quality requirements in design documents. This procedure is to apply to all design work and to all significant revisions issued after December 15, 1973. (Also, see RO Inspection Reports No. 050-329/74-01 and No. 050-330/74-01.) This matter is considered to be resolved.

7. Aggregate Storage (RO Inspection Reports No. 050-329/73-10 and No. 050-330/73-10)

A Bechtel evaluation of the site concrete aggregate stockpiles and the current method of aggregate control were reviewed during the January 10 and 11, 1974, inspection as well as during the current inspection. The matter of assuring conforming aggregate from the existing stockpiles is considered to be resolved.

Management Interview

- A. The following persons attended the management interview at the conclusion of the inspection:

Consumers Power Company

T. C. Cooke, Project Superintendent
H. W. Slager, Project Quality Assurance Supervisor
J. L. Corley, Field Quality Assurance Engineer

Bechtel Corporation

J. I. Dotson, Project Quality Assurance Engineer
J. F. Newgen, Field Superintendent

- B. Matters discussed and comments, on the part of management personnel, were as follows:

1. The inspector stated that the results of this inspection, relative to the adequacy and timeliness of the implementation of previously identified QA/QC corrective action measures reviewed by the inspector, were considered to be adequate.
2. The inspection procedures, to be used for containment liner plate assemblies, were discussed. CP stated that the procedures (inspection plan) are being developed/revised by Bechtel and that the procedures are scheduled for review by CP about the middle of February 1974. CP further stated that these and/or other procedures will assure that all liner plate assemblies meet quality requirements prior to installation and that such QC procedures are planned to be used prior to sandblasting and painting of the liner plate assemblies. The licensee reaffirmed that an adequate inspection plan, properly reviewed and approved, would be available and satisfactorily implemented prior to liner plate installation.
3. In response to questions concerning CP QA review of Bechtel inspection plans, the licensee stated that CP and Bechtel personnel are actively discussing these inspection plans at the present time and that the seven Bechtel Master Inspection Plans, previously submitted to CP for review, have been returned to Bechtel with comments.

4. In regard to the Bechtel vendor audit of Erico, and to the quality audit findings identified during this audit, both CP and Bechtel stated that the significance of the audit findings was not yet known. Bechtel stated that an engineering evaluation was in progress and that the completion of this evaluation was being expedited. CP stated that they would keep RO:III informed regarding the progress of this evaluation.

REPORT DETAILS

Persons Contacted

The following persons, in addition to individuals listed under the Management Interview Section of this report, were contacted during this inspection.

Consumers Power Company

R. E. Whitaker, Field Quality Assurance Coordinator
D. R. Keating, Field Quality Assurance Coordinator

Bechtel Corporation

J. P. Connolly, Project Field Quality Control Engineer
P. T. Carpenter, Site Materials Laboratory Supervisor (Quality Control)
J. L. Hurley, Assistant Project Engineer (Ann Arbor)
M. G. O'Mara, Project Quality Engineer (Ann Arbor)

United States Testing Company, Incorporated (U.S. Testing)

K. R. Rademacher, Field Laboratory Chief

Results of Inspection

This special inspection was made to determine the adequacy of the implementation of corrective action measures relative to QA/QC program deficiencies identified during inspections conducted in September, November and December 1973, and certain commitments made by CP relative to these measures. The results of the inspection are as follows:

1. Implementation of Corrective Action Identified in RO Inspection Reports No. 050-329/73-08 and No. 050-330/73-08 and Licensee's Response to a Notice of Violation Dated November 23, 1973

During the current inspection, additional documentation was reviewed and discussed with Bechtel Quality Engineering and Project Engineering personnel relative to this matter, as indicated below.

a. Revisions to Bechtel QA/QC Manuals for the Midland Project

It was determined that appropriate changes to the Bechtel Nuclear Quality Assurance Manual (NQAM) and the Internal Procedures Manual (IPM) for the Midland Project have been, and are being, made in a timely manner. Some changes have been completed prior to the previously scheduled dates. Records reviewed include:

- (1) Letter, Status Report (Open Items) M. M. Krout (Bechtel) to H. W. Slager (CP dated February 5, 1974.)
- (2) Letter, Status Report, M. M. Krout to H. W. Slager, dated February 6, 1974.
- (3) Bechtel IPM for the Midland Project, Section 1.2 (Revision 2 Control of Internal Procedures Manuals).
- (4) Bechtel NQAM, Section II, Amendment No. 2, dated December 17, 1973 (Revision A, Design Control Procedures).

b. Updating and Auditing of Project Stick Files (Bechtel - Ann Arbor)

In addition to the records reviewed during the January 10 and 11, 1974, inspection, documentation of additional auditing by Bechtel Quality Engineering on this matter was reviewed and discussed with Bechtel personnel during this inspection. It was determined that discrepancies previously identified had been resolved and that substantial and adequate improvement had been made in regard to stick file updating. Another evaluation will be made during a subsequent inspection. Records reviewed include:

- (1) Bechtel Interoffice Memo (IOM), Stick File Surveillance, P. A. Martinez to Group Supervisors, dated November 9, 1973.
- (2) Bechtel IOM, Followup on Stick Files and IPM, C. Shortt to Distribution (Project Engineering) dated December 27, 1973.
- (3) Letter, Status Reporting, M. M. Krout (Bechtel) to H. W. Slager (CP) dated February 6, 1974.

c. Control of Bechtel Internal Procedures Manual for the Midland Project

This manual was revised, and revised copies were reissued according to Section 1.3, Control of Internal Procedures Manuals. Distribution is controlled by a formal control list of assignments, using serial numbers and recipients' names. The revised control procedure for the subject manual is considered to meet applicable requirements.

The following documents were reviewed:

- (1) Bechtel IOM, Internal Procedures Manual, P. A. Martinez to Distribution, dated October 18, 1973.
- (2) Bechtel IOM, Survey of Internal Procedures Manual, P. A. Martinez to Distribution, dated December 19, 1973.
- (3) Bechtel IOM, Controlled Manual (Handwritten Annotations) P. A. Martinez to Project Personnel, dated January 10, 1974.

d. Bechtel Design Document Interface Control

It was determined that current implementation of the applicable control procedures was adequate. Records reviewed include:

- (1) Bechtel IOM, Survey of Design Interface Coordination Logs, M. G. O'Mara to P. A. Martinez, dated January 30, 1974.
- (2) Bechtel IOM, Design Document Interface Control, E. Rumbaugh to M. M. Krout, dated February 1, 1974.

2. Implementation of Corrective Action Relative to QA/QC Deficiencies Identified in RO Inspection Reports No. 050-329/73-10 and No. 050-330/73-10 and Reports No. 050-329/73-11 and No. 050-330/73-11

During the current inspection, additional records were reviewed and matters were discussed with CP and Bechtel personnel, relative to the subject corrective action measures, as indicated below.

a. CP Project Quality Assurance Services Department (QAS)

Training Program

The training program is continuing on a timely basis. Another training program for QAS personnel has been scheduled for the period February 11 through 14, 1974. This is to cover inspection and NDE methods (RT, UT, PT, and MT). Subsequent to the inspection, a representative of the licensee stated that all four site CP QA personnel attended this training session, took the written examination at the conclusion of the training, and passed with above average grades.

b. CP QA Site Audit Program

A CP QA construction site audit activities schedule (Field Audit Program) was reviewed. This schedule was approved by the CP QA administrator on January 15, 1974. A copy of this schedule for the current calendar quarter was determined to be adequate and current.

The Midland Plant QA Supervisor is presently developing other means to plan and schedule CP QA involvement in site construction activities, including previous commitments relative to QA/QC deficiencies. He stated that the intent is to provide early planning and adequate visibility. One scheme uses the "Yellow Book" format, and another uses a QA "Milestones" chart.

Prior to the current inspection, CP changed the format and arrangement of their QA field audit procedures. Presently, the procedures for CP QA field audits is described in Section 12.0 of the CP Quality Assurance Services Procedures Manual (QAS-PM). Section 12.0 was approved on

February 1, 1974, by the director of QAS. In regard to field audits, Section 12.0 prescribed the program, schedules, types of audits, responsibility, and required reports. Audit requirements include listing of the detailed procedures for the activity being audited, a detailed inspection procedure, and a checklist based on the detailed inspection procedures. This procedure is considered to be adequate for CP QA Field audits.

c. CP Discussion With Firms Having QA Expertise

A representative of CP stated that CP management personnel met with NUS personnel on January 26, 1974, to discuss the preliminary findings of the NUS team assigned to review the Midland Plant QA program. Another meeting, to further discuss the results of the NUS activities, was held on February 6, 1974. CP indicated that some additional information, previously requested by CP is yet to be provided by NUS. CP expects to receive the NUS report by late February 1974.

In addition to the above discussions, CP received a letter from Grumman Aerospace Corporation (GAC) dated January 25, 1974, referencing GAC's recent visit to CP and indicated the type of assistance that GAC could provide to CP. The licensee is reviewing the assistance program proposed by GAC.

d. CP Review and Review Procedure for Bechtel Field Inspection Plans

Prior to this inspection, CP had received seven Bechtel Master Inspection Plans for review. These plans have been reviewed by CP and returned to Bechtel with comments. These comments have been discussed with Bechtel (on January 22 and 24, 1974) and discussions on this subject are continuing. CP indicated that the resolution of remaining differences, relative to these inspection plans, is expected in the immediate future. A letter, QC Inspection, H. W. Slager (CP) to M. M. Krout (Bechtel) dated February 5, 1974, relative to recent Bechtel inspection plans, includes CP's views on this matter.

CP has developed a procedure for inspection plan review. The inspector determined that this procedure was adequate for review of field inspection plans for Class I components and activities. The procedure is contained in Section 4.0, CP QAS-PM, which had been approved by the director of QAS on January 24, 1974. This procedure provides guidelines to evaluate inspection plans for adequacy. The procedure includes a listing of items to be verified by CP prior to acceptance/approval of each inspection plan. A Document Review Notice form is to be used to record acceptance/approval status.

e. Procedure for Audits of Site QA Activities

In order to assure that established procedures and instructions, and other job responsibilities, are being implemented and to determine that performance and adequacy of CP QA site personnel meet applicable requirements, CP has established a procedure for supervisory and management personnel visits to the Midland site. The procedure, contained in Section 13.0 of QAS-PM, establishes the purpose, frequency, responsibilities, and reporting requirements. This procedure was approved by the director of the PQASD on February 1, 1974. The inspector reviewed this procedure and considered it to be adequate.

f. Bechtel QA/QC Training and Indctrination Program

Bechtel General Technical Notice No. SF/GT-4, Revision 0, Qualifications, Evaluation, Examination, Training, and Certification of Construction Department QC Personnel, was reviewed. This notice, dated December 28, 1973, and signed by the Bechtel Chief, Field QC Engineer, provides a formal program for QC personnel to meet the requirements of ANSI Standard N 45.2.6 and AEC Regulatory Guide 1.58. Procedures to be used for certifying and training are described in detail, including levels of qualification, education and experience requirements, proficiency evaluation, visual examination, and records.

A Bechtel IOM, QC Training, from the Midland Project Field QC Engineer, dated January 10, 1974, assigned the Lead Civil QC Engineer as QC Training Sessions Coordinator, effective January 10, 1974.

A review of Bechtel QC personnel training records indicated that a training session was held on January 16, 1974, on the subject of material receiving and storage control, and another session was held on January 18, 1974, on consolidation of concrete. Implementation of the Bechtel QC personnel training program is considered to be adequate.

g. Computation Errors in Cadweld Void Calculations

The Bechtel response to CP Nonconformance No. QF-6 was reviewed. This response, dated February 5, 1974, stated that all void areas have been recalculated, based on data obtained during reinspection Cadweld splices. These results correspond with information on this subject obtained during a January 29, 1974, site inspection (RO Inspection Reports No. 050-3429/74-02 and No. 050-330/74-02). A representative of Bechtel stated that, although the Bechtel headquarters' (San Francisco) recalculation data were not available at the site on February 5, 1974, there was essentially no difference between the field recalculations and the headquarters' recalculations, as determined by a Bechtel discussion on this matter.

h. Bechtel Management Involvement in QA/QC Activities

CP stated that A. P. Yates, Bechtel Vice President, visited the Midland Plant construction site on January 25, 1974, to review job progress, particularly in the area of quality control. A letter, Site Visit - Midland Project, A. P. Yates to S. H. Howell (CP), dated January 31, 1974, was reviewed. The letter included measures taken to improve the Bechtel QA/QC program at Midland and indicated areas where considerable progress had been made.

i. Tendon Trumplates

Prior to this current inspection, CP had requested Bechtel to complete the resolution of certain unresolved matters relative to trumplate assemblies. This request required that trumplate welds be cleaned of rust and inspected and that a protective coating be applied as required. This work has been initiated; Bechtel has issued Specification Change Notice No. C-2-4001, dated February 1, 1974, which requires weld inspection, and the engineering disposition of Bechtel NCR No. C-42 calls for application of a rust preventative on the inside of the trumpets.

j. Timely Corrective Action Response

Documents reviewed and discussions with CP and Bechtel personnel indicated that implementation of required, corrective action had been and is continuing to be, expedited. Specific activities reviewed and reported herein reflect more timely implementation than in the past.

A representative of Bechtel stated that the Bechtel QC supervisor would generate monthly reports (for Bechtel Ann Arbor management) covering all significant aspects of QC activities at the Midland Plant site. These reports will start with the month of February 1974.

Revision 5 of Bechtel Procedure G-3, Processing of Nonconforming Items, was reviewed and considered to be adequate.

3. Bechtel Vendor Audit

On January 31, 1974, Bechtel conducted a vendor audit of Erico (Cadweld components supplier). Three audit findings were reported relative to the vendor audit, as follows:

- a. Control of measuring and test equipment is not being properly implemented.
- b. Documentation supporting the cleaning process was incomplete and unacceptable.

- c. Nonconformance reports were not being filled in, to the extent described in the Erico procedure.

A representative of Bechtel stated that Erico had agreed to take appropriate, corrective action relative to these audit findings and that Bechtel had scheduled a reaudit of Erico in the near future.

A Bechtel Management Corrective Action Report (MCAR-1, Report No. 5, dated February 5, 1974) regarding the above, included a recommendation that the safety implications, associated with the above findings, be determined. At the time of this inspection, a Bechtel evaluation of this matter was in progress. Subsequent to this inspection (on February 13, 1974) CP reported that no adverse safety implications were identified during a Bechtel preliminary engineering evaluation of this matter and that RO:III would be kept informed concerning future developments.

4. Containment Liner Plate Coating

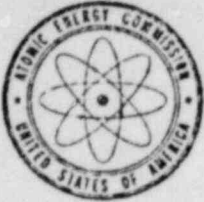
CP stated that an inspection plan for liner plate coating is being developed by Bechtel, that this plan should be available for CP review about mid-February 1974, and that CP will verify that a QC hold point is included for liner plate inspection to assure that the liner plate assemblies meet all applicable requirements before installation. The present schedule calls for this inspection prior to sandblasting and painting of the liner plate assemblies.

5. Site Testing Laboratory

From discussions with CP and Bechtel personnel, and a survey of testing facilities at the site, it was determined that the laboratory and personnel involved (Bechtel and U. S. Testing) met applicable requirements. However, no Class I material was being tested at the site at the time of the current inspection.

6. Defective Support Structures Manufactured by Sun Shipbuilding and Dry Dock Company (SUNSHIPS) - Request from Field Support & Enforcement Branch

The CP project engineer for the Midland Plant stated that SUNSHIPS is not supplying any equipment for the Midland Plant.



UNITED STATES
ATOMIC ENERGY COMMISSION
DIVISION OF COMPLIANCE
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

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(312) 858-2660

- A. RO Inspection Report No. 050-329/74-03
RO Inspection Report No. 050-330/74-03

Transmittal Date : March 8, 1974

Distribution:
RO Chief, FS&EB
RO:HQ (5)
DR Central Files
Regulatory Standards (3)
Licensing (13)
RO Files

Distribution:
RO Chief, FS&EB
RO:HQ (4)
L:D/D for Fuel & Material
DR Central Files
RO Files

- B. RO Inquiry Report No. _____

Transmittal Date : _____

Distribution:
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DR Central Files
Regulatory Standards (3)
Licensing (13)
RO Files

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RO:HQ
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RO Files

- C. Incident Notification From: _____
(Licensee & Docket No. (or License No.))

Transmittal Date : _____

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RO:HQ (4)
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