U. S. ATOMIC ENERGY COMMISSION DIRECTORATE OF REGULATORY OPERATIONS

REGION III

Report of Construction Inspection

RO Inspection Report No. 050-346/73-04

Licensee: Toledo Edison Company Edison Plaza 300 Madison Avenue Toledo, Ohio 43652

> Davis-Besse Nuclear Power Station Oak Harbor, Ohio

License No. CPPR-80 Category: A

Type of Licensee:

PWR (B&W) - 873 Mwe

Routine, Announced Type of Inspection:

Dates of Inspection: October 16, 17, and 18, 1973

Dates of Previous Inspection: July 10 - 11, 1973

Principal Inspector:

M. W. Dickerson

11-13 73 (Date)

Accompanying Inspectors: None

Other Accompanying Personnel: None

Reviewed By: D. W. Hayes DW Fray as

Senior Reactor Inspector Reactor Construction Branch

11/14/73 (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.

Licensee Action on Previously Identified Enforcement Matters

A. <u>Design Documents Did Not Have the Required Approvals</u> (RO Inspection Report No. 050-346/73-03)

During the referenced inspection the contractor, A. Bently & Sons (Bently), for installation of the reactor pressure vessel supports, was unable to produce approved documents used in their construction activities relative to the supports.

During this inspection, the steps taken to correct this noncompliance as stated in the Toledo Edison Company (TECO) letter dated September 20, 1973, were reviewed by the inspector and determined to be acceptable. This matter is considered resolved.

5. Failure to Control Design Documents as Required (RO Inspection Report No. 050-346/73-03)

During the referenced inspection, it was established that one copy of each drawing issued by the Bechtel Corporation (Bechtel) at the site, was apparently transmitted offsite by the Babcock and Wilcox Company, without records to account for this transmittal. During this inspection, the steps taken by the licensee to correct this noncompliance as stated in their letter dated September 20, 1973, were reviewed by the inspector and determined to be acceptable. This matter is considered resolved.

Design Changes

No new design changes were identified.

Unusual Occurrences

No unusual occurrences were identified.







Other Significant Findings

A. Current Findings

The licensee indicated that, as of October 1, 1973; (1) construction was 52% complete, and (2) engineering was 87% complete.

These figures represent a decrease from those reported during the last inspection and are a result of a new scheduling (Forecast No. 3) of activities for the Davis-Besse plant.

B. Unresolved Matters

No new unresolved matters were identified.

C. Status of Previously Reported Unresolved Matters

 <u>Cleanliness - Construction Area (RO Inspection Report No.</u> 050-346/73-03)

During the previous inspection, cleanliness of the construction areas within the reactor building, except for the reactor containment area, were considered to be inadequate.

Examination of these areas, during this inspection, established that cleanliness was much improved. This matter is considered closed.

 <u>CRD</u> Undervoltage Trip Assembly Deficiency (RO Inspection Report No. 050-346/73-03)

Documentrary evidence that the subject deficiencies (encountered at another site) had been satisfactorily corrected was reviewed by the inspector and determined to be acceptable. This matter is considered resolved. (Paragraph 1)

 Apparent Corrosion of Stainless Steel Components and Stainless Components in Contact With Carbon Steel Hangers and Connectors (RO Inspection Report No. 050-346/73-03)

As a result of the observed conditons, as discussed in the referenced report, an investigation into both the conditions and their cause was undertaken by TECO. The results of this investigation were insufficiently complete for review at the time of this inspection. This matter remains open.

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 Reactor Coolant Piping (RO Inspection Reports No. 050-346/72-06, No. 050-346/73-02, and No. 050-346/73-03)

A manufacturer's data report is now available for all reactor coolant piping. Th's matter is considered closed. (Paragraph 2)

Management Interview

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

Toledo Edison Company (TECO)

G. J. Sampson, Vice President - Power
L. E. Roe, Chief Mechanical Engineer
J. D. Lenardson, Quality Assurance Engineer
G. W. Eichenauer, Field Quality Assurance Engineer
E. C. Novak, Nuclear Project Engineer

Bechtel Corporation (Bechtel)

H. A. Ablondi, Project Quality Assurance Engineer

- B. Matters discussed and comments, on the part of management personnel, were as follows:
 - The inspector reviewed the status of previously unresolved matters described in the summary section of this report. During this review, the satisfactory resolution of the previous violations for use of an unapproved design document and for failure to control design drawings was also discussed.
 - The inspector requested that a controlled copy of the latest revision of the TECO Quality Assurance Manual be provided to Region III.

The licensee acknowledged the comments and stated that a controlled copy of the TECO QA manual would be provided.

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REPORT DETAILS

Persons Contacted

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

Toledo Edison Company (TECO)

K. M. Cantrell, Quality Assurance Engineer
W. G. Moring, Quality Assurance Engineer
E. M. Wilcox, Quality Assurance Engineer
M. D. Calcamuggio, Power Plant Electrical Engineer

Bechtel Corporation (Bechtel)

S. R. Boesel, Project Field Engineer J. E. Banchich, Office Engineering Assistant J. J. Ford, Quality Assurance Engineer

Babcock & Wilcox Company (B&W)

J. W. Marshall, Field Quality Control Superviso-

A. Bently & Sons Company (Bently)

R. G. Sanders, Quality Assurance/Quality Control Engineer

Michigan Testing Engineers, Incorporated (MTE)

D. (NMI) Ponke, Quality Control Supervisor

Results of Inspection

 <u>CRD Undervoltage Trip Assembly Deficiency (RO Inspection Report</u> No. 050-346/73-03)

Documentation at the site (B&W letter of September 13, 1973, which transmitted Diamond Power Speciality Corporation letter of August 29, 1973, including an electrical inspection report dated April 11, 1973) established that the CRD undervoltage trip assembly had been modified by the replacement of the 15 ohm trip coil with a 24 ohm coil. It also established that, for the Davis-Besse control rod drive system, no additional modification to the circuit was required (to add a



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five-ampere fuse) since the circuit already provided overcurrent protection in the form of a ten-ampere fuse. This matter is considered resolved.

 <u>Reactor Coolant Piping (RO Inspection Reports No. 050-346/72-06,</u> No. 050-346/73-02, and No. 050-346/73-03)

A manufacturer's data report (Form ND-1) for all 12 reactor coolant pipe spools has now been received at the site. This includes a data report for pipe spool No. A33-1 for which a stress analysis report had not been completed at the time of the previous inspection. The pipe spools and the respective date of the manufacturer's data report reviewed by the inspector are listed below.

Spool		Spool		
No.	Date	No.	Date	
A24-1	5/8/73	A67-3	5/8/73	
A24-2	5/8/73	B44-1	5/8/73	
A32-1	5/8/73	B56-1	5/8/73	
A33-1	7/18/73	B59-1	5/8/73	
A67-1	5/8/73	B61-1	5/8/73	
A67-2	5/8/73	B67	5/8/73	

- 3. Reactor Pressure Vessel Supports and Steam Generator Supports
 - a. Welding

(1) Implementation of Quality Assurance Program

A review of the TECO, Bechtel, and PX Facesaring Company, Incorporated, line and QA organizations and functional relationships indicated that applicable quality requirements were met relative to welding of the reactor pressure vessel and steam generator supports.

(2) Review of Quality Control System

The PX Engineering QC system was determined to be acceptable for (1) qualification of weld procedures, welders, NDE techniques, NDE technicians; (2) identity of weld location, welder, weld procedures, NDE technicians, NDE procedures, and NDE results; (3) radiograph quality, magnetic particle, dye penetrant and ultrasonic examination and corelation of records to welds; (4) visual inspection of

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joint preparation, environmental control, root gap, alignment, root pass, and completed weld; (5) weld preheat, interpass temperature, post weld cooling control and stress relief; (6) defect removal technique, verification, and acceptance of repair; and (7) weld rod material receipt verification, preissue storage conditons, issue control, post issue environmental control, and the disposition of unused weld rod. Included, for each, were the QC inspector's procedural requirements. Acceptability was established by selective examination of the following:

- (a) PX Engineering Company, Incorporated, QA Manual, Revision 1, Dated December 21, 1971.
- (b) Weld procedures and welder qualification procedures.
- (c) Weld repair procedure, WRP-010, dated May 16, 1972.
- (d) Liquid penetrant inspection procedure, LP-010, dated January 6, 1972.
- (e) Radiograph procedure, RT-012, dated August 30, 1972.
- (f) Post Weld heat treating procedure for P-1 material, HT-020, dated August 25, 1972.
- (g) Ultrasonic examination of welds, UT-011, dated July 12, 1972.
- (h) Magnetic particle inspection procedure (final pass) MPI-012, dated August 30, 1972.

(3) Follow-up Record Review

An examination of the QC records for welding were satisfactorily reviewed for conformance with Bechtel Specification No. 7749C-48, Revision O (Technical Specification for the Furnishing, Detailing, Fabrication, and Delivery of Structural Steel for Major Component Support and Restraint Structures for Toledo Edison Company and The Cleveland Illuminating Company, Davis-Besse Nuclear Power Station Unit No. 1 Construction) dated August 31, 1971, and included:

(a) NDE records including UT records by the Arnold Green Testing Laboratory, required by the repair of beam supports Nos. 1, 2, 3, 4, 5, 6, 7, and 8.

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- (b) Defect removal verification and acceptance of repair.
- (c) Welder qualification records.
- (d) Post weld cooling control records.

Weld rod material control records and a list of currently qualified welders were not reviewed, since they were not required to be submitted as part of the data package.

(4) Follow-up Observation of Work

No observation of the welding, as performed, could be made since the RPV and SG supports had been completed prior to the time of this inspection, ard the supports were embedded in concrete during 1972.

b. Structures and Supports

(1) Implementation of Quality Assurance Program

A review of the TECO, Bechtel, PX Engineering Company, and Bently (installation contractor) QA organizations and functional relationships indicated that applicable quality requirements were met relative to the reactor pressure vessel and steam generator supports.

(2) Review of Quality Control System

The PX Engineering and Bently QC systems were determined to be acceptable relative to material chemical composition, physical character, materials NDE, handling of nonconformances, storage, and identification and control. No installation specifications were required, other than those contained on drawings C-187, Revision 3, and C-150, Revision 1, for embeds and placement, and no NDE and inspection were required, except for the concrete within which the supports were embedded. Acceptability was determined by selective examination of the following:

(a) PX Engineering Company, Incorporated, QA Manual, Revision 1, dated December 21, 1971.

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(b) Bently Quality Control Onsite Inspection Manual for Q-Listed Material, Revision 3, dated October 11, 1973.

(3) Follow-up Record Review

An examination of the QC records for the RPV beam supports and SG supports established that they had been satisfactorily manufactured (to Specification 7749-C-48, Revision 0) receipt inspected, and installed. Records examined included material chemical composition and physical character certifications, NDE records, receipt inspection records (including nonconformances) and installation records. The latter included 28-day concrete strength tests which exceeded the required 5,000 psi. Installation records examined included the following completed Bently checklists and report forms:

- (a) Form 5, Reinforcing Steel Placement
- (b) Form 6, Cadweld Check-off List
- (c) Form 9, Formwork Construction Report
- (d) Form 10, Concrete Placement Checklist
- (e) Form 13, Installed Inspection Report
- (4) Follow-up Observation of Work

No observation of the work as performed could be made, since the RPV beam supports and SG supports had been completed prior to the time of the inspection and had been embedded during 1972.

4. Primary Piping

- a. Welding
 - (1) Implementation of Quality Assurance Program

A review of the B&W QA organization and functional relationships indicated that applicable quality requirements were being met relative to welding of the primary coolant piping.

(2) Review of Quality Control System

The B&W QC system was determined to be acceptable for (1) qualification of weld procedures, welders; NDE

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techniques, and NDE technicians; (2) identity of weld location, welder, weld procedures, NDE technicians, NDE procedures, and NDE results; (3) radiograph quality. magnetic particle, dye penetrant and ultrasonic examination and corelation of records to welds; (4) visual inspection of joint preparation, environmental control, root gap, alignment, root pass, and completed weld; (5) weld preheat, interpass temperature, post weld cooling control, and stress relief; (6) defect removal technique, verification, and acceptance of repair; and (7) weld rod material receipt verification, preissue storage conditions, issue control, post issue environmental control, and the disposition of unused weld rod. Included, for each, were the QC inspector's procedural requirements. Acceptability was established by selective examination within the following:

- (a) B&W QA Manual for Nuclear Power Plant Components, Copy No. 3, issued to TECO February 17, 1973.
- (b) B&W QC Manual for Toledo Edison Company, NSS-14, Copy No. 3, issued to TECO February 15, 1973.

The QC manual is composed of five sections. Section 1 contains administrative QC procedures; Section 2, technical QC procedures; Section 3, NDE QC procedures; Section 4, welding QC procedures; and Section 5 contains welding instruction sheets and procedure qualification.

b. Piping

(1) Implementation of Quality Assurance Program

A review of the B&W organization and functional relationships indicated that applicable requirements were being met relative to receipt, storage, and installation of the primary coolant piping.

(2) Review of QC System

The B&W QC system was determined to be acceptable relative to material chemical and physical certifications, NDE, cleanliness at receipt, protective closures, protective •

measures, marking and identification, quarantine of nonconforming material, storage identification and control, storage protection and installation NDE. Acceptability was established by selective examination of Sections 1 and 3 procedures from the B&W QC Manual for Toledo Edison Company, NSS-14, Copy No. 3, issued to TECO February 15, 1973, as follows:

Section 1

- (a) No. 9A-107, Report of Inspection Inspection Ticket, Revision 8.
- (b) No. 9A-107-1, Receipt Inspection and Procedure for Tagging, Revision 6.
- (c) No. 9A-108, ASME Code Data Reports, Revision 4.
- (d) No. 9A-112, Disposition of Nonconformities, Revision 8.
- (e) No. 9A-117, Storage Requirements, Revision 2.

Section 3

- (a) No. 9T-102A, General Procedure for Radiographic Examination, Revision 6.
- (b) No. 9T-RT-200, Radiographic Examination of Circumferential Butt Welds Using Iridium-192, Revision 2.
- (c) No. 9T-102F, General Procedure for Magnetic Particle Examination, Revision 2.
- (d) No. 9T-MT-203, Magnetic Particle Examination of Welds Using Yoke Method, Revision 1.
- (e) No. 9T-102H, General Procedure for Liquid Penetrant Examination, Revision 4.
- (f) No. 9T-PT-200, Liquid Penetrant Examination of Welds, Revision 0.
- (g) No. 9T-102U, General Procedure for Ultrasonic Examination, Revision 0.

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A. RO Inspection Report No. November 14, 1973

Transmittal Date : _____

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 & Materials DR Central Files RO Files

B. RO Inquiry Report No.

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

Distribution: RO Chief, FS&EB RO:HO DR Central Files RO Files

C. Incident Notification From:

(Licensee & Docket No. (or License No.)

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