UNITED STATES NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report of Operations Inspection

IE Inspection Report No. 050-346/76-19

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

Davis-Besse, Unit 1
Oak Harbor, Ohio

License No. CPPR-80
Category: B

Type of Licensee: PWR (B&W) 906 MWe

Type of Inspection: Routine, Announced

Dates of Inspection: September 6-11 and 16-24, 1976

Principal Inspector: R. D. Martin — 10/18/76 (Date)

Accompanying Inspectors: J. E. Kohler — 10/18/76 (Date)

E. W. W. Lee — 10/18/76 (Date)

Reviewed By: R. C. Knop, Chief
Reactor Projects
Section No. 1 — 10/18/76 (Date)

SUMMARY OF FINDINGS

Inspection Summary

Inspection on September 6-11 and 16-24, 1976, (76-19): Inspector witnessing of: (1) reactor coolant system hydrostatic test; (2) selected local leak rate tests; (3) structural proof test and solution film tests of containment; (4) containment integrated leak rate test. One item of noncompliance relative to pressure gage conformance to procedure requirements during structural proof test of containment was identified.

Enforcement Action

The following item of noncompliance was found during the inspection:

Infraction

Contrary to 10 CFR 50, Appendix B, Criterion V, pressure gauges used in the containment proof test by Chicago Bridge and Iron Company (CB&I) were not in accordance with procedure VCI-70-6449, Rev. 4, Section 5.1.1. (Paragraph 1, Report Details)

Other Significant Findings

A. Systems and Components

1. Fuel Receipt

   On September 10, 1976, the first shipment of fuel for the facility arrived at the site and was unloaded for placement into dry storage.

2. Containment Structural Proof Test

   The 5 psig solution film test on the containment welds was completed at approximately 2000 hours on September 17, 1976. The pressure in the containment was increased from 5 psig at 2130 hours on September 17, 1976, using 6-1050 CFM compressors. The 45 psig test pressure was reached at 0100 hours on September 19, 1976. Blowdown to 36 psig started at 0200 hours on September 19, 1976, and was reached at 0615 hours on the same day.

3. Reactor Coolant System Hydrostatic Test

   On September 9, 1976, the reactor coolant system was successfully hydrostatically tested at a pressure in excess of 3180 psig. No weld defects were found within the test boundary.

4. Containment Integrated Leak Rate Test

On September 21-22, the integrated leak rate for the containment was measured, and independent calculations by the inspector indicate a leak rate of less than 0.09%/24 hours.

5. Unresolved Item - Pressurizer Safety Valve Setting

The licensee, as a result of preoperational testing activities, has determined that the setting of the Pressurizer Code Safety Valves is temperature sensitive, and if the valve is set for operating conditions, the setting would not conform to the proposed Technical Specification for modes 4 and 5.

B. Facility Items (Plans and Procedures)

The licensee is now planning his testing activities based on a November 1, 1976 date for the start of Hot Functional Testing. This extrapolates to a fuel load date of approximately February 7, 1977.

C. Managerial Items

The present Training Supervisor for the facility resigned effective October 1, 1976. At that time the present Training Coordinator will be promoted to take over those duties, and a replacement coordinator will be sought by the licensee.

D. Noncompliance Identified and Corrected by Licensee

None identified during this inspection.

E. Deviations

None identified during this inspection.

F. Status of Previously Reported Unresolved Items

1. IE Inspection Report No. 050-346/74-09 (page 6)

The above report indicated that the record keeping system for on-the-job training of the licensee would be reviewed when further development had taken place. During this inspection the licensee reviewed a sampling of those records and has no further questions on this matter. The licensee was informed that further reviews of training activities will be part of the ongoing inspection program.

2. IE Inspection Report No. 050-346/76-01 (page 5)

This report indicated that certain changes to TP203.07 were required. During this inspection, the inspector reviewed Revision 1 to TP 203.07 and determined that appropriate changes had been made. This item is closed.

3. IE Inspection Report No. 050-346/76-01 (pages 5 and 6)

This report indicated that certain changes to TP 203.08 were required. During this inspection, the inspector reviewed Rev. 1 to TP 203.08 and determined that the appropriate changes were made. This item is closed.

4. IE Inspection Report No. 050-346/76-01 (page 6)

This report indicated a commitment of the licensee to re-measure the vent valve opening forces following the installation of the modified surveillance capsule holders. During this inspection the inspector reviewed the measurement results documentation in the control copy of TP 200.01 (work performed under Temporary Modification T-246). The results were satisfactory and this item is closed.

5. IE Inspection Report No. 050-346/76-10 (page 9)

This report indicated revisions which were to be made to TP-275.03. The inspector reviewed Rev. 1 to this procedure and determined that the appropriate changes were made. This item is closed.

6. IE Inspection Report No. 050-346/76-10 (page 9)

This report indicated revisions which were to be made to TP 330.03. The inspector reviewed Rev. 1 to this procedure and determined that the appropriate changes were made. This item is closed.

7. IE Inspection Report No. 050-346/76-10 (page 13)

This report indicated that the ability of the licensee to perform a limited remote visual inspection of the vent valve physical conditions would be an open item pending successful resolution between licensee and NRC/ONRR. The inspector noted subsequent to this inspection that the "Proof and Review"

copy of the proposed Technical Specifications (Section 4.4.10.1.b.1 and 2) contain requirements within the licensee's capability. Therefore this item is considered closed.

8. IE Inspection Report No. 050-346/76-12 (page 6)

This report indicated changes required for TP 100.01. The inspector reviewed Rev. 1 (September 8, 1976) for this procedure and determined that the appropriate approvals were obtained. This item is closed.

9. IE Inspection Report No. 050-346/76-12 (page 7)

This report summarized a commitment by the licensee to add pertinent information to the control copy of TP 600.33. The inspector reviewed the control copy of the procedure and determined that this information was added. This item is closed.

10. IE Inspection Report No. 050-346/76-17 (page 8)

This report indicated changes that were to be made to Exhibit A of QAI 4186. The inspector reviewed the material in the latest revision (1) of QAI 4186 and determined that the appropriate changes were made. This item is closed.

11. IE Inspection Report No. 050-346/76-10 (page 9)

This inspection report discussed changes which were to be made in TP 110.01 regarding the acceptance criteria for the time required for the Emergency Ventilation System to establish a negative pressure in the shield building annulus. The inspector noted that the draft Technical Specifications (4.6.5.1.d.4) now establishes the acceptance criteria at $\geq$0.25" W.C. within 20 seconds after a start signal. This item is now considered closed.

Management Interview

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

L. Roe, Vice President, Facilities Development
J. Evans, Station Superintendent
J. Lenardson, Manager of Quality Assurance
E. Novak, General Superintendent, Power Engineering and Construction
T. Murray, Operations Engineer
L. Stalter, Technical Engineer
W. Green, Assistant to Station Superintendent

B. Beyer, Maintenance Engineer
R. Brown, Assistant Engineer
G. Hurrell II, Senior Assistant Engineer
J. Buck, Operations Quality Assurance Engineer
P. Narducci, Quality Control Supervisor

B. Matters discussed and comments as follows:

1. Containment Structural Proof Test (Section 1, Report Details)

(a) The inspector summarized his general observations regarding the conduct of this test.

(b) The inspector informed the licensee that one item of noncompliance was identified in that section 5.1.1 of CB&I Procedure required six (6) inch diameter pressure gages to be 1/2 psig divisions but the gages used had 1.0 psig divisions. This failure to follow procedures is contrary to Criterion V of Appendix B to 10 CFR 50. The inspector also noted that he was aware that appropriate corrective and follow-up actions had been taken to preclude recurrence, and therefore, no formal response to this item would be required of the licensee.

2. Integrated Leak Rate Test

(a) RTD #6 in the TECo program does not agree with the value assigned for RTD #6 in the CBI data system. It has been assumed that the CBI RTD value is correct. The validity of RTD #6 must be confirmed by post calibration. The CBI RTD #6 must be confirmed as correct. If RTD #6 is inoperable and CBI is also incorrect, all data must be recalculated so as not to include this sensor.

The licensee acknowledged this conclusion and noted that a work request had already been issued to check the calibration of this sensor. The licensee indicated he would inform the inspector of the results of this recalibration.

(b) ILRT result must be adjusted by adding into the test results the final LLRT on valves either not installed prior to test or closed in a manner that was contrary to Appendix J.

(c) LLRT schedule: Appendix requires Type C test at refueling outages not to exceed 2 years. It is possible that

the 2 year LLRT requirement could come at an inopportune time (mid first fuel cycle) if a reasonable delay is factored into the present facility schedule. Therefore, it would be prudent to repeat LLRT just prior to fuel load.

ILRT schedule: 3 times in ten years following preoperational test. Time begins to count as of 1976; not commercial operation date.

The licensee acknowledged these comments.

(d) Exemption letter to requirements of Appendix J. Licensee should complete this letter and submit to NRC for approval. Inspector requested a draft copy of letter for his review.

(e) The inspector verified the conclusion with respect to the leak rate reflected in the CB&I data. The validity of the use of any other data sets will have to be demonstrated by the licensee. This inspector verification is based on the 24 hours data starting at 01:45 a.m on September 21, 1976 and implies a leak rate of .09 wt.%/day (nominal value).

The inspector, in response to a question from the licensee, indicated that the licensee is not required to utilize the same 24 hour period (more than 24 hours of data was available) as used by the inspector when they submit their final report of containment leak rate.

(f) The inspector provided the following observations regarding future integrated leak rate tests:

(1) If future tests performed by an "agent" of the licensee, there should be full time representation by TECo staff during the test.

(2) Use of automated data handling systems should be backed up by unconditioned data acquisition and hand or other duplicate calculations for confirmation.

(3) Consideration should be given to establishing action levels regarding LLRT results for individual penetrations.

The licensee noted these observations.

(g) The inspector noted that while the format of the ILRT report required by Appendix J to 10 CFR 50 is not specified, the following information has been found to be useful to the facilities and the Regional Office:

(1) A positive statement of completion and the results of the test for future reference.

(2) The total LLRT leakage. (Many sites report a tabulation of leakage/valve to demonstrate that increased leakage found at a later date does not compromise Appendix J requirements.)

(3) The LLRT results for "bypass leakage" valves described in the FSAR.

(4) Any exemptions to Appendix J testing.

The licensee noted these observations.

3. Reactor Coolant System Hydrostatic Test

(a) The inspector indicated that he had witnessed the successful completion of the hydrostatic test of the reactor coolant system.

(b) The inspector indicated that his inspection activities included:

(1) Sampling the successful completion of test prerequisites.
(2) Sampling the correctness of valve line-ups.
(3) Witnessing crew activities during the test.
(4) Review of the preparations for the weld inspections.
(5) The inspection of selected welds.
(6) The review of instrumentation and relief valve calibrations.

No significant deficiencies were observed during inspection activities.

As a consequence of the sampling of test prerequisites indicated above, the inspector requested and obtained a commitment from the licensee that a basis for judging the "successful completion" of preoperational tests would be developed for use when such completed tests are the prerequisites for subsequent test activities. The inspector will review progress in this area during a subsequent inspection.

4. Fuel Receipt

(a) The inspector indicated that he had reviewed selected aspects of the fuel receipt activities of the licensee and that no significant deficiencies were noted. He indicated his concern that the handling of the fuel cask which involved moving the cask quite close to valves in the seal water system might result in damage to those valves, and that additional precautions ought to be considered.

The licensee indicated that he would consider the inspector's comment.

(b) The licensee was informed that he should review the applicable portions of 10 CFR 70.32(e) and 10 CFR 70.52 now that fuel was on hand at the site.

5. The inspector indicated that the information obtained regarding the apparent temperature sensitivity of the pressurizer safety valves would remain an unresolved item for the present, since the decision on how the safety valves would be set was not yet finalized. However, he indicated that relief from the 1% tolerance presently in the draft Technical Specification may be required due to the information obtained thus far.

6. The inspector noted that he was informed of the status of the "Inspection" program of the QA Program for Station Operations of the licensee. He informed the licensee that he would return to inspect this area when the licensee indicated the program was implemented but no later than the latter part of November 1976.

7. The inspector indicated that one of the licensee staff confirmed that TP 205.07.1 "High Pressure Injection SFAS Test" will result in the reactor coolant system being outside the acceptable pressure-temperature limitations described on Figure 3.4-4 of the proposed Technical Specifications.

Subsequent to this Management Interview, by telephone conversation on September 30, 1976, the inspector requested and the licensee provided a commitment that suitable supporting documentation would be obtained by the licensee from the NSSS of the above violation of the pressure-temperature limits prior to the conduct of the test. This material will be reviewed by the inspector when it is available.

REPORT DETAILS

Persons Contacted

Toledo Edison Company (TECo)

D. Miller, Assistant Engineer
G. Grime, Station Guard Force Supervisor
J. Willard, Shift Foreman
R. Adney, Shift Foreman
M. Derivan, Shift Foreman
L. Simon, Shift Foreman
J. Hickey, Training Coordinator
S. Batch, Assistant Engineer
J. Orkins, Instrument and Control Engineer
D. Spain, Instrument Technician
L. Kurfis, Instrument Foreman
G. Humphreys, Assistant Engineer
J. Troknya, Office Supervisor

Bechtel Construction Management (BCM)

P. Purcell, Quality Control
A. Casalena, Quality Control
A. Fraser, Quality Control
J. Lochotzki, Quality Control
S. Singer, Quality Control
B. Lindsey, Start-up Engineer
D. Dundas, Test Engineer

Babcock and Wilcox Company (B&W)

D. Lee, Test Engineer
E. Michaud, Test Program Manager

Chicago Bridge and Iron Company (CB&I)

W. R. Wagner, Welding and Quality Assurance Assistant Manager
G. D. Mahan, Welding and Quality Assurance Supervisor
C. Sherlock, Test Engineer

B&W Construction Company

J. Marshall, QC Supervisor

Johnson Service Company

W. Tunnel, Test Director

Grinnell Company

D. Jiguere, QC Supervisor

Results of Inspection

1. Containment Structural Proof Test

a. General

The inspector witnessed the containment proof test and solution film tests and reviewed applicable procedures.

b. Noncompliance - Infraction

10 CFR Part 50, Appendix B, Criterion V, states, in part, that "Activities affecting quality shall be prescribed by documented instructions, procedures, . . . and shall be accomplished in accordance with these instructions, procedures. . . ." Furthermore, CB&I Procedure No. VCI-70-6449, Revision 4, dated July 16, 1976, "Vessel Contract Instruction for Strength, Leak and Leakage Rate Testing" required that the 6 inch diameter pressure gauges to have 0.5 psig divisions.

Contrary to the above, the 2-6 inch diameter pressure gauges with Serials No. 6-0-100-1 and No. 6-0-100-2 used by CB&I in the overload test had 1 psig divisions. However, as a result of the inspector's review, the licensee initiated a nonconformance report prior to the end of the inspection and the inspector determined that the corrective action taken was appropriate and we have no further questions on this matter at this time.

c. Review of Documents

The inspector reviewed the following documents and determined them to be acceptable:

(1) CB&I Procedure No. VOT-70-6449, Revision 2, dated January 30, 1975, "Vessel Overload Test Procedure."

(2) CB&I Procedure No. VCI-70-6449, Revision 4, dated July 16, 1976, "Vessel Contract Instruction for Strength, Leak and Leakage Rate Testing."

(3) CB&I Procedure No. VST-70-6449, Revision 3, July 16, 1976, "Vessel Solution Film Test Procedure."

(4) Thirteen NDE personnel qualifications.

d. Observation of Work Activities

The inspector observed the following work activities and determined that applicable procedures were met:

(1) Solution film test on penetrations No. 8A, No. 8B, No. 8C and No. 8D welds at 5 psig.

(2) Solution film tests on penetration No. 15A and circumferential shell weld ring No. 6 between 270° and 225°.

(3) Air samples taken at 2230 hours and 2240 hours on September 17, 1976, 1310 hours on September 18, 1976 and 0030 hours on September 19, 1976. The air sample taken at 2230 hours on September 17, 1976, felt wet to the touch. Corrective action was taken by the licensee and a sample taken 10 minutes later was dry.

2. Containment Integrated Leak Rate Test

a. Local Leak Rate Tests

The initial local leak rate tests (LLRTs) were performed over a several month period immediately preceding the preoperational integrated leak rate test. The results of the local leak rate testing were:

Penetration	T's Limit	As Left
Total of all Penetrations	608,400 cc/min 21.48 scfm (.6La)	1,370 cc/min .15 scfm
Bypass Leakage	15,200 cc/min .54 scfm (.015La)	954 cc/min .034 scfm

The total as-left leakage rate which as represented by the sum of the local leak rate tests results shows a containment leak rate equivalent to .0022 w/o/day.

b. Appendix J Exemptions

The inspector reviewed the local leak rate testing sheets that describe the manner in which each individual penetrations is subjected to the test pressure, and compared the testing to the requirements of 10 CFR 50 Appendix J. Several cases were found where the requirements of Appendix J could not be met. The inspector requested that the licensee compile a list of valves that would not be tested in accordance with Appendix J

so that an exemption from the requirements of Appendix J would be applied for. The licensee stated than such an exemption request would be compiled.

c. Test Procedure

The ILRT procedure titled, "Containment Vessel Overall Leakage Procedure for Davis Besse Nuclear Power Station," with approval date of August 12, 1976, was reviewed prior to performance of the ILRT and found to comply with the requirements of the Technical Specifications and ANSI N45.4-1972. Procedure changes required during the performance of the ILRT and LLRTs were performed according to procedure.

Because the preoperational test is performed before any decay heat source is present in the containment, the containment weighting factors, used to calculate weighted average containment temperature and dewpoint, were calculated by dividing the containment analytically into roughly equal volumes. The inspector stated that the periodic ILRT performed in the future would require a containment temperature survey in order to determine local sources of heat. The results of the survey would determine the placement of RTD's and dewcells and would result in changing the values assigned to the subvolume weighting factors in the initial procedure. The licensee acknowledged that these changes to the initial procedure would have to be made.

The inspector verified that a copy of the ILRT procedure and changes to it were being utilized by personnel performing the test. Sign offs indicated completion of specific test prerequisites required by the procedure.

d. Integrated Leak Rate Valve Alignment

The inspector independently reviewed the piping and instrumentation diagrams and selected fifteen penetrations in order to audit the valve line ups. In each penetration selected for review, the inspector identified the relevant containment isolation boundary and the inboard and outboard vent paths that would expose the inboard isolation valve to the test pressure as well as assure that no false boundaries existed. One discrepancy was found. Penetration No. 3, the component cooling water system, has a check valve outside of containment. The check valve precludes the outboard isolation valve from realizing the test pressure, because water exists between the check valve (CC93) and the outboard isolation valve. The licensee vented down stream of the check valve, thus ensuring that only two isolation barriers were present during the ILRT. The inspector has no further questions regarding this item.

e. Description and Calibration of ILRT Instrumentation

Twenty RTD's used in the test were manufactured by CTE, Inc., and had calibration sheets dated September 16, 1976, stating that the instruments were accurate to within ± .1°F.

Eighteen dewcells manufactured by CTE, Inc., had calibration sheets dated September 16, 1976, the dewpoint was accurate to within ± 1.0°F.

Two Brooks flowmeters used during the supplemental test were calibrated on April 28, 1976, and had a meter accuracy of ± 1% FS.

Two quartz pressure gauges used during ILRT were calibrated on August 14, 1976, with an accuracy of ± .036 millivolts.

f. Error Analysis

Utilizing the calibration data and the manufacturer's specification for instrumentation, the licensee performed an instrument error analysis with the following results:

(1)	accuracy	± .0589 w/o/day
(2)	repeatibility	± .0262 w/o/day
(3)	combined error	± .0694 w/o/day

g. Integrated Leak Rate Test

ILRT was performed during the period of September 20-24, 1976. Data was taken from the data acquisition system every fifteen minutes and calculation of the leak rate was made hourly. The data was reduced by the licensee in accordance with the total time method described in ANSI 45.4-1972.

A stabilization period of five hours was observed prior to beginning the test. The stabilization criteria used, as stated in the ILRT procedure, was:

(1) The rate of change of the weighted average temperature for the last hour was less than .5°F from the average rate over the last three hours.

(2) The rate of change of containment weighted average temperature changes was less than .5°F/hr/hr averaged over the last two hours.

The containment was considered stabilized at 0145 on September 21, 1976 and official test data began to be taken.

Throughout the test, the inspector obtained hourly data from the data aquisition system and calculated the leak rate using the mass point technique described in ANS N274 Work Group 56.8, Draft No. 1, Rev. 2, dated February 2, 1976. The upper confidence interval was based on a two sided T distribution with two degrees of freedom.

Based on the inspector's calculations, the overall containment integrated leak rate for twenty-four hour period beginning 01:45, September 21,1976, and ending on 01:45, September 22, 1976, was .073 w/o/day $\pm$ .025. The sum of the 24 hour leak rate plus the upper confidence limit was calculated to be .098 w/o/day. This is well below the .375 w/o/day(.75La) Appendix J requirement. The inspector's calculation is in good agreement with the licensee's calculated leak rate.

h. Supplemental Test

In order to confirm the results of the twenty-four hour ILRT, a supplementary leak test was performed in which a calibrated leak equivalent to .185 w/o/day was induced and leak rate measurements taken. The inspector calculated a leakage rate for an eight hour period beginning 0600 on September 22, 1976, equivalent to .29 w/o/day. Appendix J Acceptance Criteria specific an acceptance interval equivalent to: Lam + LI $\pm$ 25% La = (.16, .41)

The inspector concluded that the supplemental test confirms the results of the integrated leak rate test and that the 24 hour overall containment integrated leak rate for the September, 1976 leak test was approximately .073 $\pm$ .025 w/o/day.

i. Post ILRT Local Leak Rate Testing

The ILRT valve line up was performed with several valves either not installed (flanged off) or closed in a manner contrary to normal method of closure. The inspector informed the licensee that the results of ILRT must be adjusted by adding the "as left" leakage test results from these valves into the final ILRT results. The licensee acknowledged this.

j. Future Leak Testing Scheduling

The inspector stated that 10 CFR 50 Appendix J requires an integrated leak rate test to be performed three times in ten years following the date of preoperational test.

The inspector also stated that 10 CFR 50 Appendix J requires Type C testing to be performed at each reactor shutdown for refueling but in no case to exceed two years.

The inspector suggested that the licensee perform another complete LLRT series just prior to fuel loading so that the two year testing interval for type C tests does not adversely affect the first fuel cycle interval. The licensee will consider this.

k. ILRT Instrument Performance

During the performance of the ILRT, two sets of data were taken. The containment sensors outputed to a local terminal located adjacent to the ILRT instrumentation penetration. This data was also sent via terminal connection to the Toledo Edison process computer. During the test, it was discovered that RTD No. 6 on the Toledo Edison computer printout was dropping temperature quickly and did not agree with the local terminal printout. This caused the Toledo Edison calculated leak rate to differ from that calculated from data taken from the local terminal.

The inspector stated the validity of RTD #6 should be confirmed by a post test recalibration and inspection.

In a telephone conversation after the test, the licensee stated that RTD No. 6 was removed and recalibrated and that the recalibration did not differ from the pre-test calibration. However, an examination of the terminal connections revealed a loose terminal block connection in RTD #6 as well as several other inaccurate RTD readings at the Toledo Edison process computer.

The inspector stated that he assumed that the official data for the leak test would be that taken from the local terminal. He further stated the value of having the hard unreduced or conditional data at the local terminal as a backup for the data printed via the process computer. The licensee acknowledged this comment and the inspector has no further questions regarding the validity of the ILRT instrumentation.

l. Crew Performance

The Toledo Edison 1976 ILRT was performed primarily by Chicago Bridge & Iron Company, the constructor for the containment vessel, with Bechtel acting as interface with the licensee. Valve line ups for the test were performed by Toledo Edison personnel.

The inspector stated that Toledo Edison personnel had done a good job in ILRT valve alignment. However, licensee involvement in the data taking portion of the ILRT was minimal in that Toledo Edison was relying on their agents, Bechtel and Chicago Bridge and Iron, to carry out this portion of the test.

3. Reactor Coolant System Hydrostatic Test

a. General

The inspector witnessed the successful hydrostatic testing of the reactor coolant system on September 9, 1976. This test was also witnessed by, and the system welds inspected by, a team of State of Ohio inspectors (E. Doerr, team leader) and a team of Authorized Inspectors (Hartford Steam Boiler Inspection Services - P. Cribbs, Team leader, National Board No. 7915), as well as representatives of the involved contractors and the licensee.

No leaks were found in any welds within the test boundary.

The pressurization of the system was governed by test procedure TP 200.04 (Rev. 1, September 4, 1976).

b. Valve Line-up

Prior to the start of the test, the inspector verified the valve positions of 31 valves in the test boundary to be as shown on the boundary drawing. The inspector verified that appropriate valve line-up documentation was used by the staff in aligning the plant for this test. No significant deficiencies were noted during this phase of the inspection.

c. Instrumentation

The inspector verified by review of I&C records that the following items had been successfully calibrated within their appropriate calibration intervals:

Official Test Gage	Item 1.1.47 (12" Heise)	
Back-up Test Gage	Item 1.1.48 (12" Heise)	
Pressure Gage	Item 1.1.51	
Dead Weight Tester	Item 5.1.19 (reviewed certification)	
Temperature Measurement Readout	Item 2.7.1	
Relief Valve	Item 19000	550 psig
Relief Valve	Item 19001	3295 psig
Relief Valve	Item 19002	3295 psig

All calibrations and records were satisfactory and met the requirements of TP 200.04.

The inspector also verified the correctness of the head correction being applied to the "official" test gage by the licensee to account for system elevations.

d. Reactor Coolant System Temperature

The inspector verified that the licensee maintained the system temperatures as required throughout the test. The limiting RCS temperature requirement was that the transition between the reactor vessel head and the vessel head flange section must be maintained at a minimum temperature of 176°F when RCS pressure was above 550 psig. This required, due to heat losses and to assure sufficient time for weld inspection, that the RCS be maintained at approximately 250°F for the test.

The licensee achieved the RCS temperature by using 2 reactor coolant pumps. Pump operation was also required, to maintain temperature, while the system was "solid" during the pressure escalation phase.

The inspector also verified by observation that the steam generator shell temperatures remained within 60°F of the RCS temperature whenever RCS pressure was above 550 psig.

e. Prerequisite Verification

The inspector verified prior to the overpressurization portion of the test, by sampling of records and discussions with test personnel as appropriate, that the prerequisites for the test were satisfactorily met. During this activity, the inspector noted that the licensee does not have a formal criteria for judging the "successful completion" of a test procedure. Such criteria should exist when those test results are used as a prerequisite for additional testing. This matter was discussed further with the licensee during the management interview at the conclusion of the inspection.

f. Inspection Activities

The inspector met with representatives of the three contractors who installed the piping to be tested. Their method of identifying the welds to be inspected and the records maintained to assure that all welds were inspected was reviewed. No deficiencies were noted during the review.

The inspector observed the inspection activities of the inspection teams during the weld inspections at 2500 psig. No deficiencies were noted in these activities.

The inspector conducted an examination of the following welds:

(1) At 3186 psig:

(a) 3 Reactor Coolant Pump casings where casing repairs had been made.

(b) The welds in the Decay Heat suction line from the RCS hot leg connection to the boundary valve.

(2) At 2500 psig:

(a) The high pressure injection inlet line to the 1-2 pump cold leg (10 of the welds on the line)

(b) Pump 2-2 suction line weld.

(c) The first 3 welds on the Pressurizer Spray line from the cold leg end.

(d) The upper nozzle connections on the pressurizer.

As noted previously, no leakage was observed at any of these welds.

g. Documentation Review

The inspector reviewed the documentation associated with this test procedure (TP 200.04) including the procedure, the chronological test log, the completed temporary modifications to the procedure. No deficiencies were noted with regard to the administrative requirements of the AD 1801 series of procedures on test program controls.

4. Initial Fuel Receipt and Delivery

The inspector witnessed the delivery of the first twelve fuel elements, part of the initial core for Davis Besse, on September 10, 1976, and verified that fuel handling was in accordance with the special nuclear material license as well as the licensee's procedure. In particular the inspector verified:

a. Fuel storage is in secure fenced area.

Access control exists.

Storage area lighting was adequate.

Security force was aware of additional responsibilities and security procedures governing protection of the new fuel existed.

b. Environmental control inside fuel storage building provided control of dust and debris as well as physical protection.

c. The licensee's receiving inspection included review of fuel manufacturer's shipping documents, DOT, NRC documents and quality assurance documents describing the condition of each fuel element before shipping.

The licensee visually inspected each fuel assembly for external damage, security seal integrity, accelerometer integrity and loose material or parts.

e. Both 10 CFR 70.52 and 10 CFR 32(e) were discussed with the licensee.

5. Discovery of Live Ordinance

While the inspector was at the site, the following sequence of events took place. (Note that the area had been experiencing prevailing southwest winds resulting in unusually low lake levels at the shoreline by the site.)

a. Approximately 4:00 p.m. on September 21, 1976, a student employee of a contractor to the licensee detected what appeared to be a "shell" or other military weapon near the lake waterline. This was reported to the guard force and confirmed by them. The staff at Camp Perry (a nearby National Guard installation) was contacted and it was recommended that an ordinance disposal team be contacted the next day and that the item not be moved.

b. By 3:00 p.m. of the following day (September 22, 1976) a team from the 71st Ordinance Detachment at Richenbacker Air Force Base (Lockbourne, Ohio) had arrived on site, inspected the three units found during an inspection of the beach that morning, and had disposed of them by exploding them in place by placing and detonating one pound of high explosive on each device. The team estimated, from the size of each blast, that probably 2 of the 3 rounds were "live."

The team leader indicated that the units were 3.5" rockets (high explosive anti-tank rounds) such as launched from Bazooka-type weapons. The rocket portion of each round had been fired. The corrosion on each round was extensive preventing the determination of any identifying markings. These units were found approximately 1/4 - 1/2 mile from the dike to the entrance to the intake canal.