



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
799 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60137

QA Improvement  
W.D. Shafer  
Control of work release  
W.D. Shafer

August 16, 1982

Docket No. 50-329  
Docket No. 50-330

MEMORANDUM FOR: Midland Section

FROM: Wayne D. Shafer, Chief, Midland Section

SUBJECT: NRC AND CPCO WORK AUTHORIZATION PROCEDURE

Attached is the NRC and CPCo Work Authorization Procedure developed to provide a mechanism for NRC Region III review and authorization of activities to be implemented at the Midland Site as described in the ASLB Order.

*W.D. Shafer*  
Wayne D. Shafer, Chief  
Midland Section

Attachment: As stated

cc w/attachment:

DMB/Document Control Desk (RIDS)  
Resident Inspector, RIII  
The Honorable Charles Bechhoefer, ASLB  
The Honorable Jerry Harbour, ASLB  
The Honorable Frederic, P. Cowan, ASLB  
The Honorable Ralph S. Decker, ASLB  
Michael Miller  
Ronald Callen, Michigan  
    Public Service Commission  
Myron M. Cherry  
Barbara Stamiris  
Mary Sinclair  
Wendell Marshall  
Colonel Steve J. Gadler (P.E.)  
James G. Keppler  
A. Bert Davis  
Robert F. Warnick  
Ronald N. Gardner  
Ross B. Landsman  
Ronald J. Cook  
Bruce L. Burgess



NRC AND CPCO  
WORK AUTHORIZATION PROCEDURE

Effective Date August 12, 1982

APPROVED *Lamoney*  
Midland Project Office

*ENTCPC*

APPROVED *W.D. Shafes*  
Chief, Midland Section OSC

*NRC2*

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## NRC AND CPCO WORK AUTHORIZATION PROCEDURE

### SCOPE

To review all construction work covered by the ASLB Order of April 30, 1982.

### PURPOSE

To provide a mechanism for NRC Region 3 review and authorization of activities to be implemented at the Midland site as described in the ASLB Order.

To designate appropriate NRC and CPCO responsible individuals.

### REFERENCES

- 1) ASLB Memorandum and Order dated April 30, 1982.
- 2) ASLB Memorandum and Order dated May 7, 1982.
- 3) Letter to J W Cook from D G Eisenhut dated May 25, 1982, "Completion of Soils Remedial Activities Review".

### PROCEDURE

- 1.0 CPCo Project Management Organization will provide, at the beginning of the month a detailed list of all work activities to be implemented. This list will cover the construction activities anticipated to be in progress for the next 60-day period.
- 2.0 Upon receipt of the list the NRC will review the list and designate those activities as critical or non critical and advise CPCo Construction in writing of this designation.
  - 2.1 For those activities designated non critical, CPCo is authorized to proceed with the work. This work shall be accomplished in accordance with the staff approved Quality Assurance Plan.
  - 2.2 For those activities designated critical, the NRC will advise CPCo Construction of the required details essential for further staff review to determine the specifics of the work. CPCo is not authorized to proceed with work prior to receiving written authorization from the NRC.

- 2.2.1 CPCo Construction will provide the work details as requested by the Region.
  - 2.2.2 After review by the Region, CPCo will be provided with specific written authorization to conduct the identified work activities.
- 2.3 Should these authorized activities not start within 90 days, these activities will be resubmitted for authorization.
- 3.0 Changes may be required for authorized critical and non critical activities. These changes shall be processed as follows:
  - 3.1 Changes that alter the description of a previously submitted activity, in 1.0 above, shall be submitted to the Region for review. The review and authorization process will be as in 2.0 above.
  - 3.2 Changes which do not alter the description of a previously submitted activity, in 1.0 above, are not required to be submitted to the NRC but, shall be accomplished in accordance with the staff approved Quality Assurance Plan.
- 4.0 Work activities not previously identified on the work list, in 1.0 above, shall be identified and authorized as in 1.0 and 2.0 above. Approval of these work activities may be given verbally by the NRC responsible individual to the NRC Senior or Resident Inspector, who will then issue written authorization.
- 5.0 Emergency work activities may be performed to mitigate conditions which could affect personnel safety or could result in damage to facilities and equipment.

These activities shall require immediate notification of the Senior Resident Inspector.

6.0 Responsible individuals

6.1 The NRC representative shall be the Chief, Midland Section Office of Special Cases or his designee.

6.2 The CPCo designated representative shall be the Site Manager or his designee.

7.0 Changes to this procedure shall be approved the the Chief, Midland Section Office of Special Cases and the Site Manager.

WORK ACTIVITY LIST  
FOR SEVEN DAYS FROM LIFTING OF STOP WORK ORDER

- Aux Bldg
1. Operate all instruments in seven day "baseline"
  2. Test all instrumentation systems per C-1493
  3. Adjust set and finalize covers on all instruments
  4. Verify post tension systems on control tower
  5. Maintain instrument system
- Freeze Wall
6. Continue monitoring utility protection pits (4)
  7. Install clay to below duct bank (pit 4) (details attached)
  8. Add additional wells (up to 5) on west perimeter (outside C-45)
  9. Continue operation of systems and wells
- FIVP
10. Install and grout bolts and plates
  11. Lift off test on bolts (and hardness tests)
  12. Tension bolts
- Crack Mapping
13. Clean FIVP to crack map
  14. Crack map FIVP's
  15. Crack map EPA's
  16. Crack map remainder Aux Bldg
- Underpinning
17. Drift to piers 12 E/W
  18. Dig piers 12 E/W
  19. Install piers
  20. Drift to piers 9 E/W
  21. Implement C-200 if needed
  22. Install bumpers, handrails, stairs, etc in access shaft
- SWPS
23. Complete fireline relocation
  24. Install 6 deep seated benchmarks
  25. Install ejector wells
  26. Install soldier piles
  27. Excavate 36" service water pipe (train A)
- BWST
28. Construct new ring beams
- Other
29. Finish 72" line repair
  30. Approval of Quality Assurance Plans



MIDLAND UNITS 1 AND 2Major Events Ladder

- December 5, 1974 - Rebar spacing nonconformance identified for Unit 2 containment by licensee.
- March 5 & 10, 1975 - Rebar deficiencies in Auxiliary Building identified by licensee; RIII accepts justification.
- April 9, 1975 - Bechtel engineering justification for rebar spacing in Unit 2 containment accepted by RIII. (Report No. 75-03.)
- April 16, 1975 - Meeting at Consumers Power Company Corporate office; Hunnicutt, Hayes, and LeDoux relative to rebar spacing in containment and missing rebar in Auxiliary Building.
- April 28, 1975 - Unit 2 containment rebar spacing reanalysis accepted.
- August 21, 1975 - RIII notified of rebar omitted in Auxiliary Building.
- May 4, 1976 - Bechtel conclusion, that missing rebar in Auxiliary Building will not affect integrity, referred to Headquarters; Hayes to Seyfrit.
- June 7 & 8, 1976 - Meeting, Consumers Power Company, Jackson; Keppler and others vs Selby and others relative to missing rebar in Auxiliary Building and QA deficiencies per Report No. 76-04.
- June 18 & 24, 1976 - Licensee letters of response committing to 21 items of corrective action in response to Report No. 76-04.
- June 25, 1976 - Keppler to Consumers Power Company; Immediate Action Letter per Jordan to Keppler memo 8/26/76.

- July 14, 1976 - IE concurred with the Bechtel conclusion regarding missing rebar in Auxiliary Building, Seyfrit to Hunnicutt.
- July 28, 1976 - PN-III-76-52 issued on concrete work stoppage due to further rebar placement errors found as a result of Consumers' overview program instigated in late June 1976.
- August 2, 1976 - Keppler letter to Headquarters recommending Headquarters' Notice of Violation be issued.  
Notice sent 8/13/76
- October 29, 1976 - Consumers Power Company responded to Headquarters' Notice of Violations.
- November 30, 1976 - Hearings take place on environmental matters.  
Completed in January 1977.
- December 10, 1976 - Consumers Power Company's Midland QA Program accepted by NRR.
- \*July 1977 - Staff commenced responding on Consumers Power Company's Regulatory Guide use.
- February 26, 1977 - Bulge occurrence of Unit 2 containment liner discovered - reported on February 28, 1977.
- April 14, 1977 - Meeting, Ann Arbor, to review activities of bulged liner plate repair.
- April 19, 1977 - Tendon sheath omission of Unit 1 reported.
- April 29, 1977 - Immediate Action Letter issued relative to tendon sheath placement errors.

\*See backup information on Regulatory Guides.

- May 5, 1977 - Meeting. Consumers Power Company, Jackson; Keppler, Heishman, and Hayes relative to Immediate Action Letter discussion regarding tendon sheath problem.
- May 24 - 27, 1977 - Special QA inspection to determine adequacy of QA program implementation at Midland.
- June 30, 1977 - Meeting, Ann Arbor; R. F. Heishman and R. E. Shewmaker; release to proceed for tendon sheath omission and for bulge repair.
- August 1 - 5 & 8 - 9, 1977 - Site inspection to witness start of repairs for bulge liner and review records of completion of tendon sheath.
- August 12, 1977 - Final 50.55(e) report on tendon sheath.
- August 15, 1977 - Final report on liner plate repair.

ENFORCEMENT HISTORY - MIDLAND 1 AND 2

<u>Report Number</u>	<u>Number of Noncompliances</u>	<u>Report Number</u>	<u>Number of Noncompliances</u>
70-1	0	74-1	1
70-2	0	74-2	0
70-3	0	74-3	0
70-4	0	74-4	1
70-5	0	74-5	0
70-6	4	74-6	0
71-1	0	74-7	0
71-2	0	74-8	0
	<hr/> 4	74-9	0
72-1	0	74-10	0
		74-11	1
73-1	0		<hr/> 3
73-2	0		
73-3	0	75-1	0
73-4	0	75-2	0
73-5	0	75-3	0
73-6	0	75-6	0
73-7	0	75-7	0
73-8	5	76-1	3
73-9	0	76-2	2
73-10	4	76-3	0
73-11	0	76-4	5 =
	<hr/> 9	76-5	HQ's Notice of Violation
Show Cause		76-6	0
Order Issued 12/3/73			<hr/> 10
		77-1	0
		77-2	1
		77-3	0
As of 8/24/76, nine stop-work orders issued by CP.		77-4	0
		77-5	0
			<hr/> 1 (Total 27)

MIDLAND 1 AND 2

CHRONOLOGICAL LISTING OF QA/QC EMBEDMENT PROBLEMS

- 9/29-30 & Site Inspection conducted. Four nonconformances regarding:
- 10/1/70: (1) placement activities violated ACI Code, (2) lab not performing tests per PSAR, (3) sampling not per ASTM, and (4) QA/QC personnel did not act on deviations when identified. This was considered during hearings.
- 1971: In mothballs pending CP.
- 1972: In mothballs pending CP.
- 12/14/72: CP issued.  
(Calvert Cliffs impacted on CP issuance.)
- 9/73: Five nonconformance of Bechtel Ann Arbor activities.
- 11/73: Four separate criteria nonconformances with several examples of each, including cadweld splicing, storage of materials, identification of acceptance, and resulting records. Precipitated the Show Cause Order.
- 12/5/74: CP reported to RIII per 50.55(e) that rebar spacing out of specification 50 locations in Unit 2 containment (RIII Reports 75-01, 75-02, and 75-03).
- 3/5 & 10/75: CP reported to RIII that approximately 63 #6 rebar were either missing or misplaced in Auxiliary Building. (RIII Report 75-03.)
- 3/12/75: RIII held management meeting with CP (RIV letter to CP, dated April 16, 1975).
- 8/21/75: CP reported to RIII that 42 sets of #6 tie bars were missing in Auxiliary Building (RIII Report 75-07).



- 3/22/76: CP reported to RIII that approximately 32 #8 rebar were omitted from Auxiliary Building. A stop-work order was issued by CP (RIII Report 76-04).
- 3/26/76: RIII inspector requested CP to inform RIII when stop-work order to be lifted and to investigate the cause and the extent of the problem. Additional rebar problems identified during site inspection (RIII Report 76-04).
- 3/31/76: CP lifted the stop-work order.
- 4/19 thru  
5/14/76: RIII performed in-depth QA inspection at Midland (RIII Report 76-04).
- 5/14/76: Discussed inspection findings with site personnel (RIII Report 76-04).
- 5/20/76: RIII management meeting with CP President, Vice President, and others.
- 6/7 & 8/76: RIII follow-up meeting with CP management and discussed the CP 21 correction commitments.
- 6/1-7/1/76: Overall rebar omission reviewed by R. E. Shewmaker (Report 76-05).
- 8/9 thru  
9/9/76: Five-week, full-time onsite inspection conducted by RIII inspector (RIII Report 76-08).
- 2/28/77: Unit 2 bulge of containment liner discovered.
- 4/19/77: Tendon sheaths problem of Unit 1 was reported.

REBAR OMISSION PROBLEM

Inspection Report File Information

- 12/5/74 - CP identified rebar spacing noncompliance for Unit 2 containment wall. Issued QF-36 and stop-work FSW-6 December 6, 1974. Inspection conducted on December 11-13, 1974. Inspection Report No. 74-11.
- 2/5-7/75 - Inspection Report No. 75-01  
More information requested for stress analysis for the rebar spacing of December 5, 1974. Tentative submittal March 15, 1975. NRC refuted existing analytical work.
- 2/26/75 - Inspection Report No. 75-02  
NRC reviewed stress analysis on rebar spacing nonconformance. NRC refuted (CP agreed with NRC) analysis. Another analysis report due March 28, 1975.
- 4/8-9/75 - Inspection Report No. 75-03  
NRC accepts Bechtel engineering justification. Resolves rebar spacing of December 5, 1974 for rebar in Unit 2 containment. Auxiliary Building rebar deviations - found by CP on March 5 and 10, 1975. NRC accepts the licensee computations.
- 10/23-24/75 - Inspection Report No. 75-07  
August 21, 1975, NRC notified of rebar not installed in Auxiliary Building. NRC accepts CP analysis.
- 4/19-21, 5/3, 6-7, 13-14, and 20, 6/7-8/76 - Inspection Report No. 76-04  
Bechtel concluded missing rebar in Auxiliary Building will not affect integrity. Referred to Headquarters.  
QA inspection: Licensee letter June 18, 1976; licensee letter June 24, 1976.  
Inspection Report No. 76-05 states revised and new work

procedures for concrete placement acceptable. Covered under licensee letter of June 24, 1976, under "Activities to be Completed Prior to Resumption of Q-Listed Concrete Placement."

6/24, 25, 30 and 7/1/76 - Inspection Report No. 76-05

IE:HQ did not identify any deficiency with Auxiliary Building rebar omissions.

Bechtel trend analysis not accepted by NRC - found acceptable in 76-09 dated November 1976. November 16-19, 1976, Bechtel trend analysis accepted by NRC.

8/9-9/9 and 23/76 - Inspection Report No. 76-08

Completes same licensee commitments from 76-04.

11/16-19/76 - Inspection Report No. 76-09

Inspector review of "Bechtel Trend Analysis" was found to be acceptable and considered resolved.

LETTER FILE

- 12/5/74 - CP quality assurance coordination found rebar spacing out of specification on containment wall of unit 2.
- 12/6/74 - Stop-work order issued by CP.
- 12/11-13/74 - Site inspection.
- 6/10/75 - Meeting by Mr. Yin with Mr. Slager, CP staff. Meeting held in RIII offices to review unresolved and/or open items from RIII inspection reports from 1970 to present.
- 11/18/75 - Meeting at Headquarters between RIII, IE, and CP to discuss implementation of Regulatory Guides 1.20, 1.26, 1.29, 1.46, 1.48, 1.67, and 1.72.
- 2/4/76 - Meeting scheduled for 2/4/76 between RIII, IE, and CP.  
Meeting to review noncompliance items and unresolved items identified during RIII inspection of 1/14-16/76.  
Infractions:  
1. No assurance temperature limits were exceeded on concrete pours.  
2. No measures to identify nonconforming aggregate.  
3. Nonconforming aggregate not disposed of as required.
- 2/4/76 - Meeting at CP corporate offices between CP, Hunnicutt, and Hayes. The meeting reviewed noncompliance and unresolved items from January 13-16, 1976 (Inspection Report No. 76-01).  
Meeting discussed effectiveness of QA/QC effectiveness.  
Licensee responded with letter of March 5, 1976.
- 4/28/75 - Memo of Yin to file. Yin review of BAPC report claims that rebar spacing problem in Unit 2 containment is considered resolved.  
March 5, 1975 } CP notifies NRC of missing rebar in  
March 10, 1975 } Auxiliary Building.

Letter April 16, 1975, Keppler-CP. Refers to meeting at CP corporate office with Hunnicutt, Hayes, and LeDoux. Meeting to discuss rebar spacing in Unit 2 containment and missing rebar in Auxiliary Building. CP committed to:

1. Complete safety evaluation and engineering review for rebar spacing discrepancy.
2. Continue review of safety implications and reportability considerations for missing rebar.
3. Complete formulation and implementation of corrective measures.

2/26/75 - Inspection at BAPC, Ann Arbor. NRC refuted analysis.

On April 28, 1975 (Yin memo) analysis accepted.

3/16-18, 24-26/76 - Inspection Report No. 76-02

Addresses continued rebar omission. Discussed with D. W.

Hayes on April 13, 1976. Report letter dated April 20, 1976.

Letter, March 5, 1976, CP-Keppler

Responds to citations of inspection of January 13-16, 1976.

Citation: Concrete temperature, aggregate control, and disposal of aggregate.

May 4, 1976, Memo Hayes to Seyfrit

Refers to Headquarters for review and evaluation of missing/misplaced rebar for periods of 2/76, 3/76, 10/74, 7/74 ----

May 20, 1976 - Scheduled meeting at Jackson CP corporate offices to discuss noncompliance of April 19-May 20, 1976 inspection (Report No. 76-04).



- 6/8/76 - CP issued stop-work order for placement of safety-related concrete. Referenced in NRC letter (Keppler) to CP dated June 25, 1976.
- 6/18/76 - CP response letter to inspection findings of April-May 1976 (Inspection Report No. 76-04) 20 items.
- 6/24/76 - CP response letter relative to schedule for plan of action for items of June 18, 1976 CP letter.
- 6/25/76 - Letter, Keppler to CP. States resumption of concrete placement for safety-related structure will not start until certain items addressed in CP letter of June 24, 1976 are resolved. Memo, Jordan to Keppler, dated 8/26/76 refers to this as Immediate Action Letter.
- 7/14/76 - Memo, Seyfrit to Hunnicutt. Response to Hayes's memo of May 4, 1976, as a result of Yin-Shewmaker inspection of June 24 and 25, 1976. The strength considerations for missing/misplaced rebar is considered resolved.
- 7/27/76 - RIII informed by CP that:  
Concrete work stopped because of errors in placing rebar.  
PN-III-76-52 filed on July 28, 1976, states work stopped also in June 1976 and on three earlier occasions.  
Rebar placement error of July 1, 1976, was in Auxiliary Building.
- 8/2/76 - Keppler letter to Thompson recommending Headquarters' Notice of Violation. Notice sent August 13, 1976.

- 6/7 & 8/76 - (and May 20, 1976) meeting at CP corporate offices. Meeting involved Selby and other and Keppler and others.
- 10/18/76 - Hearing date set for November 16, 1976. Rescheduled later (11/18/76 to 11/30/76). Environmental.
- 8/13/76 - Notice of Violation issued to CP (Selby).
- 10/29/76 - CP response to Notice of Violation.
- 12/8/76 - Notice to resume Midland hearing on December 14, 1976.
- 12/16/76 - 50.55(e) on deformed (defective) component cooling water pump casings.
- 12/29/76 - Notice of resuming Midland hearing on January 8, 1977, in Chicago, Illinois.

REGULATORY GUIDES

Backup File - 1975

- 2/12/75 - J. G. Davis letter CP: acknowledge receipt of Consumers' report on reinforcing bar spacing (50.55(e)). Control No. H00419F3.
- 5/19/75 - Letter: S. H. Howell to A. Giambusso. First quarter '75 Financial Report. Page 3: QC/QA activities remain unchanged - curtailment of construction activities.
- 6/13/75 - NRC Schedule.
- 7/3/75 - Letter, R. C. Bauman (CP) to A. Schwencer. References meeting of June 24, 1975 between NRC and CP to discuss applicability of Regulatory Guides through Regulatory Guide 1.75 at Midland. List of Regulatory Guides having some disparity with Midland construction.
- 7/24/75 - Letter, Bauman to Giambusso. Refers to NRC-CP meeting of 7/22/75. Implementation of QA Regulatory Guides at Midland.
- 10/2/75 - Letter, Bauman to Boyd (NRC). Refers to tentative meeting on Materials Engineering Regulatory Guide 1.31. States Midland position.
- 10/14/75 - Letter, Cooke to Keppler, NRC Schedule.
- 11/14/75 - Letter, A. Schwencer to CP addressing additional loads on vessel support system. NRC investigating but indicate present design may be adequate.
- 11/7/75 - Letter, Bauman to NRR (Boyd). Midland position on Regulatory Guides 1.1, 1.4, 1.7, 1.13, 1.25, 1.42, 1.49, 1.52, 1.54, and 1.70.
- 11/14/75 - Letter, Cooke to Keppler. NRC Schedule.
- 11/19/75 - Letter, Schwencer to CP. NRC staff position on Regulatory Guide implementation at Midland. Refers CP letter of 9/11/75.

- 12/1/75 - Letter, Bauman to NRR (Boyd). Midland position and information to NRR on use of Regulatory Guides.
- 12/11/75 - Letter, Bauman to NRR (Boyd). Refers Schwencer's letter of 11/14/75. Supplies additional supporting information to vessel support system.
- 12/17/75 - Letter, Bauman to NRR (Boyd). Supplies additional information in response to Schwencer's letter of 11/19/75 on Regulatory Guide implementation and procurement status of plant components.
- 7/21/75 - Letter, Bauman to Schwencer (NRC). CP position on Regulatory Guide use. Refers to meeting of July 22, 1975.
- 8/8/75 - Letter, Howell to Giambusso. Financial status. No QC/QC changes. Indicates tentative change of personnel: Keeley as Midland Project Manager replaces Kessler; F. Southworth named Director of QA Services. Both effective August 1, 1975.
- 10/10/75 - Letter, Bauman to NRR (Boyd). Information on Midland Regulatory Guide positions. Refers to tentative Regulatory Guide meeting of 11/13/75.
- 10/15/75 - Letter, Bauman to NRR (Boyd). CP position on Regulatory Guide use at Midland.
- 11/10/75 - Letter, Howell to Giambusso. Financial report plus no change to QC/QA. Indicates construction escalation on January 1976.
- 1/13/76 - Letter, Schwencer to CP. Comments and request for information for use of Regulatory Guides at Midland. Refers letter, CP to NRR of 11/7/75.
- 1/13/76 - Letter, Schwencer to CP. Request for information on Regulatory Guide use at Midland. Refers to letter CP to NRR dated 10/10/75.

- 1/26/76 - Letter, Schwencer to CP. NRC comments and request for information on use of Regulatory Guides 1.26, 1.20, and 1.94.
- 2/3/76 - Letter, Bauman to NRR (Boyd). Supplies information requested in Schwencer's letter dated 12/23/75 pertaining to Regulatory Guide use - electrical engineering.
- 2/3/76 - Letter, Bauman to NRR (Boyd). Supplies information requested in Schwencer's letter dated 10/30/75 on use of Regulatory Guide 1.59.
- 2/3/76 - Letter, Bauman to NRR (Boyd). Responds to Schwencer's letter dated 1/13/76 and supplies additional information on use of Regulatory Guides.
- 2/5/76 - Letter, Bauman to NRR (Boyd). Responds to Schwencer's letter dated 1/26/76 requesting information on use of Regulatory Guides 1.26 and 1.29.
- 2/10/76 - Letter, Bauman to NRR (Boyd). Final response to Schwencer's letter dated 1/26/76 requesting information on use of Regulatory Guide 1.94.
- 3/23/76 - Letter, Kneil (NRC) to CP announcing meeting at RIII March 30, 1976, on Section V.B of Appendix I, 10 CFR 50. Also, letter, Kneil to CP dated 4/23/76. Also, letter, Kneil to CP dated 5/10/76. Also, letter, Howell to NRR dated 3/15/77.
- 3/2/76 - Letter, Howell to Rusche requesting relief from Quarterly Financial Reports established in Giambusso letter of September 13, 1974.
- 5/3/76 - Letter, Boyd to CP. Relieves CP of Quarterly Financial Report and conditions of Giambusso letter of September 13, 1974.



- 6/14/75 - Letter, Kneil to CP. Staff position on use of Regulatory Guides 1.10, 1.12, 1.15, 1.18, 1.19, 1.35, 1.60, 1.61, and 1.92. (Regulatory Guides 1.27, 1.55, and 1.59 excluded.) Refers to CP letters of 7/21/75, 8/19/75, 12/1/75, and 2/3/76.
- 7/14/76 - Letter, Vassallo (NRR) to CP. Letter requires CP do a reevaluation of vessel support systems for LOCA conditions.
- 10/8/76 - Letter, Varga to CP. Staff position on use of Regulatory Guides 1.28, 1.30, 1.37, 1.38, 1.39, 1.58, 1.64, 1.74, 1.88, and 1.94 covered in CP of October 15, 1975. Also, staff position on use of Regulatory Guides 1.54 and 1.55 covered in CP letters of November 7, 1975 and August 19, 1975.
- 10/8/76 - Letter, Varga to CP. Staff position - partial response to CP letter of October 10, 1975, for use of Regulatory Guides 1.20, 1.26, 1.29, 1.46, 1.48, and 1.67.
- 10/15/76 - Letter, Varga to CP. Staff position on use of Regulatory Guides 1.6, 1.9, 1.11, 1.22, 1.32, 1.40, 1.41, 1.45, 1.47, 1.53, 1.62, 1.63, 1.73, 1.75, and 1.81. Regulatory Guide 1.12 addressed in NRC letter of June 8, 1976. Refers to CP letters of July 21, 1975 and February 3, 1976.
- 10/12/76 - Letter, Varga to CP. Staff position on use of Regulatory Guides 1.1, 1.4, 1.7, 1.13, 1.25, 1.27, 1.42, 1.49, 1.52, and 1.59. (Excludes 1.54.) Refers to CP letters of August 19, 1975, November 7, 1975, and February 3, 1976. Staff position on Regulatory Guide 1.70 covered in NRC letter of June 2, 1976.

- 12/10/76 - Letter, Varga to CP accepts Midland Design and Construction QA Program (10 CFR 50, Appendix A). Submitted to NRC by CP on 11/9/76.
- 1/5/77 - Letter, Howell to Vassallo (NRR). Vessel support analysis due 4/77. References letters of NRR-CP, 7/14/76, and CP to NRR, 9/10/76.
- 3/15/77 - Letter, Howell to NRR (Boyd). Additional information on Appendix I. Refers to backup information on 3/23/76.
- 4/29/77 - Letter, Howell to Vassallo. Vessel support analysis due 7/77. Reference 1/5/77 and 6/8/77.
- 6/27/77 - Letter Howell to NRR (Boyd). Clarification of PSAR Amendment 32 dated 4/4/77. Electrical penetration information.
- 7/19/77 - Letter, Howell to NRR (Boyd). Addresses CP position on use of Regulatory Guides 1.10, 1.12, 1.15, 1.18, 1.19, 1.35, 1.57, 1.60, 1.61, 1.90, and 1.92. Refers NRC letter of 6/8/76. GIVES SUMMARY STATUS OF REGULATORY GUIDE USE FOR STRUCTURAL ENGINEERING.
- 7/19/77 - Letter, Howell to NRR (Boyd). Addresses CP position on use of Regulatory Guides 1.6, 1.9, 1.11, 1.22, 1.32, 1.40, 1.41, 1.45, 1.47, 1.53, 1.62, 1.63, 1.73, 1.75, and 1.81. Refers NRC letter of 9/29/76. GIVES SUMMARY STATUS FOR REGULATORY GUIDE USE FOR STRUCTURAL (ELECTRICAL) ENGINEERING.
- 7/28/77 - Letter, Howell to NRR (Boyd). Proposed FSAR Section 13.2 on Plant Staff Training for Cold Operator Training.

UNIT 2 LINER PLATE BULGE

- 2/26/77 - Bulge occurrence discovered at 11:00 p.m. (Report No. 50-330/77-02).
- 2/28/77 - 50.55(e) prompt report to RIII at 2:15 p.m.
- 3/16/77 - NRC letter with report to licensee with noncompliance regarding failure to report timely.
- 4/5/77 - Response letter. Commitment made to provide procedure "Reporting Deficiencies to NRC" No. 20-2, Revision No. 3, to prevent recurrence. Currently, Revision 3 still in review and modification stage.
- 3/23/77 - NRR representative visited site with inspector for damage briefing (50-330/77-04).
- 4/14/77 - Meeting at Ann Arbor to review actions of bulged plate removal and to review activities relative to proposed repair; D. W. Hayes and R. E. Shewmaker (77-06).
- 5/4/77 - Site visit for inspection of existing conditions of liner bulge area. D. W. Hayes and R. E. Shewmaker (50-330/77-07).
- 5/16/77 - Interim report issued per 50.55(e).
- 5/24-27/77-Special QA Program Inspection.
- 6/20/77 - Interim report issued per 50.55(e).
- 6/29-30/77-Site Inspection by R. E. Shewmaker (6/29/77) - (50-330/77-10).  
Meeting, Ann Arbor (6/30/77) R. E. Shewmaker and R. F. Heishman.  
Release for proceeding with repairs. Notify when start of repairs.
- 8/1-5 & - Site Inspection, T. E. Vandel. Witness start of repairs with  
8-9/77 first four-foot lift of liner plate installed and grouted.  
Satisfactory. (Report No. 50-330/77-11.)
- 8/15/77 - Final report issued per 50.55(e) in review by R. E. Shewmaker.  
Further site inspection planned later.

UNIT 1 TENDON SHEATH PROBLEM

4/19/77 - 50.55(e) prompt notification report to RIII made.

4/20/77 - PN-III-77-18 issued.

4/29/77 - Immediate Action Letter issued to CP. Six items of commitments:

1. Notify RIII prior to repairs or modifications. Complete  
(see Report No. 50-329/77-07).
2. Complete investigation of cause and implement C.A.  
Not complete, still in discussions with Bechtel regarding  
adequate performance.
3. Expand overview program - expanded program in process.
4. Notify NRC of placement errors for all embedments starting  
May 9 and for next 120 days. - 120 days completes on  
September 9; during that time seven separate items have been  
reported. See backup sheet A.
5. Review and revise QC inspection procedures. All Bechtel  
QCI's have undergone review. Revision in progress.
6. Training of QC engineers and field engineers expanded.  
Training program and retraining is underway.

5/5/77 - Meeting in Jackson with Keppler, Heishman, and Hayes.

5/19/77 - Interim report issued per 50.55(e).

5/24-27/77-Special QA Program Inspection. Five noncompliance items.

1. Bechtel: inadequate piping hanger support plate installation.  
Currently still open.
2. Bechtel: field engineers mark up installation drawings for  
hangers. Currently CA complete.
3. Consumers: audit report remain unissued (4). Currently CA  
complete.
4. Consumers: trends analysis procedure unimplemented. Currently  
CA complete.

5. Champion (Batch Plant): defective batch scale not tagged per procedure. Currently CA complete.

Additional CA for items 3 and 4. CP to reorganize and provide additional manpower. Currently new organization in effect and most all personnel additions completed in August to be reviewed further later. (See organization chart backup sheet B.)

6/27/77 - Interim report issued per 50.55(e).

6/29-30/77-Site Inspection by R. E. Shewmaker (6/29/77) - (50-329/77-07).

Meeting in Ann Arbor (6/30/77). R. E. Shewmaker and R. F.

Heishman. Release for proceeding with repairs.

8/1-5 & - Site Inspection, T. E. Vandel. Report No. 50-329/77-08.

8-9/77 Complete record review of repairs to tendon sheaths. No problem areas identified. Installation was accomplished as proposed.

8/12/77 - Final report issued per 50.55(e). Review is completed and thank you letter states that we have no further questions.



BACKUP SHEET A

1. Tendon Sheathing, 5/19/77 *identified errors on*  
Vertical Sheaths - notified on 5/24/77 (NCR-803) C
2. D. W. Hayes - 6/22/77, 9 #11 bars missing (QF-169)
3. I. T. Yin - 7/15/77, 2 #11 bars missing (NCR-863)
4. D. W. Hayes - 7/28/77, 2 bars missing (QF-175) C
5. T. E. Vandell - 8/15/77, 8 #8 wall dowels missing (QF-176) C
6. D. W. Hayes - 8/16/77, 4 cut bars not replaced (NCR-898)
7. C. E. Jones - 8/17/77, pipe restraint controls omitted - reactor  
building (NCR-910)

*C = Complete*



BACKUP SHEET B

Other Items

- A. May 27, 1977 - Final report per 50.55(e) regarding the surveillance specimen holder tubes (provided by B&W)  
Follow-up agreements were outlined in our letter of thanks dated June 21, 1977.
- B. May 27, 1977 - Final report per 50.55(e) regarding component cooling water pump casings.  
No comment by RIII, since casings have been rejected and will not be used for Midland.
- C. May 24, 1977 - PN-III-77-30, Industrial Accident - Death of Construction Worker (no repercussions)
- D. March 22, 1977 - Meeting in RIII offices with B. W. Marguglio, CP Director of Project Quality Assurance Services regarding contemplated independent inspection of BSS installations.
- E. November 14, 1975 - Vessel support LOCA loading adequacy - question.  
Analysis is due July 1977 to NRR.

SIGNIFICANT EVENTS DURING THE MIDLAND OL-OM EVIDENTIARY PROCEEDING

- December 6, 1979 Order Modifying Construction Permits  
(This is the Order that started this Proceeding)
- October 24, 1980 Prehearing Conference Order ruling on contentions and on consolidation of proceedings. OM/OL proceedings are consolidated. Stamiris admitted to OM proceeding. Sharon Warren also admitted into OM proceeding with three contentions. (She later withdrew from proceeding.) Mr. Marshall's admission in OM proceeding denied but as a party to the OL proceeding was permitted to participate in OM proceeding to the extent the two proceedings were consolidated.
- February 27, 1981 Prehearing Conference Memorandum (conference held January 28-29, 1981). Sets schedules for discovery, motions for summary dispositions and hearings.
- May 5, 1981 Prehearing Conference Order (conference held April 27, 1981). Ruled on Applicant's motion to defer consideration of seismic issues until the OL, Recognized Sharon Warren's withdrawal as an intervenor.
- June 12, 1981 Memorandum and Order resolving discovery disputes between Applicant and Ms. Stamiris and establishing deadline for filing TMI-related contentions.
- July 7-17, 1981 Evidentiary hearing on Intervenor contentions.
- August 4-13, 1981 Evidentiary hearing on Intervenor contentions.
- October 13-16, 1981 Evidentiary hearing on Midland site specific response spectra, stability of cooling pond dikes slopes.
- October 27, 1981 Licensing Board memorandum and order granting Applicant's request that hearing scheduled for November 16-24, be postponed until 1982.
- December 1-3, 1981 Evidentiary hearing involving remedial measures for the auxiliary building and feedwater isolation valve pits.
- Dec. 14-17, 1981 Evidentiary hearing involving the dynamic and static models for Category I structures founded on fill material. Testimony on the SALP program and testimony on QA program.

- February 2, 1982 A one day session limited to addressing the recent reorganization of the Midland project quality assurance department.
- Feb. 16-19, 1982 Evidentiary hearing involving remedial measures for the borated water storage tanks (BWST); static and dynamic bearing capacity of the footings of the borated water storage tanks; long term settlement of the tanks under design load; evaluation of borated water storage tanks for stresses incurred under uneven support with conditions resulting from soils settlement and consequent distortion of the ring walls that support the BWSTs; the present condition of the underground seismic Category I piping at the Midland plant regarding the ability of the piping to withstand postulated design conditions, including design basis SSE and regarding the ability to monitor the piping over the life of the plant.
- April 30, 1982 Memorandum and Order resulting in construction permits being amended to require that the permit holder obtain explicit prior approval from the NRC Staff before proceeding with certain soils-related activities and that these activities shall be controlled by a staff-approved quality assurance plan.
- June 29, 1982 NRC Staff counsel's letter to the Licensing Board advising that it was Region III's opinion that the Staff's QA testimony of the summer of 1981 must be supplemented.
- July 7, 1982 Memorandum and Order reopening the record on QA matters and establishing schedule for prehearing conference and discovery with respect to either newly proposed OL contentions or contentions to be rewritten after discovery.
- August 14, 1982 Prehearing Conference Order ruling on new contentions.
- Nov. 15-23, 1982 Evidentiary hearing involving the bearing capacity, seismic shakedown of the DGB, piping (corrosion) the service water pump structure, liquifaction and dewatering.
- Dec. 6-10, 1982 Evidentiary hearing involving the adequacy of the diesel generator building.
- December 30, 1982 Memorandum and Order ruling on rewritten contentions of Mary Sinclair. (Originally submitted in the OL proceeding and considered by the Board in its

- February 23, 1979 OL prehearing conference order).
- Feb. 14-18, 1983 Evidentiary hearing involving Judge Harbour's questions concerning quality assurance in the underpinning; drilling incidents; loose sands; seismic shakedown of auxiliary building; and seismic Category I analysis of duct banks.
- March 8-11, 1983 Evidentiary hearing involving 2 OL issues: 1) cooling pond thermal performance and the effects of fogging and icing, and 2) water hammer.
- March 28 -  
April 1, 1983 Evidentiary hearing involving 2 OL issues: 1) severe accident evaluation, and 2) steam generator integrity.
- April 27 -  
May 6, 1983 Evidentiary hearing involving supplemental testimony of Cook, Gardner, Landsman and Shafer with respect to quality assurance and the testimony of James G. Keppler with respect to quality assurance (this is the testimony that the Staff filed on October 28, 1982 and supplemented again on March 25, 1983 with respect to the reopened quality assurance hearings).
- June 1-10, 1983 Evidentiary hearing involving the continuation of the testimony of Landsman, Cook, Gardner and Shafer. Also, the testimony of Gilray, Landsman and Shafer with respect to MPQP 1 and MPQP 2 QA program, specifically with respect to remedial soils. On June 4, 1983 CPC testimony concerning MPQP 1 and MPQP 2 and the testimony of James Mooney to describe third party overview of QA and to bring up to date the current status of soils construction. On Wednesday, June 8, 1983 NRC began testimony with respect to the cable pulling or instrumentation and whether or not the NRC was misled by the statements of Bechtel employee Boos.



HISTORY OF THE MIDLAND PROCEEDING PRIOR TO  
THE 12-6-79 ORDER MODIFYING CONSTRUCTION PERMITS

- 1/13/69 - application for construction permits.
- 6/21/71 - 7/23/71 - C.P. safety hearing.
- 5/17/72 - 6/15/72 - C.P. environmental hearing.
- 12/14/72 - C.P. Initial Decision - 5 AEC 214.
- 12/15/72 - construction permits issued.
- 3/26/73 - the Appeal Board issued ALAB-106, 6 AEC 182, commenting adversely on QA at Midland and imposing reporting QA requirements.
- 5/18/73 - ALAB-123, 6 AEC 331 - decision on the merits of the construction permit proceeding.
- 5/23/73 - construction permits amended with respect to QA reporting requirements.
- 7/16/74 - 7/18/74 - Show Cause proceeding - QA and cadwelding
- 9/25/74 - Initial Decision in the show cause proceeding. There is reasonable assurance that QA will be in compliance with the Commission requirements. LBP-74-71, 8 AEC 584.
- 7/21/76 - Aeschliman v. NRC, 547 F.2d 622. Intervenor's appeal of the December 14, 1972 Licensing Board Initial Decision authorizing the issuance of construction permits. For a variety of reasons, the Aeschliman court remanded the case to the NRC.
- 11/30/76 - 5/13/77 - the "suspension proceeding" which was held to determine whether to continue, modify or suspend the construction permits pending the outcome of the "remand proceeding" ordered in Aeschliman. The "remand proceeding" was to address the merits of the issues remanded in Aeschliman.
- 9/23/77 - LBP 77-57, 6 NRC 482, the licensing board decision related to

the "suspension proceeding" - no suspension was ordered "pending the outcome of the remand proceeding." In this decision the Licensing Board referred to evidence that the licensee had considered conducting its share of the suspension proceeding in such a way as to not disclose important facts to the Board.

2/14/78 - ALAB-458; 7 NRC 155, affirmed LBP-77-57. The Appeal Board stated its "expectation" that the matters referred to by the Licensing Board in LBP-77-57 would be "fully aired and resolved."

4/3/78 - Vermont Yankee v. NRDC, 435 U.S. 519, reversed and remanded the July 1976 Aeschliman decision but had no impact on the "expectation" expressed by the Appeal Board in ALAB-458.

July 1978 - soil settlement problem discovered by Consumers Power Company.

August 1978 - NRC was advised by CPC of the settlement problem.

7/2/79 - 7/31/79 - the "remand proceeding" which "aired" the matter referred to by the Appeal Board (ALAB-458) involving possible license misconduct.

12/6/79 - Order Modifying Construction Permits.

9/9/82 - ALAB-691 affirmed Licensing Board decision not to impose sanctions.



Midland - Chronology of Events since July 1981 Hearings

- 07/07/81 Soil Hearing commenced
- 10/05/81 CPCo met with NRC to discuss organizational improvements
- 10/14/81 Hearing reconvened to deal with Geo-Technical Issues
- 01/12/82 CPCo met with NRC to discuss changes to the Midland QA organization
- 02/02/82 Testified at Midland soils hearing re recent QA reorganization
- 03/30/82 CPCo/NRC Meeting (Norelius; Adensam)
- 04/13/82 NRC Public Meeting in Midland on Underpinning activities
- 04/26/82 Midland SALP-2 Meeting
- 04/28/82 Stop Work Order issued by CPCo against Mergetire (dug into 4160 volt power supply)
- 05/14/82 CPCo/NRC Meeting to discuss overview of electrical inspections
- 05/20/82 ACRS Subcommittee briefed re Midland QA for construction  
*5/26/82 Construction Permit Amendment 3 issued.*
- 06/03/82 Full ACRS briefed re Midland QA for construction
- 06/21/82 Spessard/Norelius recommendations provided
- 06/22/82 Meeting to Review Response to SALP Report
- 06/28/82 GAP News Conference requesting NRC halt construction  
*07/07/82 ASLB issues memo/order on response. Record on QA meeting*
- 07/23/82 Cook memo issued containing Midland problems
- 07/26/82 RIII Meeting with NRR to discuss Midland QA problems  
 (meeting minutes written 8/18/82) - *Attach C to JJK*
- 08/05/82 <sup>public</sup> Meeting to discuss SALP <sup>I</sup> differences
- 08/09/82 Soils Stop Work Order issued by CPCo, *forwarded to EPA*
- 08/10/82 Enforcement Conference re unapproved excavations  
*18/12/82 Issued work authorization for work (NRC/CPCo)*
- 08/18/82 Warnick memo containing Midland recommended actions ←
- 8/26/82 NRC Meeting with CPCo management re QA problems

10/1-3/82  
11/26-1/5/82 ASLL hearings

- 09/02/82 NRC followup meeting with CPCo management *Dealing Improvement Plan*
- 09/09/82 OSC meeting with NRR to review Midland soils issue *INFOA Director's report - Back at 20 min. CTR JA 30 min 20 min*
- 09/15/82 NRC Meeting with CPCo attorneys re GAP allegations *Region II initial approval of GAP 1 and 2*
- 09/17/82 CPCo proposed Stone and Webster for soils third party overview *CPCo notified NRC of Intent of IA/O/C*
- 09/24/82 Soils Stop Work Order issued by CPCo following NRC inspection (CAL issued) *SEW began activities with soils at site*
- 09/29/82 ~~OSC~~ meeting with CPCo re QC and organization *Process*
- 10/07/82 Meeting in RIII with ELD to discuss testimony for next round of hearings
- 10/12/82 Diesel generator building inspection commenced *DBR min - exit with CPCo*
- 10/25/82 Revised Testimony issued by NRC
- 10/25/82 ~~OSC~~-Meeting with NRR to discuss Midland third party programs *meeting in RIII on 10/25/82 re: Response/Products*
- 11/30/82 HVAC Welding stopped by CPCo *Exit on 11/2/82*
- 12/03/82 CPCo stopped majority of safety related work at site
- 12/07/82 NRC Meeting to discuss diesel generator inspection *with NRC re: safety CPCo "Get Well Program"*
- 12/13/82 NRC approved work on piers 12E and 12W under turbine building *Soils approval SEW?*
- 12/13/82 Meeting in RIII with ELD to discuss plans for Midland hearing supplemental testimony
- 01/10/83 CPCo submitted proposed CCP with Third Party overview *8/11*
- 01/18/83 Enforcement Conference with CPCo re diesel generator, inspection *Administrative to form problem 12/1/82*
- 02/08/83 Proposed Civil Penalty Issued
- 02/08/83 Public Meeting re CCP *meeting with CPCo and Bechtel 11/11 to discuss design to turn*
- 02/24/83 RIII approves Stone and Webster for Soils Third Party Overview *three items*
- 03/07/83 NRC Meeting with GAP to discuss Midland CCP *NRR*
- 03/08/83 Meeting in RIII with ELD to discuss supplemental hearing testimony
- 11/5/83 meeting with NRR to discuss SEW Soils Deal Agreement
- 11/20/83 Exit - midland DGB Inspection 10-12 concerning in midland agreement
- 11/22/83 Exit on - SC Inspection - midland SC
- 11/23/83 Exit on DGB Inspection with CPCo - 11/23/83
- 11/30/83 CPCo notified NRC verbally of proposed stop-work

11/26-11/5/82 ASLL hearings in session

*Inposed*

- 03/15/83 Meeting with CPCo to obtain INPO Self-Evaluation results
- 03/28/83 RIII letter issued requesting additional details re CCP  
4/4/83 *Larrison reports*
- 04/06/83 CPCo proposes Stone and Webster to perform third party overview for CCP (CIO)

4/13/83 meeting at Bethesda to discuss DOCK with CPCo, TERA, GAP, NRR, IE Wdpts and R

4/27/83 <sup>ASLB</sup> Midland hearings - NRC TERA

5/1/83 NRR approval of TERA for DOCK for the final DOCK plan  
 5/8/83 <sup>TERA Plan for Additional Systems (Emergency Power/Control Room)</sup>  
 5/11/83 <sup>HVACs</sup> submit

4/19-21/83 - case load forecast panel meeting with CPCo

STATUS OF CONSTRUCTION COMPLETION PROGRAM (CCP)

- o INTEGRATION OF BECHTEL AND CPCO QC ORGANIZATIONS COMPLETED
- o TRAINING AND RECERTIFICATION OF QC INSPECTIONS TO EXISTING PQCI'S IN PROGRESS
- o NRC REVIEW OF CCP PLAN IN PROGRESS. REQUEST FOR ADDITIONAL INFORMATION ISSUED MARCH 28, 1983
  - o ASKS FOR JUSTIFICATION FOR LESS THAN 100% REINSPECTION OF ACCESSIBLE SAFETY-RELATED ITEMS
  - o REQUESTS CPCO'S PLANS FOR COMPONENTS IMPORTANT TO SAFETY
  - o REQUESTS EXPANSION OF THIRD PARTY OVERVIEW TO TOTAL CCP, INCLUDING REINSPECTIONS
- o CPCO TO SELECT CANDIDATE THIRD PARTY FOR CCP OVERVIEW IN LATE APRIL, 1983 AND REQUEST NRC APPROVAL

*S&W proposed*



QUALITY ASSURANCE

RECENT NRC - CPCo INTERFACING

08/80 CPCo REVISES QA DEPARTMENT.

05/18-22/81 RIII SPECIAL QA INSPECTION ON REVISED QA DEPARTMENT EFFECTIVENESS

07/81 HEARING SESSION ON CHANGES TO MIDLAND QA ORGANIZATION

04/82 SALP MEETING REVEALS LOWEST ACCEPTABLE RATING

06/29/82 ASIB NOTIFIED OF INTENT TO SUPPLEMENT 7/81 TESTIMONY

07/09/82 NRC LETTER TO CPCo REQUESTS INDEPENDENT DESIGN VERIFICATION PROPOSAL

07/82 RIII FORMS OFFICE OF SPECIAL CASES FOR MIDLAND AND ZIMMER PLANTS

08/26/82 MANAGEMENT MEETINGS. NRC REQUESTS ACTION PLAN FOR QA IMPROVEMENTS

? 09/02/82

09/12/82 WORK AUTHORIZATION PROCEDURE IMPLEMENTED FOR REMEDIAL SOILS WORK

09/17/82 CPCo PRESENTS INITIAL ACTION PLANS. RECEIVED BY THE NRC ON 09/17/82

09/29/82 MANAGEMENT MEETING TO DISCUSS QA IMPROVEMENT PLANS

10/05/82 CPCo LETTER TO NRC DESCRIBING PROPOSED INDEPENDENT REVIEW PROGRAMS

RECENT NRC - CPCo INTERFACING (CON'T)

- 10/25/82 MEETING ON THIRD PARTY INDEPENDENT PROPOSALS.
- 10/82-11/82 RIII INSPECTS DIESEL GENERATOR BUILDING. FINDS INDICATIONS OF BREAKDOWN IN QA.
- 12/02/82 CPCo INSPECTION FINDS SIMILAR PROBLEMS IN OTHER STRUCTURES. STOPS MOST SAFETY RELATED WORK. MEETS WITH RIII ON CONCEPT OF CONSTRUCTION COMPLETION PROGRAM.
- 01/10/83 CPCo SUBMITS CONSTRUCTION COMPLETION PROGRAM.
- 02/08/83 NRC ISSUES NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTIES BASED ON 10/82 - 11/82 INSPECTIONS.
- 02/08/83 MEETING TO DISCUSS CONSTRUCTION COMPLETION PLAN. PUBLIC MEETING IN MIDLAND ON CONSTRUCTION COMPLETION PROGRAM AND INDEPENDENT AUDITS.
- 02/09-17/83 INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM (VERTICAL SLICE) PLAN BY TERA AND ASSOCIATED QA PROGRAM SUBMITTED FOR FIRST SYSTEM (AFWS).
- 02/24/83 NRC ACCEPTS S&W TO PERFORM INDEPENDENT ASSESSMENT OF SOILS UNDERPINNING
- 03/07/83 NRC MEETING WITH PUBLIC INTEREST GROUP (GAP) ON THEIR COMMENTS ON CONSTRUCTION COMPLETION PROGRAM.

12/01/83

CPCo LETTER PRESENTS 3 CANDIDATE SYSTEMS FOR ADDITIONAL INDEPENDENT REVIEW



RECENT NRC - CPCO INTERFACING (CON'T)

03/10/83 CPCO RESPONDS TO NOTICE OF VIOLATION AND PROPOSED  
-- CIVIL PENALTIES.

03/22/83 NRC SELECTS ELECTRIC POWER SYSTEM (DIESEL GENERATOR)  
AND HVAC FOR CONTROL ROOM AS SECOND AND THIRD  
SYSTEMS FOR INDEPENDENT ASSESSMENT.

4/6/83 Proposes S&W to overview CCP

QUALITY ASSURANCE

SIGNIFICANT CONSTRUCTION PROBLEMS

1973	CADWELD SPLICING DEFICIENCIES
1976	REBAR OMISSIONS IN CONTAINMENT
1977	BULGE IN CONTAINMENT LINER
1977	TENDON SHEATH LOCATION ERRORS
1978	DIESEL GENERATOR BUILDING SETTLEMENT
1980	ZACK COMPANY HVAC DEFICIENCIES
1980	REACTOR VESSEL ANCHOR STUD FAILURES
1981	PIPING SUSPENSION SYSTEM INSTALLATION DEFICIENCIES
1982	ELECTRICAL CABLE MISINSTALLATIONS

✓

QUALITY ASSURANCE

• REASONS FOR RECURRING PROBLEMS

1. OVERRELIANCE ON A/E.
2. FAILURE TO RECOGNIZE AND CORRECT ROOT CAUSES.
3. FAILURE TO RECOGNIZE THE SIGNIFICANCE OF ISOLATED EVENTS.
4. FAILURE TO REVIEW ISOLATED EVENTS FOR THEIR GENERIC APPLICATION.
5. LACK OF AN AGGRESSIVE QA ATTITUDE.

QUALITY ASSURANCE

PRESENT PLANS

1. SOILS WORK

- o PROCEEDING UNDER AN NRC-CPCo WORK AUTHORIZATION AGREEMENT IMPLEMENTING ASLB ORDER REQUIRING PRIOR EXPLICIT NRC APPROVAL.
- o THIRD PARTY INDEPENDENT ASSESSMENT BY S&W.

2. CONSTRUCTION COMPLETION PROGRAM (CCP)

3. INDEPENDENT OVERVIEW OF CCP

4. INDEPENDENT DESIGN AND CONSTRUCTION VERIFICATION PROGRAM (VERTICAL SLICE)

- o AUXILIARY FEEDWATER SYSTEM
- o AC POWER SYSTEM (DIESEL GENERATOR)
- o HVAC FOR CONTROL ROOM

5. CONTINUED NRC OVERSIGHT AND INSPECTIONS

4/83

STATUS OF SOILS WORK:

20 FT. SAND SURCHARGE FOR DIESEL GENERATOR BUILDING	COMPLETED
30 FT. UNDERPINNING WALL BENEATH SOUTHERN PORTION OF AUXILIARY BUILDING AND FEED-WATER ISOLATION VALVE PIT	APPROACH DRIFT AND PIERS BENEATH ADJACENT TURBINE BUILDING BEGAN 12/82.
30 FT. UNDERPINNING WALL BENEATH NORTHERN PORTION OF SERVICE WATER PUMP STRUCTURE (SWPS)	CONSTRUCTION DEWATERING IN PROGRESS
STIFFEN BORATED WATER STORAGE TANK RING FOUNDATION	EXCAVATION FOR NEW WALL COMPLETED
REPLACE AND REBED UNDERGROUND PIPE	COMPLETED EXCEPT NEAR SWPS
PERMANENT SITE DEWATERING	WELLS INSTALLED

AREAS OF CONTINUING SAFETY WORK

NSSS INSTALLATION WORK BY B&W

HVAC INSTALLATION WORK BY ZACK COMPANY UNDER CPCo QC

POST SYSTEM TURNOVER WORK

HANGER AND CABLE REINSPECTIONS

BECHTEL DESIGN ENGINEERING

SYSTEM LAYUP ACTIVITIES

REMEDIAL SOILS WORK APPROVED BY NRC UNDER WORK AUTHORIZATION  
PROCEDURE



FL  
CPCo PROPOSED

(CONSTRUCTION COMPLETION PROGRAM)

- o CONTINUE CERTAIN SAFETY-RELATED CONSTRUCTION
- o STOP MOST SAFETY-RELATED CONSTRUCTION
- o COMPLETE INTEGRATION OF BECHTEL QC INTO CPCo's QC ORGANIZATION
- o REVIEW AND REVISE PROJECT QUALITY CONTROL INSTRUCTIONS (PQCIs)
- o TRAIN AND RECERTIFY QC INSPECTORS TO NEW PQCIs
- o ORGANIZE AND TRAIN SPECIAL INSPECTION TEAMS
  - o ASSESS INSTALLATION AND INSPECTION STATUS
  - o VERIFY ADEQUACY OF WORK TO DATE
    - o RE-INSPECT ACCESSIBLE ITEMS
    - o REVIEW DOCUMENTATION FOR INACCESSIBLE ITEMS
    - o USE SAMPLING TECHNIQUES
    - o CPCo MANAGEMENT REVIEW OF RESULTS
- o CORRECT PROBLEMS
- o RESTART WORK AS PROBLEMS ARE CORRECTED
- o SPECIAL INSPECTION TEAMS CONTINUE AS RESPONSIBLE ORGANIZATION THROUGH TURNOVER OF WORK
- o INDEPENDENT THIRD PARTY TO OVERVIEW CORRECTION OF PROBLEMS

*Shaffer*

1970\$U

Six inspection reports were issued in 1970. In July, 1970, construction activities authorized by the Midland Construction Permit Exemption commenced.

Inspection\$SFindings\$U

Eleven deficiencies were identified in Inspection Report No. 50-329/70-02 and 50-330/70-02 concerning the licensee's Quality Assurance Program. A management meeting was held on April 7, 1970 to discuss these deficiencies. It was subsequently determined that "appropriate remedial action was initiated by the applicant and that the Quality Assurance Program development is now consistent with the current status of the project".

Four items of nonconformance were identified in Inspection Report Nos. 50-329/70-06 and 50-330/70-06 concerning the installation of concrete. The nonconformances regarded: (1) placement activities violated ACI Code; (2) lab not performing tests per PSAR; (3) sampling not per ASTM; and (4) QA/QC personnel did not act on deviations when identified. Licensee corrective actions included: (1) Bechtel to provide a report attesting to the Auxiliary Building base slab where lack of consolidation was apparent; (2) a commitment to perform tests at frequencies specified in the PSAR; and (3) a commitment to train workers and the inspection staff. This matter was discussed during the Construction Permit Hearings.

1971-1972\$U

Three inspections were conducted during this period. No items of noncompliance were identified. Midland construction activities were suspended pending the pre-construction permit hearings.

On December 15, 1972, the Midland Construction Permit was issued.

1973\$U

Eleven inspection reports were issued in 1973 of which two pertained to special management meetings, two to vendor inspections, one to an audit of the architect engineer, and six to on site inspections.

Inspection\$SFindings\$U

Noncompliances involving three separate Appendix B criteria with five different examples were identified during a special audit of the architect engineer's Quality Assurance Program. The noncompliances were documented in Inspection Report Nos. 50-329/73-08 and 50-330/73-08. The items of noncompliance regarded: (1) inadequate requirements for quality record retention; (2) inadequate drawing control; (3) inadequate procedures; and (4) unapproved specifications used for vendor control. Licensee corrective actions included: (1) revision to Bechtel Nuclear Quality Assurance Manual; (2) revision to Midland Internal Procedures Manual; (3) personnel instructed to audit the status of the drawing stick files weekly; (4) project administrator

assigned the responsibility for maintenance of master stick file; and (5) project engineer and staff to perform monthly surveillance of project record file. Inspection Report Nos. 50-329/74-03 and 50-330/74-03 concluded that appropriate corrective actions had been taken by the licensee relative to the identified violations.

#### Significant Construction Problems

##### Cadweld Splicing Deficiencies and Show Cause Order

A routine inspection, conducted on November 6-8, 1973, as a result of intervenor information, identified eleven examples of four noncompliance items relative to rebar cadwelding operations. The noncompliances were documented in Inspection Report Nos. 50-329/73-10 and 50-330/73-10. These items were summarized as: (1) untrained cadweld inspectors; (2) rejectable cadwelds accepted by QC inspectors; (3) records inadequate to establish cadwelds met requirements; and (4) inadequate procedures.

As a result, the licensee stopped work on cadweld operations on November 9, 1973, which in turn stopped rebar installation and concrete placement work. The licensee agreed not to resume work until the NRC reviewed and accepted their corrective action. However, Show Cause Order was issued on December 3, 1973, suspending cadwelding operations. On December 6-7, 1973, Region III and Headquarters personnel conducted a special inspection and determined that construction activities could be resumed in a manner consistent with quality criteria. Licensee corrective actions included:

1974\$U

Eleven inspection reports were issued in 1974 of which one pertained to a vendor inspection, one to an inspection at the licensee's corporate offices, and nine to on site inspections.

Inspection\$Findings\$U

One noncompliance was identified in Inspection Report Nos. 50-329/74-01 and 50-330/74-01 concerning the use of unapproved procedures during the preparation of containment building liner plates for erection. Licensee corrective actions included: (1) intensive review of liner plate records for accuracy; (2) issuance of nonconformance report; (3) requirement imposed that unapproved copies of procedures transmitted to the site be marked "advance copy"; and (4) identification provided of procedure approval status. The licensee's actions in regards to this matter were reviewed and the noncompliance closed by the NRC as documented in Inspection Report Nos. 50-329/74-01 and 50-330/74-01.

One noncompliance was identified in Inspection Report Nos. 50-329/74-04 and 50-330/74-04, concerning the use of a weld method which was not part of the applicable weld procedure. Licensee corrective actions included: (1) issuance of a nonconformance report; (2) repair of subject welds; (3) reinstruction of welders; and (4) increased surveillance of containment liner plate field fabrications. The licensee's actions in regards to this matter were reviewed and the noncompliance closed by the NRC as documented in Inspection Report Nos. 50-329/7-04 and 50-330/74-04.



One noncompliance was identified in Inspection Report Nos. 50-329/74-11 and 50-330/74-11 concerning the failure of QC inspections to identify non-conforming rebar spacing. This violation is discussed further in the 1976 section of this report regarding Significant Construction Problems.

#### 1975

Seven inspection reports were issued in 1975 of which one pertained to a meeting in Region III, one to an inspection at the licensee's corporate offices, and five to on site inspection.

No noncompliances were identified in 1975, however, the licensee in March and August of 1975 identified additional rebar deviations and omissions. This matter is further discussed in the 1976 section of this report regarding Significant Construction Problems.

#### 1976

Nine inspection reports were issued in 1976 pertaining to nine on site inspections.

#### Inspection Findings

Three items of noncompliance were identified in Inspection Report Nos. 50-329/76-01 and 50-330/76-01. These items regarded: (1) inadequate

concrete oven temperature controls; (2) no measures to control nonconforming aggregate; and (3) failure to dispose of nonconforming aggregate as required. Licensee corrective actions included: (1) implementing a requirement for the reverification of oven temperature controls every three months; (2) removal of nonconforming aggregate from the batch plate area; (3) modification of subcontractor's QA manual; and (4) training of subcontractor's personnel to the revised QA manual. The corrective actions implemented by the licensee in regards to these noncompliances were subsequently reviewed and the items closed by the NRC as documented in Inspection Report Nos. 50-329/76-02 and 50-330/76-02.

Two items of noncompliance were identified in Inspection Report Nos. 50-329/76-02 and 50-330/76-02. These items regarded: (1) the Vice President of Engineering Inspection did not audit test reports as required; and (2) corrective actions required by audit findings had not been performed. Corrective actions taken by the licensee included revising the U.S. Testing QA manual. The licensee's corrective actions taken in regards to these matters were subsequently reviewed and the items closed by the NRC as documented in Inspection Report Nos. 50-329/76-08 and 50-330/76-08.

Three items of noncompliance were identified in Inspection Report Nos. 50-329/76-07 and 50-330/76-08. These items regarded: (1) inadequate classification, review, and approval of field engineering procedures and instructions; (2) inadequate documentation of concrete from work deficiencies;

and (3) inadequate control of site storage of post tension embedments. Licensee corrective actions included: (1) revision of the Bechtel Nuclear QA manual; (2) revision of Bechtel field procedure for "Initiating and Processing Field Procedures and Instructions"; (3) initiation of Bechtel Discrepancy Report; (4) training sessions by Bechtel QC; and (5) revision of storage inspection procedures. The licensee's corrective actions in regards to these items were subsequently reviewed and the items closed by the NRC as documented in Inspection Report Nos. 50-329/77-01 and 50-330/77-01.

Two items of noncompliance were identified in Inspection Report Nos. 50-329/76-09 and 50-330/76-08. These items regarded: (1) noncompliance report not written to identify broken reinforcing steel; and (2) hold down studs for the reactor vessel skirt were not protected. Licensee corrective actions included: (1) inspection of all rebar dowels; (2) issue new field procedure; and (3) issue new procedure for inspecting reactor vessel and steam generator anchor bolts. The licensee's corrective actions in regards to these items were subsequently reviewed and the items closed by the NRC as documented in Inspection Report Nos. 50-329/77-01 and 50-330/77-01.

Significant Construction Problems

Rebar Omission/Placement Errors and Headquarters Notice of Violation

The initial identification and report of rebar nonconformances occurred during an NRC inspection conducted in December, 1974, and documented in

Inspection Report Nos. 50-329/74-11 and 50-330/74-11. During this inspection the licensee informed the inspector that an audit had identified rebar spacing problems in the Unit 2 containment. The failure of QC inspectors to identify the nonconforming rebar spacing was identified in the NRC inspection report as an item of noncompliance. This matter was subsequently reported by the licensee as required by 10 CFR 50.55(e).

Additional rebar deviations and omissions were identified in March and August, 1975, and in April, May and June, 1976.

Five items of noncompliance regarding reinforcement steel deficiencies were identified in Inspection Report Nos. 50-329/76-04 and 50-330/76-04. These items regarded: (1) no documented instructions for the drilling and placement of reinforcement steel dowels; (2) nonconformance reports concerning reinforcement steel deficiencies were not adequately evaluated; (3) inadequate inspections of reinforcement steel; (4) inadequate evaluations of a nonconformance report problem relative to 10 CFR 50.55(e) reportability requirements; and (5) results of reviews, interim inspections, and monitoring of reinforcement steel installations were not documented.

The licensee's response, dated June 18, 1976, listed 21 separate items (commitments) for corrective actions. A June 24, 1976 letter from the licensee provided a plan of action schedule for implementing the 21 items. The licensee suspended concrete placement work until the items addressed in the licensee's June 24 letter were resolved or implemented. This commitment was documented in a Region III Immediate Action Letter (IAL)



to the licensee, dated June 25, 1976.

Rebar installation and concrete placement activities were satisfactorily resumed in early July, 1976 following completion of the items and verification by Region III.

A subsequent inspection to followup on reinforcing steel placement problems identified two noncompliances. These noncompliances are documented in Inspection Report Nos. 50-329/76-07 and 50-330/76-07. The noncompliances regarded: (1) failure to follow procedures; and (2) inadequate Bechtel inspections of rebar installations. The inspection report documents licensee corrective actions which included: (1) removal of cognizant field engineer and lead civil engineer from the project; (2) removal of lead civil Quality Control engineer from the project; (3) reprimand of cognizant inspector; (4) additional training given to cognizant foremen, field engineers, superintendants and Quality Control inspectors; and (5) assignment of additional field engineers and Quality Control engineers.

As a result of the rebar omissions and placement errors, a Headquarters Notice of Violation was issued on August 13, 1976.

Additional actions taken by the licensee and the contractor included:

1. By the licensee



- A. Establishment of an overview inspection program to provide 100% reinspection of embedments by the licensee following acceptance by the contractor Quality Control personnel.

2. By the Contractor

- A. Personnel changes and retraining of personnel.
- B. Preparation of a technical evaluation for the acceptability of each identified construction deficiency.
- C. Improvement in the QA/QC program coverage of civil work.

1977

Twelve inspections pertaining to Unit 1 and fifteen inspections pertaining to Unit 2 were conducted in 1977.

Inspection Findings

Five examples of noncompliance to Criterion V of 10 CFR 50, Appendix B, were identified in Inspection Report Nos. 50-329/77-05 and 50-330/77-08. The examples of noncompliance regarded: (1) inadequate clearance between concrete wall and pipe support plates; (2) assembly of pipe supports using handwritten drawing changes; (3) inadequate preparation and issue of audit

reports; (4) inadequate review of nonconformance reports and audit findings for trends; and (5) inadequate tagging of defective measuring equipment. Licensee corrective actions included: (1) clarification of design and acceptance criteria contained in pertinent specifications; (2) modification and review of Quality Control Instructions; (3) issuance of two field procedures relative to field modifications of piping hanger drawings; (4) staffing of additional QA personnel at the site; (5) closer management attention; and (6) additional training in the area of tagging. The licensee actions in regard to these items were subsequently reviewed and the items closed by the NRC as documented in Inspection Report Nos. 50-329/77-08, 50-330/77-11, 50-329/78-01, and 50-330/78-01.

Three items of noncompliance were identified in Inspection Report Nos. 50-329/77-09 and 50-330/77-12. The items regarded: (1) failure to follow audit procedures; (2) failure to qualify stud welding procedures; and (3) inadequate welding inspection criteria. Licensee corrective actions included: (1) administrative instruction issued to require the audit manager to obtain a semi-monthly audit findings status report from the project manager; (2) administrative instruction issued for the close out and followup of internal corrective action requests; (3) revision of Quality Control Instruction; (4) special inspections and audit; and (5) specific acceptance criteria provided. The licensee's actions in regard to these items were subsequently reviewed and the items closed by the NRC as documented in Inspection Report Nos. 50-329/78-01, 50-330/78-01, 50-329/78-05, and 50-330/78-05.

of bulge affected zones, the investigation activities and  
and to ascertain the concepts involved in the licensee's  
repair program.

Containment liner bulge deficiency repair was started on August 1,  
Inspection Report No. 50-330/77-11 documents the observed fit up  
during of the first four foot lift of replacement liner plate  
called. The completion of repair and the repair records were subse-  
quently reviewed as documented in Inspection Report No. 50-330/79-25.

London Sheath Placement Errors and Resulting Immediate Action Letter (IAL)

The licensee reported, on April 19, 1977, the discovery of an error in  
the Unit 1 containment building which resulted in two tendon sheathings  
(H32-036 and H13-036) being misplaced, and two tendon sheathings  
(H32-037 and H13-037) being omitted. As shown on pertinent vendor  
drawings, these four tendons were to be deflected downward to clear the  
two main steam penetrations at center line elevation 707' 0".  
Concrete had been placed to a construction joint at elevation 703' 7"  
approximately one week before these tendon deficiencies were discovered.

Corrective actions resulted in the rerouting of tendon sheathing H32-037,  
originally planned for below the penetration, to a new alignment above  
the penetration. Tendon sheathing H13-037 was installed below the  
penetration. Tendon sheathings H32-035 and H13-036 did not require  
modification.

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ath placement errors and the past history of rebar  
ors indicated the need for further NRC evaluation of the  
A/QC program. As a result, an IAL was issued to the  
April 29, 1977. Licensee commitments addressed by this IAL  
(1) NRC notification prior to repairs or modifications involving  
ent of concrete in the area of the misplaced and omitted tendon  
(2) identification of the cause of the tendon sheath deficiencies  
ementation of required corrective action; (3) expansion of the  
e's QC overview program; (4) NRC notification of all embedment  
ent errors identified after QC acceptance; (5) review and revise  
spection procedures; and (6) training of construction and inspection  
nnel.

pecial QA program inspection was conducted in May, 1977 as documented  
Inspection Report 50-329/77-05 and 50-330/77-08. The inspection team  
as made up of personnel from Region I, Region III, and Headquarters.  
Although five items of noncompliance were identified, it was the  
consensus of the inspectors that the licensee's program was  
acceptable.

The licensee issued the final 50.55(e) report on this matter on August 12,  
1977. Final on site review was conducted and documented in Inspection  
Report Nos. 50-329/77-08 and 50-322/79-15.

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Twenty-two inspections and one investigation were conducted during 1978.

Inspection\$SFindings\$U

Three items of noncompliance were identified in Inspection Report Nos. 50-329/78-03 and 50-330/79-03. These items regarded: (1) inadequate inspections of welds on cable tray supports; (2) inadequate control of welding voltage and amperage as required by AWS; and (3) inadequate documentation of repairs to purchased equipment. Licensee corrective actions included: (1) Quality Control Engineers and craft welders were given additional training; (2) pertinent technical specifications and weld acceptance requirements were revised; (3) revision of welding procedures; revisions of vendor QA manual; and (4) reinspections and engineering evaluations. The licensee actions in regard to these items were subsequently reviewed and the items closed by the NRC as documented in Inspection Report Nos. 50-329/78-15, 50-330/78-15, 50-329/79-25, 50-330/79-25, 50-329/81-12, 50-330/81-12, 50-329/79-22, and 50-330/79-22.

Two items of noncompliance were identified in Inspection Report Nos. 50-329/78-05 and 50-330/78-05. These items regarded: (1) inadequate control of welding filler material; and (2) inadequate protection of spool pieces. Licensee corrective actions included: (1) additional instructions given to



welding personnel; (2) generation of nonconformance report to require Bechtel to perform a thorough inspection of the facility, correct and document discrepancies noted, and instruct craft personnel. The licensee actions in regard to these items were subsequently reviewed and the items closed by the NRC as documented in Inspection Report Nos. 50-329/78-05, 50-330/78-05, 50-329/79-22, and 50-330/79-22.

Two examples of noncompliance to Criterion VI were identified in Inspection Report Nos. 50-329/78-07 and 50-330/78-07. These examples regarded: (1) inadequate control of drawings; and (2) inadequate drawing control procedures. Licensee corrective actions included: (1) Zack and Bechtel revised drawing control procedures; and (2) extensive audits of drawing controls. The licensee actions in regard to these items were subsequently reviewed and the items closed by the NRC as documented in Inspection Report Nos. 50-329/79-25 and 50-330/79-25.

One item of noncompliance was identified in Inspection Report No. 50-330/78-09 concerning inadequate backing gas flow rate during welding operations. Licensee corrective actions included: (1) revision of Bechtel welding procedure specifications; (2) revision of Bechtel Quality Control Instruction; and (3) additional training for all welding Quality Control Engineers. The licensee's actions in regard to this item were subsequently reviewed and the item closed by the NRC as documented in Inspection Report No. 50-330/78-16.

Two items of noncompliance were identified in Inspection Report Nos. 50-329/78-13 and 50-330/78-13. The items regarded: (1) inadequate inspection of

weld joints; and (2) inadequate storage of class 1E equipment. Licensee corrective actions included: (1) revision of welding specifications; (2) additional instructions to QC inspectors; (3) additional overinspections; (4) upgrade of administrative procedures; and (5) actions to bring storage environment within controlled specifications. The licensee's actions in regard to these items were subsequently reviewed and the items closed by the NRC as documented in Inspection Report Nos. 50-329/78-13 and 50-330/78-13.

Two items of noncompliance were identified in Inspection Report Nos. 50-329/78-15 and 50-330/78-15. These items regarded: (1) nonconforming welds on Main Steam Isolation Valve support structures; and (2) inadequate corrective action taken to repair nonconforming Nelson Stud weld attachments. Licensee corrective actions included: (1) responsible welding Quality Control Engineer required to attend training course; (2) defective welds reworked; and (3) engineering evaluation. The licensee's actions in regard to these items were subsequently reviewed and the items closed by the NRC as documented in Inspection Report Nos. 50-329/79-22, 50-330/79-22, 50-329/79-25 and 50-330/79-25.

One item of noncompliance (deviation) was identified in Inspection Report No. 50-330/78-16 concerning the failure to meet ASME code requirements for nuclear piping. Licensee corrective actions included the determination that the impact test values of the pipe material in question met the code requirements and the UT thickness measurements made by ITT Grinnell were in error and voided by measurements made by Bechtel. The licensee's actions in regard to this

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item were subsequently reviewed and the items closed by the NRC as documented in Inspection Report No. 50-330/79-24.

One item of noncompliance was identified in Inspection Report No. 50-329/78-17 and 50-330/78-17 regarding the failure to follow weld procedures pertaining to the repair welding of cracked welds on the personnel air locks. The licensee's corrective actions have included steps to revise affected drawings and to update the stress analysis report for the air locks. The corrective actions taken by the licensee will be reviewed during future NRC inspections.

One item of noncompliance was identified in Inspection Report Nos. 50-329/78-22 and 50-330/78-22 concerning the failure to perform specified maintenance and inspection activities on Auxiliary Feed Pumps. Licensee corrective actions included: (1) training for pertinent Quality Control engineers; (2) transition of personnel in QC department relative to storage and maintenance activities; and (3) inspections and evaluations of omitted maintenance. The licensee's actions in regard to this item were subsequently reviewed and the item closed by the NRC as documented in Inspection Report Nos. 50-329/78-22 and 50-330/78-22.

Significant Construction Problems

Excessive Settlements of Diesel Generator Building Foundations

The licensee informed the Region III office on September 8, 1978, per requirements of 10 CFR 50.55(e), that settlement of the Diesel

Generator foundations and structures were greater than expected.

Fill material in this area was placed between 1975 and 1977, with construction starting on the diesel generator building in mid-1977. Review of the results of the Region III investigation/inspection into the plant fill/Diesel Generator building settlement problem indicate many events occurred between late 1973 and early 1978 which should have alerted Bechtel and the licensee to the pending problem. These events included nonconformance reports, audit findings, field memos to engineering and problems with the administration building fill which caused modification and replacement of the already poured footing and replacement of the fill material with lean concrete.

Causes of the excessive settlement include: (1) inadequate placement method - unqualified compaction equipment and excessive lift thickness; (2) inadequate testing of the soil material; (3) inadequate QC inspection procedures; (4) unqualified Quality Control inspectors and field engineers; and (5) over-reliance on inadequate test results.

Lead technical responsibility and program review for this issue was transferred to NRR from IE by memo, dated November 17, 1978.

During 1978 the licensee conducted soil borings in the area of the Diesel Generator building and in other plant fill areas. In addition, a team of consultants who specialize in soils were retained by the licensee to provide an independent evaluation and provide recommendations concerning the soil conditions existing under the Diesel Generator building.

As previously stated, an investigation was initiated in Decemner, 1978 by the NRC to obtain information relating to design and construction activities affecting the Diesel Generator Building foundation and the activities involved in the identification and reporting of unusual settlement of the building. The results of the investigation and additional development in regard to this matter are discussed in the Significant Construction Problem section for 1979.



1979\$U

Thirty inspection reports were issued in 1979 of which one pertained to an on site management meeting, two to investigations, one to a vendor inspection, one to a meeting in Region III and twenty-five to on site inspections.

Inspection\$SFindings\$U

One item of noncompliance was identified in Inspection Report Nos. 50-329/79-10 and 50-330/79-10 concerning inadequate measures to assure that the design basis was included in drawings and specifications. Licensee corrective actions included: (1) revision to Midland FSAR; and (2) revision to pertinent specification. The licensee's actions in regard to this item were subsequently reviewed and the item closed by the NRC as documented in Inspection Report Nos. 50-329/79-19 and 50-330/79-19.

Three items of noncompliance were identified in Inspection Report Nos. 50-329/79-12 and 50-330/79-12. The items regarded: (1) inadequate corrective action in regard to drawing controls; (2) discrepancy in Zack Welding Procedure Specification; and (3) inadequate control of purchased material. Licensee corrective actions included: (1) audit

of drawing control program; (2) revision to drawing control requirements; (3) revision to Zack Wedling Procedure Specification; (4) review of other Zack procedures; (5) missing data was added to documentation packages; and audits of other documentation packages. The actions taken by the licensee were subsequently reviewed and the items closed by the NRC as documented in Inspection Report Nos. 50-329/81-01, 50-330/81-01, 50-329/80-15, 50-330/80-16, 50-329/79-22, and 50-330/79-22.

## Midland - History

- 1970 - Improper placement, sampling, & testing of concrete
  - Failure of QA/QC to act on identified deficiencies
- 1973 - Drawing control & lack of or inadequate procedures for control of design and procurement activities at Bechtel Engineering Offices
- 1973 - Inadequate training, procedures, & inspection of calweld activities
- 5/6/1976 - QA program implementation <sup>problems</sup> relative to embedments
- 1977 - Tender strength omissions
- 1978 - Soils - settlement of B's building
- SALPI - RPV anchor bolts (prob from 1975)
  - Qual of QC inspectors for containment post tensioning work. Additional training & instruction required for QC insp.
  - HVAC problems - Zace.
- ALP II - Team inspection in May 1981 - Found effective QA/QC Program
  - HVAC - Found significant improvement
  - Piping System & Supports - prob with design control & issuance of drawings for installation of small bore piping and support systems.
  - Electrical Power Supply & Distribution - lack of rigorous QC coverage. 7/8/81
  - Soils & Foundations - Continue to find prob in this area indicates lack of attention to detail
- 1982 - Elec QC insp did not find misrouted cables
  - Continuing problems with underpinning & remedial soils work
  - Bechtel overriding CPC
  - Material storage area
  - Elec cable support & uncovered ends
  - Separation & identification of inst. impulse lines
  - Improper installation of drop in anchors & licensee trying to tell us it was no prob because QC had not inspected.
  - Upper management not fully supporting lower QA efforts (well)
  - Bechtel defending failure to meet spec on slope
  - Bechtel reluctant to give info to inspectors (goals)

- Licensee taking narrow view on problems. (grout, well drilling)
  - Licensee tries to find others in NRC who agree with them
  - Argumentative
  - Not responsive to NRC concerns
  - Excavation breaking into lines
  - Trend analysis masking problems in longer wells
  - Trying to get by with minimum effort to satisfy NRC
- These items (17) were identified during reactive effort. No routine inspection effort during past year.

## MIDLAND SUMMARY REPORT

### Facility Data

Docket Numbers - 50-329 and 50-330  
Construction Permits - CPPR-81 and CPPR-82  
Permits Issued - December 14, 1972  
Type Reactor - PWR; Unit 1, 492 MWe\*; Unit 2, 818 MWe  
NSSS Supplier - Babcox & Wilcox  
Design/Constructor - Bechtel Power Corporation  
Fuel Load Dates - Unit 1, 11/81; Unit 2, 11/80  
Status of Construction - Unit 1, 52%, Unit 2, 56%; Engineering 80%

\*Approximately one-half the steam production for Unit 1 is dedicated, by contract, to be supplied to Dow Chemical Corporation, through appropriate isolation heat exchangers. Capability exists to alternate to Unit 2 for the steam source upon demand.

### Chronological Listing of Major Events

July 1970 Start of Construction under exemption  
9/29-30 & 10/1/70 Site inspection, four items of noncompliance identified, extensive review during CP hearings  
1971 - 1972 Plant in mothballs pending CP  
12/14/72 CP issued  
9/73 Inspection at Bechtel Ann Arbor offices, five items of noncompliance identified  
11/73 Inspection at site, four items of noncompliance identified (cadweld problem) precipitated the Show Cause Order  
12/29/73 Licensee answers Show Cause Order commits to improvements on QA program and QA/QC staff  
12/3/73 Show Cause Order issued suspending cadwelding operation  
12/6-7/73 Special inspection conducted by RIII & HQ personnel  
12/17/73 Show Cause order modified to allow cadwelding based on inspection findings of 12/6-7/73



12/5/75 CP reported that rebar spacing out of specification 50 locations in Unit 2 containment

3/5 & 10/75 CP reported that 63 #6 rebar were either missing or misplaced in Auxiliary Building

3/12/75 RIII held management meeting with CP

8/21/75 CP reported that 42 sets of #6 tie bars were missing in Auxiliary Building

3/22/76 CP reported that 32 #8 rebar were omitted in Auxiliary Building. A stop-work order was issued by CP

3/26/76 RIII inspector requested CP to inform RIII when stop-work order to be lifted and to investigate the cause and the extent of the problem. Additional rebar problems identified during site inspection

3/31/76 CP lifted the stop-work order

4/19 thru 5/14/76 RIII performed in-depth QA inspection at Midland

5/14/76 RIII management discussed inspection findings with site personnel

5/20/76 RIII management meeting with CP President, Vice President, and others.

6/7 & 8/76 RIII follow up meeting with CP management and discussed the CP 21 correction commitments

6/1-7/1/76 Overall rebar omission reviewed by R. E. Shewmaker

7/28/76 CP stops concrete placement work when further rebar placement errors found by their overview program. PN-III-76-52 issued by RIII

8/2/76 RIII recommends HQ notice of violation be issued

8/9 - 9/9/76 Five week full-time RIII inspection conducted

8/13/76 Notice issued

10/29/76 CP responded to HQ Notice of Violations

12/10/76 CP revised Midland QA program accepted by NRR

2/28/77 Unit 2 bulge of containment liner discovered

4/19/77 Tendon sheath omissions of Unit 1 reported

4/29/77 IAL issued relative to tendon sheath placement errors

5/5/77 Management meeting at CP Corporate Office relative to IAL regarding tendon sheath problem

- 5/24-27/77 Special inspection by RIII, RI and HQ personnel to determine adequacy of QA program implementation at Midland site
- 6/75 - 7/77 Series of meetings and letters between CP and NRR on applicability of Regulatory Guides to Midland. Commitments by CP to the guides was responsive
- 7/24/78 Construction resident inspection assigned
- 8/21/78 Measurements by Bechtel indicate excessive settlement of Diesel Generator Building. Officially reported to RIII on September 7, 1978
- 12/78 - 1/79 Special investigation/inspection conducted at Midland sites Bechtel Ann Arbor Engineering offices and at CP corporate offices relative to Midland plant fill and Diesel Generator building settlement problem

MIDLAND UNITS 1 AND 2

Major Events Ladder

- December 5, 1974 - Rebar spacing nonconformance identified for Unit 2 containment by licensee.
- March 5 & 10, 1975 - Rebar deficiencies in Auxiliary Building identified by licensee; RIII accepts justification.
- April 9, 1975 - Bechtel engineering justification for rebar spacing in Unit 2 containment accepted by RIII. (Report No. 75-03.)
- April 16, 1975 - Meeting at Consumers Power Company Corporate office; Hunnicutt, Hayes, and LeDoux relative to rebar spacing in containment and missing rebar in Auxiliary Building.
- April 28, 1975 - Unit 2 containment rebar spacing reanalysis accepted.
- August 21, 1975 - RIII notified of rebar omitted in Auxiliary Building.
- May 4, 1976 - Bechtel conclusion, that missing rebar in Auxiliary Building will not affect integrity, referred to Headquarters; Hayes to Seyfrit.
- June 7 & 8, 1976 - Meeting, Consumers Power Company, Jackson; Keppler and others vs Selby and others relative to missing rebar in Auxiliary Building and QA deficiencies per Report No. 76-04.
- June 18 & 24, 1976 - Licensee letters of response committing to 21 items of corrective action in response to Report No. 76-04.
- June 25, 1976 - Keppler to Consumers Power Company; Immediate Action Letter per Jordan to Keppler memo 8/26/76.

- July 14, 1976 - IE concurred with the Bechtel conclusion regarding missing rebar in Auxiliary Building, Seyfrit to Hunnicutt.
- July 28, 1976 - PN-III-76-52 issued on concrete work stoppage due to further rebar placement errors found as a result of Consumers' overview program instigated in late June 1976.
- August 2, 1976 - Keppler letter to Headquarters recommending Headquarters' Notice of Violation be issued.  
Notice sent 8/13/76
- October 29, 1976 - Consumers Power Company responded to Headquarters' Notice of Violations.
- November 30, 1976 - Hearings take place on environmental matters.  
Completed in January 1977.
- December 10, 1976 - Consumers Power Company's Midland QA Program accepted by NRR.
- \*July 1977 - Staff commenced responding on Consumers Power Company's Regulatory Guide use.
- February 26, 1977 - Bulge occurrence of Unit 2 containment liner discovered - reported on February 28, 1977.
- April 14, 1977 - Meeting, Ann Arbor, to review activities of bulged liner plate repair.
- April 19, 1977 - Tendon sheath omission of Unit 1 reported.
- April 29, 1977 - Immediate Action Letter issued relative to tendon sheath placement errors.

\*See backup information on Regulatory Guides.



- May 5, 1977 - Meeting, Consumers Power Company, Jackson; Keppler, Heishman, and Hayes relative to Immediate Action Letter discussion regarding tendon sheath problem.
- May 24 - 27, 1977 - Special QA inspection to determine adequacy of QA program implementation at Midland.
- June 30, 1977 - Meeting, Ann Arbor; R. F. Heishman and R. E. Shewmaker; release to proceed for tendon sheath omission and for bulge repair.
- August 1 - 5 & 8 - 9, 1977 - Site inspection to witness start of repairs for bulge liner and review records of completion of tendon sheath.
- August 12, 1977 - Final 50.55(e) report on tendon sheath.
- August 15, 1977 - Final report on liner plate repair.

MIDLAND - CHRONOLOGY OF EVENTS SINCE JULY 1981 HEARINGS

- 07/07/81 Soil Hearing commenced
- 10/05/81 CPCo met with NRC to discuss organizational improvements
- 10/14/81 Hearing reconvened to deal with Geo-Technical issues
- 01/06/82 CPCo submitted conceptual freeze wall design to NRR for approval
- 01/07/82 General QA Plan and Quality Plans for underpinning and Q-list activities proposed by CPCo
- 01/12/82 CPCo met with NRC to discuss changes to the Midland QA organization and General Quality Plan
- 02/02/82 Testified at Midland soils hearing re: recent QA reorganization
- 02/12/82 NRC letter to CPCo approval of freeze wall design pending successful NRC audit as final release
- 03/30/82 CPCo/NRC Meeting (Norelius; Adensam)
- 04/13/82 NRC Public Meeting in Midland on Underpinning Activities
- 04/26/82 Midland SALP 2 meeting
- 04/28/82 Stop Work Order issued by CPCo against Mergentime (dug into 4160 volt power supply)
- 04/30/82 ASLB Order on soils with certain conditions/restraints imposed
- 05/07/82 ASLB Order clarification, within the bounds of Drawing C-45(Q)
- 05/10/82 CPCo letter to NRC requesting confirmation of approval of remedial soils activities prior to the April 30, 1982 ASLB Order
- 05/14/82 CPCo/NRC meeting to discuss overview of electrical inspections
- 05/20/82 ACRS Subcommittee briefed re: Midland QA for construction
- 05/20/82 NRC meeting (R. Landsman, J. Kane, D. Hood) with CPCo (Mooney, Schaub, Wheeler, Fischer, others) on site on soils issue included Deep Q Duct Bank ("Do not excavate") and fill material (concrete)

JJH

Rev. 3

11/18/83

05/21/82 NRC Exit Meeting (Landsman, Kane, Hood) with CPCo (Mooney, Wheeler, others) "Do not dig below deep Q duct bank" (Horn's meeting minutes)

05/25/82 NRR approval of MPQP

05/25/82 NRC response to CPCo May 10, 1982, request; approving for the most part the request, however, the deep Q duct bank was not approved.

05/26/82 Construction Permit Amendment 3 issued

06/03/82 Full ACRS briefed re: Midland QA for construction

06/04/82 ACRS meeting re: Midland QA

06/08/82 ACRS report requested a broader assessment of design adequacy and construction quality

06/11/83 Unofficial "Hallway" or "NRC Trailer" meeting between NRC (Landsman) and CPCo (Wheeler) re: major/minor design changes or excavations

06/21/82 Spessard/Norelius recommendations provided

06/21/82 SALP 2 meeting to discuss CPCo response in Jackson, MI, public meeting

06/22/82 Meeting to review response to SALP report

06/28/82 GAP news conference requesting NRC halt construction

07/82 Office of Special Cases formed in Region III, includes Midland Section

07/07/82 ASLB issued memo/Order on reopening record on QA matters

07/09/82 NRC requested IDV by CPCo

07/19/83 Draft SSER #2 issued with disclaimer ". . . nothing contained herein constitutes approval . . ."

07/23/82 Cook memo issued containing Midland problems

07/26/82 RIII meeting with NRR to discuss Midland QA problems (meeting minutes written 8/18/82, Warnick memo)

07/27 - } NRR design audit in Ann Arbor (Hood, Kane, Knight) with CPCo (Mooney,  
30/82 } Schaub, others) and Bechtel to discuss remedial soils design issues

07/28/83 Excavation below deep Q duct bank was detected by NRC (Landsman)

08/05/82 Public meeting to discuss SALP 2 differences with CPCo

08/09/82 Soils Stop Work Order issued by CPCo, potential violation of Board Order

08/10/82 Enforcement Conference re: unapproved excavations (alleged violation of Board Order)

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09/02/82 NRC followup meeting with CPCo management re: Quality Improvement Plan (JGK/Selby)

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09/28/82 Entered into an inter-agency agreement with Argonne National Laboratory (ANL) for inspection assistance

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- 10/01/82 JGK and ABD gave approval for Midland team inspection
- 10/05/82 CPCo proposed TERA for IDV at meeting with NRR, RIII, GAP and proposed auxiliary feedwater system be included
- 10/07/82 Meeting in RIII with ELD to discuss testimony for next round of hearings
- 10/12/82 Diesel generator building inspection commenced
- 10/13/82 Detroit Free Press had series on Midland. Kent and anonymous electrician were quoted.
- 10/15/82 }
  - 10/22/82 } DGB inspection mini-exits with CPCo
  - 10/26/82 }
  - 10/28/82 }
- 10/25/82 Revised testimony issued by NRC
- 10/25/82 Meeting with NRR to discuss Midland third party, IDVP proposal
- 10/28/82 RIII letter to CPCo authorizing Remedial Soils QC inspector requalification to begin
- 10/29/82 Meeting with Bechtel to discuss performance/problems
- 10/29/82 Letter, RFW to DGE, forwarding Design and Construction Problem Report for the ACRS
- 11/05/82 Meeting with NRR to discuss Stone and Webster (S&W) qualification for soils third party overview; NRR, RIII, CPCo, S&W, Parsons, IE, GAP
- 11/07/82 TERA began auxiliary feedwater system review for IDVP at CPCo risk
- 11/10/82 DGB inspection team exit with CPCo site personnel (10-12 concerns with multiple examples and problems)
- 11/12/82 NRR letter to CPCo, documented July 27-30, 1982, Audit summary
- 11/15 - }
  - 23/82 } ASLB Hearings in session
- 11/19/82 Letter T. Novak to Dr. P. Shewman, forwarding RIII letter for ACRS on Design and Construction Problems
- 11/22/82 DGB inspection findings discussed with JGK by RFW
- 11/23/82 DGB inspection exit with CPCo management
- 11/30/82 CPCo notified Region III verbally of proposed Stop-Work



- 12/01/82 CPCo announces Zack problem may lead to a large lay-off
- 12/02/82 Meeting RFW and Shafer and team with CPCo and Bechtel to discuss CCP. RIII informed of intent to stop work. Also HQ and Commission's assistants.
- 12/03/82 CPCo stopped majority of safety-related work at site. Issued PN and news release. Briefed JGK, ABD, SL.
- 12/03/82 CPCo proposes to increase TERA scope to include three additional systems; Emergency Power (DG System), Safeguards Chill Water, and Containment Isolation Systems.
- 12/06 - }  
10/82 } ASLB Hearings in session
- 12/07/82 NRC meeting to brief NRR/IE management on DGB inspection problems and QA/QC history and problems, CCP and the licensee "Get Well Program."
- 12/09/82 NRC approved CPCo to begin work on Piers 12E and 12W under turbine building
- 12/13/82 RIII meeting with ELD to discuss plans for supplemental testimony
- 12/30/82 NRC letter issued confirming Stop Work on safety-related areas with certain exceptions
- 01/10/83 CPCo submitted proposed CCP with third party overview included in the proposal
- 01/18/83 Enforcement Conference with CPCo management re: diesel generator building inspection. Boos investigation report, enforcement meeting.
- 01/21/83 Final exit on diesel generator building inspection, concluding continued misuse of IPIN's and improper use of Attachment 10 firms.
- 02/02/83 NRC/CPCo meeting to discuss CCP (collect info.).
- 02/08/83 Proposed Civil Penalty issued: \$120,000
- 02/08/83 Public Meeting re: CCP and IDCVP
- 02/08/83 Meeting with CPCo and Bechtel management to discuss desire to turn things around
- 02/09/83 TERA's Engineering Program Plan submitted; auxiliary feedwater only
- 02/14 - }  
18/83 } ASLB Hearings in session
- 02/14/83 Stone and Webster supplies assessment of piers 12 East/West

- 02/15/83 CPCo submits S&W independent qualification statement for soils
- 02/24/83 CPCo expands S&W contract to include QA overview/review work packages, QC inspector requalification, all soils training, and an assessment of all underpinning work.
- 02/24/83 NRC approved Stone & Webster for soils third party overview
- 03/07/83 NRC meeting with NRR/GAP to discuss the CCP
- 03/08/83 Meeting in RIII with ELD to discuss supplemental hearing testimony
- 03/10/83 CPCo responded to Notice of Violation and proposed Civil Penalties
- 03/15/83 Meeting with CPCo to obtain INPO Self-Imposed Evaluation results
- 03/22/83 NRC selects additional systems for the IDCVP; Emergency Electric Power System, and Control Room HVAC.
- 03/28/83 RIII letter issued requesting additional details re: CCP; included in this request was a proposed third party candidate and the protocol to be utilized for the IDCVP.
- 04/04/83 Harrison replaced Shafer
- 04/06/83 CPCo proposed Stone and Webster to perform third party overview for the CCP; S&W's program is titled, Construction Implementation Overview (CIO).
- 04/13/83 Meeting in Headquarters to discuss TERA proposal on IDCVP; IE, RIII NRR, and GAP participated.
- 04/15/83 Stone and Webster issued a 90 day report on Assessment of Remedial Soils Underpinning Activities
- 04/19 - }  
21/83 } Caseload Forecast Panel at Midland; Public Meeting 4/19 and 4/21/83
- 04/21/83 Stone and Webster CIO personnel onsite
- 04/22/83 CPCo response to NRC letter of 03/29/83, re: CCP Additional Information
- 04/27 - }  
05/06/83 } ASLB Hearing in session - NRC testifies
- 05/03/83 NRC approval of TERA for IDCVP for Auxiliary Feedwater only
- 05/17/83 Meeting with CPCo to discuss CCP/CIO; response 04/22/83 to NRC 03/28/83 letter re: Additional Information

05/18/83 TERA submitted modification to the Engineering Program Plan (EPP) to include the two additional systems; Emergency Power and Control Room HVAC

06/01 - }  
10/83 } ASLB Hearing - QA, NRC testified

06/02/83 OI Investigation Report Number 1 on alleged violation of ASLB Order issued

06/06/83 Commissioner Gilinsky visited the Midland site

06/15/83 Commission briefing on Midland QA and soils

06/16/83 Congressman Udall Hearing on Midland

06/20/83 RIII authorization to begin underpinning activities under safety-related structures (pier 8 E/W grillage)

06/20/83 RIII concurred in CCP, preliminary approval allowed CPCo to begin team training

06/22/83 RIII requested to CPCo (D. Miller) - S&W scope be increased to include all safety-related soils work

06/23/83 RIII RFW memo to NRR/IE for CCP review and comments

06/24/83 RIII memo to NRR (Novak) completing RIII review of TERA's Expanded Engineering Program Plan, two additional systems

06/27/83 RIII letter to CPCo, preliminary approval of CCP; authorization to begin team training

06/27/83 RIII response to M. Sinclair letter of 04/18/83

06/27/83 Memo Eisenhut to Keppler/Vollmer requesting concerns (Landsman) on DGB being structurally sound

06/28/83 RIII input to Chilk for Dircks re: Information for Commissioner Gilinsky; recent significant QA problem since August 1980 reorganization by CPCo (issued 06/29/83)

06/28/83 RIII response to Lone Tree Council re: IDCVP and CIO

06/29/83 Zack welding activities released by NRC, after NRC inspection

06/27 - }  
07/01/83 } ASLB Hearings in session

07/01/83 Response to letter for Dircks to Senator C. Levin (Mr. Miller, Lone Tree Council)

07/05/83 JGK/NRR/IE/ELD met with CPCo (Selby/Cook) to discuss CCP status, caseload dates, delays by NRC

07/07/83 RIII meeting to discuss OI Report Number 1 on Violation of Board Order - JGK requested OI to reopen investigation, 3:00 p.m. (JGK, ABD, SHL, RFW, RBL, JJH, ETP)

07/07/83 Letter CPCo (Mooney) to S&W (Lucks) expanding S&W scope to all safety-related backfill within the bounds of Drawing C-45(Q)

07/14/83 Dow Chemical Co. withdraws from the Midland project and files a law suit against CPCo

07/15/83 CPCo (Mooney) letter to NRC (Harrison) responding to the question, "Why should soils work not be stopped?"

07/19/83 Meeting with ELD, NRR, IE, and RIII to discuss 2.206 filed by GAP on CCP and S&W

07/19/83 Meeting with GAP (JGK/DGE/RFW) on CCP

07/19/83 R. Landsman issued memo on DGB, four concerns to Eisenhut from RFW on 07/21/83

07/20/83 Meeting with Bechtel to discuss procurement quality problems/improvements

07/21/83 Preliminary SALP III issued to licensee for review/comments

07/22/83 TERA's expanded scope for IDCVP approval by NRR

07/28/83 RIII management meeting with J. Cook and J. Charnoff

07/29 - }  
 08/05/83 } ASLB Hearings in session

08/11/83 NRC Meeting w/intervenors and GAP on CCP and S&W CIO, open to public

08/11/83 NRC Public Meeting in evening on CCP and S&W CIO

08/12/83 SALP III meeting with CPCo, open to public

08/16/83 Meeting with Bechtel (Wahl) and RIII (JGK and ABD)

08/19/83 NRC final comments on CCP issued

08/25/83 Meeting in Midland with S&W, open to public. NRC provided B. Garde (GAP) comments

08/26/83 Meeting in Ann Arbor with TERA, Bechtel, CPCo, and B&W to discuss results to date of TERA's IDCVP



08/26/83 Letter CPCo (Cook) to NRC (JGK) forwarded final revision to CCP

08/26/83 Letter CPCo (Cook) to NRC (JGK) forwarded final revision to CCP

08/29/83 CPCo appeal on Civil Penalty for DGB Inspection Denied; CPCo order to pay \$116,500 or request Hearing within 30 days

08/30/83 Letter S&W (Wild) to NRC (JGK) forwarding material from 08/25/83 Midland meeting on CIO

09/06/83 TERA submitted Engineering Program Plan Rev. 3 and QA Plan Rev. 4

09/06/83 Letter S&W to NRC forwarding meeting summary for 08/25/83

09/08/83 Meeting in RIII with S. Howell, Executive V.P., CPCo - (Howell requested meeting) to discuss Midland's past three years, current program, etc.

09/08/83 RBL meeting with DGB Task Force - Brookhaven National Laboratories to debrief on DGB concerns (see memo NRR/IE/consultants Perform Audit of Auxiliary Building calculation based on building reanalysis)

09/12/83 Supplemental OI Report on alleged violation of ASLB Order issued

09/14 & 15/83 NRR/IE/consultants perform audit of auxiliary building calculations based on building reanalysis

09/15/83 Letter NRC to CPCo, issued S&W Protocol - scheduled initial monthly meeting for 10/13/83

09/20 - 23/83 } ASLB Hearing in session. NRC testifies, OI Report, SALP, S. Howell issue }

09/28/83 Meeting in Bethesda on GAP 2.206, Violation of Board Order, S&W approval and CCP approval (Case, Eisenhut, Novak, Adensam, Hood, DeYoung, Stone, JGK, RFW, JJH, SHL, Christenbury, Paton, Wright, Lieberman, Cuoco, Burns)

09/29/83 Issued S&W approval letter to CPCo

09/30/83 CPCo (Cook) letter to NRC (JGK), accepts and adopts S&W protocol

10/05/83 B&W Stop Work on all Class I hanger and snubber work

10/05/83 TERA's scope increased to include QA verification IAW the Ford Amendment (TERA's option 1)

10/06/83 NRC Confirmatory Order issued, thus approving the CPCo CCP

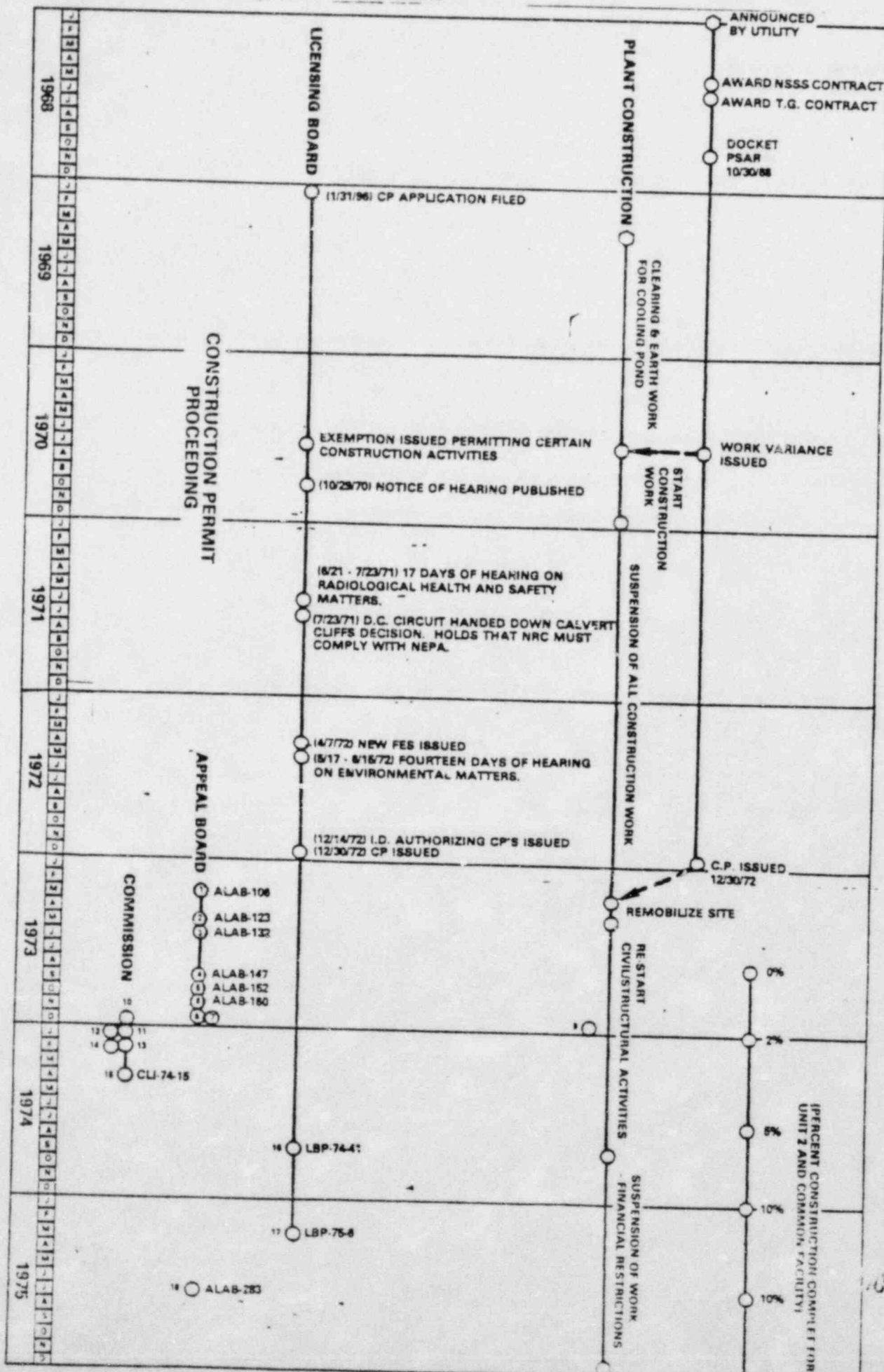
10/06/83 Response to GAP 2.206 issued



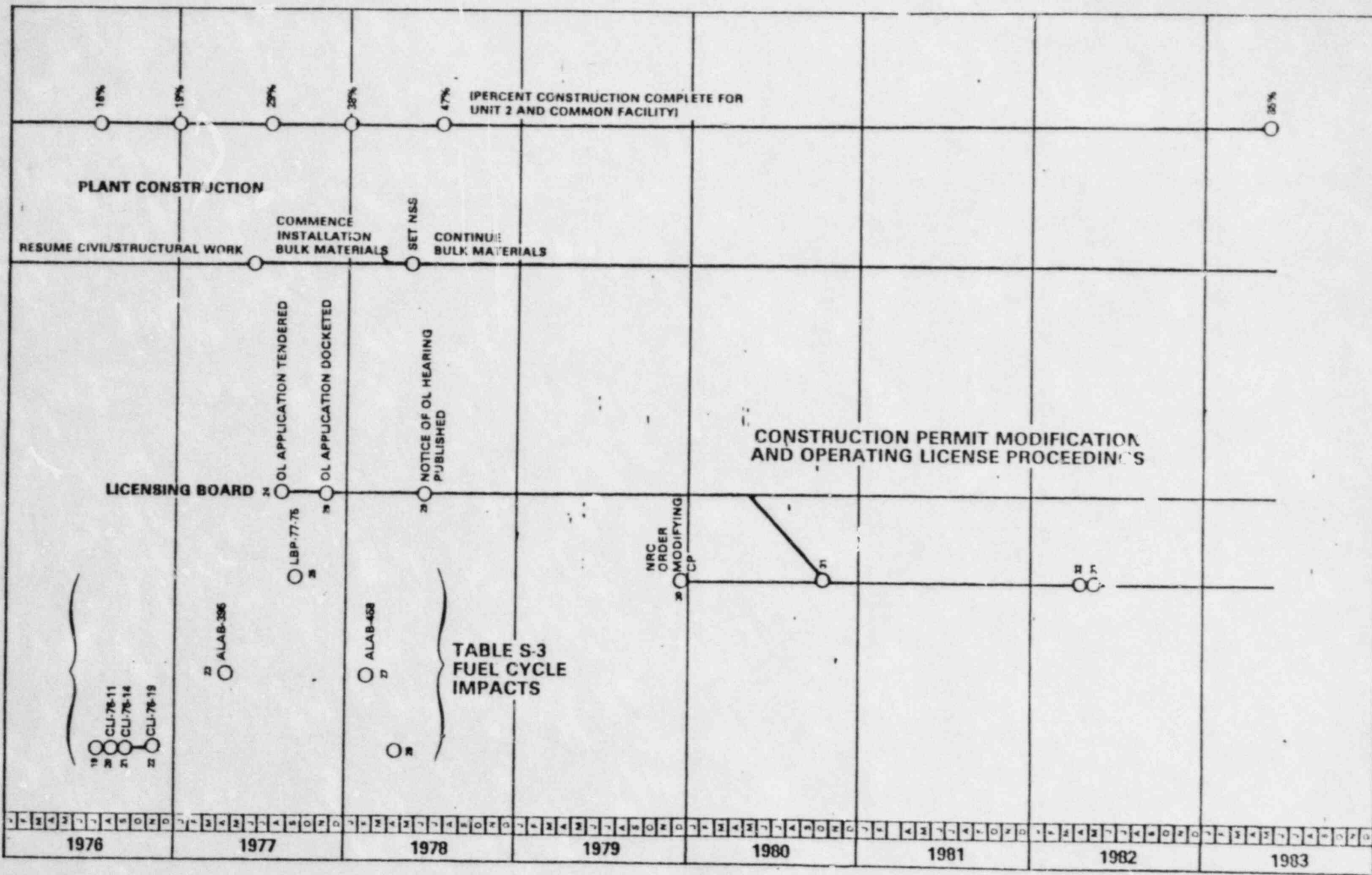
- 10/11/83 Enforcement Conference in RIII on Violation of ASLB Order/Construction Permit related to Remedial Soils
- 10/12/83 Working meeting with CPCo (Miller/Wells) and NRC (Harrison) to discuss the CCP NRC Hold Point Release mechanism
- 10/13/83 First Monthly Meeting with S&W, Third Party overviewer, and CPCo, open to public
- 10/20/83 Letter CPCo (D. Quamme) to NRC (JJH) Requesting Initial Phase I Hold Point Release for limited activities ( 10% of that of Phase I activities) for five plant modules
- 10/21/83 Letter NRC (JJH) to CPCo (D. Quamme) releasing CCP Phase 1 Hold Point for five plant modules as requested by letter of 10/21/83
- 10/22 & 24/83 CPCo placed nine Stop Work Orders in place due to problems with design change control, detected by internal audits
- 10/25/83 Meeting NRC (JGK and RCD) with CPCo (J. Selby and S. Howell) on proposed Enforcement Actions (also discussed possible management audit)
- 10/26/83 NRC Task Force/Brookhaven Report on the Re-review of the Midland Diesel Generator Building Report issued
- 11/01 - } ASLB Hearing in session; re: Violation of ASLB Order regarding  
10/83 } Remedial Soils
- 11/09/83 CPCo announced delay in the project, U-2 fuel load delayed 18 months, causes: NRC untimeliness and requirements and Dow withdrawal
- 11/10/83 S&W, CPCo, NRC monthly meeting, re: third party overview/assessment
- 11/16/83 NRC (DeYoung, Keppler, Axelrad, Lewis, Burns, Warnick, Harrison) followup Enforcement Conference with CPCo (Selby, Howell, Cook, Miller Mooney, Brunner) at O'Hare Holiday Inn

# MAJOR FEATURES OF THE MIDLAND CONSTRUCTION PERMIT, CONSTRUCTION PERMIT MODIFICATION, AND OPERATING LICENSE PROCEEDINGS

Supplement to the Testimony of Victor Gilinsky, Commissioner, U.S. Nuclear Regulatory Commission, before the Committee on Interior and Insular Affairs, Subcommittee on Energy and the Environment, June 16, 1983  
Prepared by William J. Manning, based on NUREG-0646



6 1983



# Construction Permit Proceeding

## Appeal Board Actions

- ① March 26, 1973 - ALAB-106 issued modifying I.D. with respect to quality assurance and control.
- ② May 18, 1973 - ALAB-123 issued affirming remainder of I.D.
- ③ June 28, 1973 - ALAB-132 directing the staff to take certain actions and report to the Appeal Board on quality assurance matters.
- ④ September 18, 1973 - ALAB-147 issued following staff's report pursuant to ALAB-132. Staff directed to insure revision of QA organization. Intervenor motion to stay or revoke CP denied.
- ⑤ October 5, 1973 - ALAB-152 issued denying applicant's and staff's motion to reconsider ALAB-147. Relief ordered in ALAB-147 modified.
- ⑥ November 26, 1973 - ALAB-160 issued; intervenor's motion for clarification of ALAB-123 in light of Commission's ruling in *Nine Mile Point 2* on energy conservation referred to Commission.  
- Appeal Board memo to Director of Regulation noting QA deficiencies and urging rigorous enforcement.
- ⑦ December 3, 1973 - Staff issues Order to Show Cause on QA deficiencies, suspending certain activities.
- ⑧ December 4, 1973 - ALAB-162 issued denying intervenor's motion to enforce ALAB-152, noting that the Appeal Board no longer had jurisdiction.
- ⑱ July 30, 1975 - ALAB-283 issued affirming LBP-74-71.

## Commission Actions

- ⑨ December 17, 1973 - Staff permits resumption of suspended activities.
- ⑩ December 20, 1973 - CLI-73-28 issued denying intervenors' motion to set aside staff action of December 17.
- ⑪ January 24, 1974 - CLI-74-3 issued denying licensee's motion to dismiss the Order to Show Cause, intervenor's motion to revoke the permits, and granting intervenor's request for a hearing.
- ⑫ January 24, 1974 - CLI-74-5 issued denying intervenor's motion to reopen the hearing on energy conservation.
- ⑬ February 5, 1974 - CLI-74-7 issued denying intervenor's motion to reopen the hearing on changed circumstances relating to the cost of the project and Dow Chemical's intent to purchase steam from the plant.
- ⑭ February 20, 1974 - CLI-74-8 issued denying reconsideration of CLI-74-7.
- ⑮ April 11, 1974 - CLI-74-15 issued reviewing Dow Chemical's contractual obligation to purchase steam and electricity from the plant and refusing to reopen the record.

## Licensing Board Actions

- ⑰ September 25, 1974 - LBP-74-71 issued terminating Show Cause proceeding and allowing CP to remain in effect.
- ⑱ March 5, 1975 - LBP-75-6 issued denying intervenor's motion to reopen the Show Cause proceeding in light of licensee's damage suit against architect-engineer, alleging that the suit raised quality assurance issues.



# Construction Permit Proceeding

## Table S-3 - Fuel Cycle Impacts

- ①9 July 21, 1976 - D.C. Circuit issues *Aeschliman v. NRC* remanding case to NRC in light of its invalidation of portions of Table S-3 (environmental effects of the fuel cycle), for consideration of intervenor's energy conservation contentions, Dow Chemical's obligations to purchase steam, and for clarification of the ACRS letter concerning the plant.
- ②0 August 16, 1976 - CLI-76-11 issued directing that a hearing board be convened to determine whether the CP should be continued, modified, or suspended pending adoption of an interim Table S-3
- ②1 September 14, 1976 - CLI-76-14 issued denying licensee's motion to reconsider CLI-76-11, denying intervenor's motion to halt construction, and directing the hearing board to consider all issues remanded by the D.C. Circuit.
- ②2 November 5, 1976 - CLI-76-19 issued directing hearing board to defer consideration of fuel cycle matters pending the adoption of an interim Table S-3; hearing of other issues to continue.
- ②3 April 29, 1977 - ALAB-395 issued, pursuant to Commission delegation, denying licensee's motion to stay proceeding in light of Supreme Court's grant of *certiorari*, and denying intervenor's motions to halt construction and for financial assistance.
- ②5 September 23, 1977 - LBP-77-57 issued refusing, after extensive hearing, to suspend CP pending resolution of issues remanded by D.C. Circuit
- ②7 February 14, 1978 - ALAB-458 issued affirming LBP-77-57.
- ②8 April 3, 1978 - Supreme Court issues *Vermont Yankee Nuclear Power Corp. v. NRDC* reversing D.C. Circuit's *Aeschliman* opinion.

## Construction Permit Modification and Operating License Proceedings

- ②4 August 31, 1977 - OL application tendered.
- ②6 November 18, 1977 - OL application docketed.
- ②9 May 4, 1978 - Notice of opportunity for hearing on OL application published.
- ③0 December 6, 1979 - NRC issues Order modifying construction permits. Consumers Power requests a hearing. Effectiveness of Order stayed pending outcome of hearing.
- ③1 October 24, 1980 - Consolidation of soils issues in OL proceeding with Order for Modification proceeding.
- ③2 April 30, 1982 - Licensing Board Order requiring NRC staff approval for soils-related construction activities.
- ③3 May 26, 1982 - Construction permits amended to incorporate requirements imposed by April 30, 1982 Licensing Board Order.



RFW

MIDLAND - CHRONOLOGY OF EVENTS SINCE JULY 1981 HEARINGS

- 07/07/81 Soil Hearing commenced
- 10/05/81 CPCo met with NRC to discuss organizational improvements
- 10/14/81 Hearing reconvened to deal with Geo-Technical issues
- 01/07/82 General QA Plan and Quality Plans for underpinning and Q-list activities proposed by CPCo
- 01/12/82 CPCo met with NRC to discuss changes to the Midland QA organization and General Quality Plan
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- 04/13/82 NRC Public Meeting in Midland on Underpinning Activities
- 04/26/82 Midland SALP 2 meeting
- 04/28/82 Stop Work Order issued by CPCo against Mergentime (dug into 4160 volt power supply)
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- 05/07/82 ASLB Order clarification, within the bounds of Drawing C-45(Q)
- 05/14/82 CPCo/NRC meeting to discuss overview of electrical inspections
- 05/20/82 ACRS Subcommittee briefed re: Midland QA for construction
- 05/25/82 NRR approval of MPQP
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- 06/04/82 ACRS meeting re: Midland QA
- 06/08/82 ACRS report requested a broader assessment of design adequacy and construction quality
- 06/21/82 Spessard/Norelius recommendations provided

JJH  
Rev. 2  
09/02/83

06/21/82 SALP 2 meeting to discuss CPCo response in Jackson, MI,  
public meeting

06/22/82 Meeting to review response to SALP report

06/28/82 GAP news conference requesting NRC halt construction

07/82 Office of Special Cases formed in Region III, includes Midland  
Section

07/07/82 ASLB issued memo/Order on reopening record on QA matters

07/09/82 NRC requested IDV by CPCo

07/23/82 Cook memo issued containing Midland problems

07/26/82 RIII meeting with NRR to discuss Midland QA problems (meeting  
minutes written 8/18/82, Warnick memo)

08/05/82 Public meeting to discuss SALP 2 differences with CPCo

08/09/82 Soils Stop Work Order issued by CPCo, potential violation of  
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08/10/82 Enforcement Conference re: unapproved excavations (alleged  
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08/10/82 CPCo stopped soils work at our request pending resolution of  
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08/12/82 Issued Work Authorization Procedure for soils (NRC/CPCo)

08/26/82 NRC management meeting with CPCo management re: QA

09/02/82 NRC followup meeting with CPCo management re: Quality  
Improvement Plan (JGK/Selby)

09/03/82 Briefing of Jack Roe and J. Austin of Commissioner's Staff at  
Midland

09/09/82 Meeting with NRR to review Midland soils issue

09/09/82 MPQAD Reorganization - Bechtel QC into CPCo QA Organization

09/10/82 Region III initial approval of MPQP 1 and 2

09/15/82 NRC meeting with CPCo attorneys re: GAP allegations

- 09/17/82 CPCo notified NRC of integrated QA/QC
- 09/17/82 CPCo proposed Stone and Webster for soils third party overview
- 09/17/82 CPCo proposed IDV and other corrective actions
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- 10/82 Safety Evaluation Report Supplement 2, issued approving soils design. Approved MPQP-1, Rev. 3/MPQP-2, Rev. 0.
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- 10/13/82 Detroit Free Press had series on Midland. Kent and anonymous electrician were quoted.
- 10/15/82 } DGB inspection mini-exits with CPCo
- 10/22/82 } DGB inspection mini-exits with CPCo
- 10/26/82 } DGB inspection mini-exits with CPCo
- 10/28/82 } DGB inspection mini-exits with CPCo
- 10/25/82 Revised testimony issued by NRC
- 10/25/82 Meeting with NRR to discuss Midland third party, IDVP proposal
- 10/29/82 Meeting with Bechtel to discuss performance/problems

- 11/05/82 Meeting with NRR to discuss Stone and Webster (S&W) qualification for soils third party overview; NRR, RIII, CPCo, S&W, Parsons, IE, GAP
- 11/07/82 TERA began auxiliary feedwater system review for IDVP at CPCo risk
- 11/10/82 DGB inspection team exit with CPCo site personnel (10-12 concerns with multiple examples and problems)
- 11/15 - } ASLB Hearings in session
- 23/82 } ASLB Hearings in session
- 11/22/82 DGB inspection findings discussed with JGK by RFW
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- 11/30/82 CPCo notified Region III verbally of proposed Stop-Work
- 12/01/82 CPCo announces Zack problem may lead to a large lay-off
- 12/02/82 Meeting RFW and Shafer and team with CPCo and Bechtel to discuss CCP. RIII informed of intent to stop work. Also HQ and Commission's assistants.
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- 12/06 - } ASLB Hearings in session
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- 12/07/82 NRC meeting to brief NRR/IE management on DGB inspection problems and QA/QC history and problems, CCP and the licensee "Get Well Program."
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- 01/21/83 Final exit on diesel generator building inspection, concluding continued misuse of IPIN's and improper use of Attachment 10 firms.
- 02/02/83 NRC/CPCo meeting to discuss CCP (collect info.).
- 02/08/83 Proposed Civil Penalty issued: \$120,000
- 02/08/83 Public Meeting re: CCP and IDCVP
- 02/08/83 Meeting with CPCo and Bechtel management to discuss desire to turn things around
- 02/09/83 TERA's Engineering Program Plan submitted; auxiliary feedwater only
- 02/14 - 18/83 } ASLB Hearings in session
- 02/14/83 Stone and Webster supplies assessment of piers 12 East/West
- 02/15/83 CPCo submits S&W independent qualification statement for soils
- 02/24/83 CPCo expands S&W contract to include QA overview/review work packages, QC inspector requalification, all soils training, and an assessment of all underpinning work.
- 02/24/83 NRC approved Stone & Webster for soils third party overview
- 03/07/83 NRC meeting with NRR/GAP to discuss the CCP
- 03/08/83 Meeting in RIII with ELD to discuss supplemental hearing testimony
- 03/10/83 CPCo responded to Notice of Violation and proposed Civil Penalties
- 03/15/83 Meeting with CPCo to obtain INPO Self-Imposed Evaluation results
- 03/22/83 NRC selects additional systems for the IDCVP; Emergency Electric Power System, and Control Room HVAC.
- 03/28/83 RIII letter issued requesting additional details re: CCP; included in this request was a proposed third party candidate and the protocol to be utilized for the IDCVP.
- 04/04/83 Harrison replaced Shafer
- 04/06/83 CPCo proposed Stone and Webster to perform third party overview for the CCP; S&W's program is titled, Construction Implementation Overview (CIO).
- 04/13/83 Meeting in Headquarters to discuss TERA proposal on IDCVP; IE, RIII NRR, and GAP participated.



04/15/83 Stone and Webster issued a 90 day report on Assessment of Remedial Soils Underpinning Activities

04/19 - }  
21/83 } Caseload Forecast Panel at Midland; Public Meeting 4/19 and 4/21/83

04/21/83 Stone and Webster CIO personnel onsite

04/22/83 CCo response to NRC letter of 03/29/83, re: CCP Additional Information

04/27 - }  
05/06/83 } ASLB Hearing in session - NRC testifies

05/03/83 NRC approval of TERA for IDCVP for Auxiliary Feedwater only

05/17/83 Meeting with CCo to discuss CCP/CIO; response 04/22/83 to NRC 03/28/83 letter re: Additional Information

05/18/83 TERA submitted modification to the Engineering Program Plan (EPP) to include the two additional systems; Emergency Power and Control Room HVAC

06/01 - }  
10/83 } ASLB Hearing - QA, NRC testified

06/06/83 Commissioner Gilinsky visited the Midland site

06/15/83 Commission briefing on Midland QA and soils

06/16/83 Congressman Udall Hearing on Midland

06/20/83 RIII authorization to begin underpinning activities under safety-related structures (pier 8 E/W grillage)

06/20/83 RIII concurred in CCP, preliminary approval allowed CCo to begin team training

06/22/83 RIII requested to CCo (D. Miller) - S&W scope be increased to include all safety-related soils work

06/23/83 RIII RFW memo to NRR/IE for CCP review and comments

06/24/83 RIII memo to NRR (Novak) completing RIII review of TERA's Expanded Engineering Program Plan, two additional systems

06/27/83 RIII letter to CCo, preliminary approval of CCP; authorization to begin team training

06/27/83 RIII response to M. Sinclair letter of 04/18/83

- 06/27/83 Memo Eisenhut to Keppler/Vollmer requesting concerns (Landsman) on DGB being structurally sound
- 06/28/83 RIII input to Chilk for Dircks re: Information for Commissioner Gilinsky; recent significant QA problem since August 1980 reorganization by CPCo (issued 06/29/83)
- 06/28/83 RIII response to Lone Tree Council re: IDCVP and CIO
- 06/29/83 Zack welding activities released by NRC, after NRC inspection
- 06/27 - }  
07/01/83 } ASLB Hearings in session
- 07/01/83 Response to letter for Dircks to Senator C. Levin (Mr. Miller, Lone Tree Council)
- 07/05/83 JGK/NRR/IE/ELD met with CPCo (Selby/Cook) to discuss CCP status, caseload dates, delays by NRC
- 07/07/83 Letter CPCo (Mooney) to S&W (Lucks) expanding S&W scope to all safety-related backfill within the bounds of Drawing C-45(Q)
- 07/14/83 Dow Chemical Co. withdraws from the Midland project and files a law suit against CPCo
- 07/19/83 Meeting with ELD, NRR, IE, and RIII to discuss 2.206 fileu by GAP on CCP and S&W
- 07/19/83 Meeting with GAP (JGK/DGE/RFW) on CCP
- 07/19/83 R. Landsman issued memo on DGB, four concerns to Eisenhut from RFW on 07/21/83
- 07/20/83 Meeting with Bechtel to discuss procurement quality problems/improvements
- 07/21/83 Preliminary SALP III issued to licensee for review/comments
- 07/22/83 TERA's expanded scope for IDCVP approval by NRR
- 07/29 - }  
08/05/83 } ASLB Hearings in session
- 07/28/83 RIII management meeting with J. Cook and J. Charnoff

- 08/11/83 NRC Meeting w/intervenors and GAP on CCP and S&W CIO, open to public
- 08/11/83 NRC Public Meeting in evening on CCP and S&W CIO
- 08/12/83 SALP III meeting with CPCo, open to public
- 08/16/83 Meeting with Bechtel (Wahl) and RIII (JGK and ABD)
- 08/19/83 NRC final comments on CCP issued
- 08/25/83 Meeting in Midland with S&W, open to public. NRC provided B. Garde (GAP) comments
- 08/26/83 Meeting in Ann Arbor with TERA, Bechtel, CPCo, and B&W to discuss results to date of TERA's IDCVP
- 08/26/83 Letter CPCo (Cook) to NRC (JGK) forwarded final revision to CCP
- 08/26/83 Letter CPCo (Cook) to NRC (JGK) forwarded final revision to CCP
- 08/30/83 Letter S&W (Wild) to NRC (JGK) forwarding material from 08/25/83 Midland meeting on CIO
- 9/8/83 JGK met with Howell in RIII
- 9/23/83 Mtg w/ NRR, IE, ELD to discuss ① CCP approval, 2.206 Response, S&W approval & ② OI invest of violation of Bd Order

MIDLAND - CHRONOLOGY OF EVENTS SINCE JULY 1981 HEARINGS

07/07/81 Soil Hearing commenced

10/05/81 CPCo met with NRC to discuss organizational improvements

10/14/81 Hearing reconvened to deal with Geo-Technical issues

01/07/82 General QA Plan and Quality Plans for underpinning and Q-list activities proposed by CPCo

01/12/82 CPCo met with NRC to discuss changes to the Midland QA organization and General Quality Plan

02/02/82 Testified at Midland soils hearing re: recent QA reorganization

03/30/82 CPCo/NRC Meeting (Norelius; Adensam)

04/13/82 NRC Public Meeting in Midland on Underpinning Activities

04/26/82 Midland SALP 2 meeting

04/28/82 Stop Work Order issued by CPCo against Mergentime (dug into 4160 volt power supply)

04/30/82 ASLB Order on soils with certain conditions/restraints imposed

05/07/82 ASLB Order clarification, within the bounds of Drawing C-45(Q)

05/14/82 CPCo/NRC Meeting to discuss overview of electrical inspections

05/20/82 ACRS Subcommittee briefed re: Midland QA for construction

05/25/82 NRR approval of MPQP

05/26/82 Construction Permit Amendment 3 issued

06/03/82 Full ACRS briefed re: Midland QA for construction

06/04/82 ACRS meeting re: Midland QA

06/08/82 ACRS report requested a broader assessment of design adequacy and construction quality

06/21/82 Spessard/Norelius recommendations provided

06/21/82 SALP 2 meeting to discuss CPCo response in Jackson, MI, public meeting

06/22/82 Meeting to review response to SALP report

JJH  
Rev. 1  
7/7/83



06/28/82 GAP news conference requesting NRC halt construction

07/82 Office of Special Cases formed in Region III, includes Midland Section

07/07/82 ASLB issued memo/Order on reopening record on QA matters

07/09/82 NRC requested IDV by CPCo

07/23/82 Cook memo issued containing Midland problems

07/26/82 RIII meeting with NRR to discuss Midland QA problems (meeting minutes written 8/18/82, Warnick memo)

08/05/82 Public meeting to discuss SALP 2 differences with CPCo

08/09/82 Soils Stop Work Order issued by CPCo, potential violation of Board Order

08/10/82 Enforcement Conference re: unapproved excavations (alleged violation of Board Order)

08/10/82 CPCo stopped soils work at our request pending resolution of authority to dig holes

08/12/82 Issued Work Authorization Procedure for soils (NRC/CPCo)

08/26/82 NRC management meeting with CPCo management re: QA problems

09/02/82 NRC followup meeting with CPCo management re: Quality Improvement Plan (JGK/Selby)

09/03/82 Briefing of Jack Roe and J. Austin of Commissioner's Staff at Midland

09/09/82 Meeting with NRR to review Midland soils issue

✓ 09/09/82 MPQAD Reorganization - Bechtel QC into CPCo QA Organization

09/10/82 Region III initial approval of MPQP 1 and 2

09/15/82 NRC meeting with CPCo attorneys re: GAP allegations

✓ 09/17/82 CPCo notified NRC of integrated QA/QC

09/17/82 CPCo proposed Stone and Webster for soils third party overview

09/17/82 CPCo proposed IDV and other corrective actions

09/20/82 S&W began overview work on soils at the Midland site

✓ 09/22/82 Meeting with Mooney, Schaub, and Ronk on Midland QA commitments. They will give us a list. Also talked about taking QC from Bechtel and putting it under MPQAD - Problem with N stamp.



- 09/24/82 Soils Stop Work Order issued by CPCo following NRC inspection (CAL issued). QC training, requalification soils area
- 09/28/82 RIII initial meeting on site with S&W, proposed third party for soils activities
- 09/29/82 Public management meeting with CPCo re: QA/QC organization, CAL third party review, requalification for BOP QC inspectors
- 10/82 Safety Evaluation Report Supplement 2, issued approving soils design. Approved MPQP-1, Rev. 3/MPQP-2, Rev. 0.
- 10/01/82 JGK and ABD gave approval for Midland team inspection
- 10/05/82 CPCo proposed TERA for IDV at meeting with NRR, RIII, GAP and proposed auxiliary feedwater system be included
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06/24/83 RIII memo to NRR (Novak) completing RIII review of TERA's Expanded Engineering Program Plan, two additional systems

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06/27/83 RIII response to M. Sinclair letter of April 18, 1983

06/27/83 Memo Eisenhut to Keppler/Vollmer requesting concerns (Landsman) on DGB being structurally sound

06/28/83 RIII input to Chilk for Dircks re: Information for Commissioner Gilinsky; recent significant QA problem since August 1980 reorganization by CPCo (issued 06/29/83)

06/28/83 RIII response to Lone Tree Council re: IDCVP and CIO

06/29/83 Zack welding activities released by NRC, after released to CPCo

06/27 - }  
 07/01/83 } ASLB Hearings in session



- 07/01/83 Response to letter for Dircks to Senator C. Levin (Mr. Miller, Lone Tree Council)
- 07/05/83 JGK/NRR/IE/ELD met with CPCo (Selby/Cook) to discuss CCP status, caseload dates, delays by NRC
- 07/07/83 Letter CPCo (Mooney) to S&W (Lucks) expanding S&W scope to all safety-related backfill within the bounds of Drawing C-45(Q)
- 7/11/83 <sup>Midland</sup> SALP Bd mtg in RIII
- 7/19/83 Mtg with NRR, IE, ELD, RIII on GAP 2.206 response
- 7/19/83 Mtg with Eisenhut, Billie Gude, JGK, RFW, SL, & WF on Midland CCP & 2.206
- 7/29 Mtg in RIII between NRR (Eisenhut & Horak) & ~~RIII~~ RIII (JGK, RFW, ~~WF~~) to discuss Midland & Zimmer
- 7/29 Mtg in RIII between NRR (DE, TN), RIII (RFW, JGK, JTH), & CPCo (Cook & Charnoff) to discuss management attitude & performance
- 8/11/83 Mtg in Midland between NRC & GAP (Billie Gude, Lynn Barnaba) & Interveners (Stamiris, Sinclair) to discuss CCP & receive their comments. JGK, RFW, JTH, RG, RC, D&E, TN, Adensam, Hood, Lieberman, Inthou, Stone,
- 8/11/83 <sup>Midland</sup> Mtg in evening with public to receive comments on CCP.
- 8/12/83 SALP mtg in Midland



MIDLAND - CHRONOLOGY OF EVENTS SINCE JULY 1981 HEARINGS

- 07/07/81 Soil Hearing commenced
- 10/05/81 CPCo met with NRC to discuss organizational improvements
- 10/14/81 Hearing reconvened to deal with Geo-Technical Issues
- 01/12/82 CPCo met with NRC to discuss changes to the Midland QA organization
- 02/02/82 Testified at Midland soils hearing re: recent QA reorganization
- 03/30/82 CPCo/NRC Meeting (Norelius; Adensam)
- 04/13/82 NRC Public Meeting in Midland on Underpinning activities
- 04/26/82 Midland SALP-2 Meeting
- 04/28/82 Stop Work Order issued by CPCo against Mergentine (dug into 4160 volt power supply)
- 05/14/82 CPCo/NRC Meeting to discuss overview of electrical inspections
- 05/20/82 ACRS Subcommittee briefed re: Midland QA for construction
- 05/26/82 Construction Permit Amendment 3 issued
- 06/03/82 Full ACRS briefed re: Midland QA for construction
- 06/08/82 ACRS Report requested a Broader Assessment of design adequacy and construction quality
- 06/21/82 Spessard/Norelius recommendations provided
- 06/21/82 SALP-2 Meeting to discuss CPCo Response in Jackson, MI, Public Meeting
- 06/22/82 Meeting to Review Response to SALP Report
- 06/28/82 GAP News Conference requesting NRC halt construction
- 07/82 Office of Special Cases formed in Region III, includes Midland Section
- 07/07/82 ASLB issues memo/Order on reopening record on QA matters
- 07/09/82 NRC Requested IDV by CPCo
- 07/23/82 Cook memo issued containing Midland problems
- 07/26/82 RIII meeting with NRR to discuss Midland QA problems (meeting minutes written 8/18/82, Warnick memo)
- 08/05/82 Public Meeting to discuss SALP-2 differences with CPCo at Midland

No

~~08/05/82 Salp-2 Meeting to further discuss CPCo response in Jackson, MI, Public Meeting~~

- 08/09/82 Soils Stop Work Order issued by CPCo, potential violation of Board Order
- 08/10/82 Enforcement Conference re: unapproved excavations (alleged violation of Board Order) (AB Davis, Shafer, others)
- 08/10/82 CPCo stopped soils work at our request pending resolution of authority to dig holes
- 08/12/82 Issued Work Authorization Procedure for Soils (NRC/CPCo)
- 08/26/82 NRC management meeting with CPCo management re: QA problems
- 09/02/82 NRC followup meeting with CPCo management re: Quality Improvement Plan (JGK/Selby)
- 09/03/82 Briefing of Jack Roe and J. Austin of Commissioner's Staff at Midland
- 09/09/82 MPQAD Reorganization - Bechtel QC into CPCo QA Organization
- 09/09/82 Meeting with NRR to review Midland soils issue
- 09/10/82 Region III initial approval of MPQP 1 and 2
- 09/15/82 NRC Meeting with CPCo attorneys re: GAP allegations (JGK, RFW, Shafer, Wilcove, Bacci (az), Mike Miller)
- 09/17/82 CPCo notified NRC of integrated QA/QC
- 09/17/82 CPCo proposed Stone and Webster for soils third party overview
- 09/17/82 CPCo proposes IDV and other corrective actions
- 09/20/82 S&W began overview work on soils at the Midland site
- 09/22/82 Meeting ~~with~~ <sup>between Midland Section and</sup> Mooney, Schaub, and Ronk on Midland QA commitments. They will give us a list. Also talked about taking QC from Bechtel and putting it under MPQAD - Problem with N stamp.
- 09/24/82 Soils Stop Work Order issued by CPCo following NRC inspection (CAL issued). QC training, requalification soils area
- 09/28/82 RIII initial meeting on site with S&W, proposed third party for soils activities
- 09/29/82 ~~management~~ <sup>NRC (RFW, Midland team, Novak, ibad, Pstom, Gilrany)</sup> management meeting with CPCo re: QA/QC organization, CAL, third party review. The meeting was open to the public
- 10/82 Safety Evaluation Report Supplement 2, issued approving soils design
- 10/01/82 JGK and ABD gave approval for Midland team inspection

- 10/05/82 CPCo<sup>letter</sup> proposes TERA for IDV at meeting with NRR, RIII, GAP and proposed auxiliary feedwater system be included
- 10/07/82 Meeting in RIII with ELD to discuss testimony for next round of hearings
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 10/28/82 }
- 10/25/82 Revised Testimony issued by NRC
- 10/25/82 Meeting ~~with~~<sup>between RIII (RFW) & Shafer) with</sup> NRR to discuss Midland third party, IDVP proposal of Oct 5, 82.
- 10/26 - }  
 11/05/82 } ASLB Hearings in Session  
 between NRC (JGK, RFW, Shafer, Lewis, P. Cook, & Collins & Harte & RIII)
- 10/29/82 Meeting<sup>in Ann Arbor</sup> with Bechtel to discuss performance/problems
- 11/05/82 Meeting with NRR to discuss Stone and Webster (S&W) Qualification for soils third party overview; NRR, RIII, CPCo, S&W, Persons, IE, GAP
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- 11/23/82 DGB inspection exit<sup>(NRC: RFW, Shafer, & Midland Team)</sup> with CPCo management (J. Cook, R. Wells, D. Miller)
- 11/30/82 CPCo notified Region III verbally of proposed Stop-Work and CCP
- 11/30/82 CPCo stopped all HVAC welding; problems with Photon testing, qualification of welding procedures
- 12/01/82 CPCo announces Zack problem may lead to a large lay-off
- 12/02/82 Meeting RFW and Shafer and team with CPCo and Bechtel to discuss CCP. RIII informed. Also<sup>informed</sup> HQ and Commission's assistants of proposed CCP and stop-work.
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- 12/09/82 NRC approved CPCo to begin work on Piers 12E and 12W under turbine building
- 12/13/82 RIII meeting with ELD to discuss plans for supplemental testimony
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- 01/21/83 Final exit on diesel generator building inspection, concluding continued misuse of IPIN's and improper use of Attachment 10 firms
- 02/02/83 NRC/CPCo meeting to discuss CCP (collect info)
- 02/08/83 Proposed Civil Penalty issued; \$120,000
- 02/08/83 Public Meeting re: CCP and IDCVP (JGK, Eizenhut, Swizek, ELD, others)  
*Evening meeting to receive public comments.*
- 02/08/83 Meeting with CPCo and Bechtel management to discuss desire to turn things around (JGK, Eizenhut, Swizek, Selby, Cook, Riensch, Wald, Harvey, J. Rutgers)  
*RFB, Shafer, Hannon*
- 02/09/83 TERA's Engineering Program Plan submitted; auxiliary feedwater only
- 02/14 - } ASLB Hearings in session  
18/83 }
- 02/14/83 Stone and Webster supplies assessment of piers 12 East/West
- 02/15/83 CPCo submits S&W independent qualification statements for soils
- 02/24/83 CPCo expands S&W contract to include QA overview/review work packages, QC inspector requalification, all soils training, and on an assessment of all underpinning work
- 02/24/83 NRC approves Stone & Webster for soil third party overview
- 03/07/83 NRC<sup>(RHW for RIII)</sup> Meeting with NRR/GAP<sup>(Billie Ganda)</sup> to discuss the CCP
- 03/08/83 Meeting in RIII with ELD to discuss supplemental hearing testimony
- 03/10/83 CPCo responded to Notice of Violation and proposed Civil Penalties



- 03/15/83 Meeting <sup>in RIII</sup> with CPCo to obtain INPO Self Imposed Evaluation results
- 03/22/83 NRC selects additional systems  for the IDCVP; Emergency Electric Power System, and Control Room HVAC
- 03/28/83 RIII letter issued requesting additional details re: CCP; included in this request was a proposed third party candidate and the protocol to be utilized for the IDCVP
- 04/04/83 Harrison replaced Shafer *as Chief of the Midland Section*
- 04/06/83 CPCo proposes Stone and Webster to perform third party overview for the CCP; S&W's program is titled Construction Implementation Overview (CIO)
- 04/13/83 Meeting in Headquarters to discuss TERA proposal on IDCVP; IE, RIII, NER, and GAP participated
- 04/15/83 Stone and Webster issued a 90 Day Report on Assessment of Remedial Soils Underpinning Activities
- 04/19 - }  
21/83 } Caseload Forecast Panel at Midland; Public Meeting 4/19 and 4/21/83
- 04/21/83 Stone and Webster CIO personnel onsite
- 04/22/83 CPCo response to NRC letter of 3/28/83, re: CCP Additional Information
- 04/27 - }  
05/06/83 } ASLB Hearing in session - NRC testifies
- 05/03/83 NRC approval of TERA for IDCVP for Auxiliary Feedwater only
- 05/17/83 Meeting with CPCo to discuss CCP/CIO; response 4/22/83 to NRC 3/28/83 letter re: Additional Information
- 05/18/83 TERA submitted modification to the Engineering Program Plan (EPP) to include the two additional systems; Emergency Power and Control Room EVAC
- 6/6/83 Commissioner Gilinsky ~~was~~ visited Midland and Resident Inspectors provided a tour of the plant. (ADDERFW accompanied him. Also R. Cook, Landsman,*



## MIDLAND SUMMARY REPORT

### Facility Data

Docket Numbers - 50-329 and 50-330  
Construction Permits - CPPR-81 and CPPR-82  
Permits Issued - December 14, 1972  
Type Reactor - PWR; Unit 1, 492 MWe\*; Unit 2, 818 MWe  
NSSS Supplier - Babcox & Wilcox  
Design/Constructor - Bechtel Power Corporation  
Fuel Load Dates - Unit 1, 11/81; Unit 2, 11/80  
Status of Construction - Unit 1, 52%, Unit 2, 56%; Engineering 80%

\*Approximately one-half the steam production for Unit 1 is dedicated, by contract, to be supplied to Dow Chemical Corporation, through appropriate isolation heat exchangers. Capability exists to alternate to Unit 2 for the steam source upon demand.

### Chronological Listing of Major Events

July 1970 Start of Construction under exemption  
9/29-30 & 10/1/70 Site inspection, four items of noncompliance identified, extensive review during CP hearings  
1971 - 1972 Plant in mothballs pending CP  
12/14/72 CP issued  
9/73 Inspection at Bechtel Ann Arbor offices, five items of noncompliance identified  
11/73 Inspection at site, four items of noncompliance identified (cadweld problem) precipitated the Show Cause Order  
12/29/73 Licensee answers Show Cause Order commits to improvements on QA program and QA/QC staff  
12/3/73 Show Cause Order issued suspending cadwelding operation  
12/6-7/73 Special inspection conducted by RIII & HQ personnel  
12/17/73 Show Cause order modified to allow cadwelding based on inspection findings of 12/6-7/73

12/5/75 CP reported that rebar spacing out of specification 50 locations in Unit 2 containment

3/5 & 10/75 CP reported that 63 #6 rebar were either missing or misplaced in Auxiliary Building

3/12/75 RIII held management meeting with CP

8/21/75 CP reported that 42 sets of #6 tie bars were missing in Auxiliary Building

3/22/76 CP reported that 32 #8 rebar were omitted in Auxiliary Building. A stop-work order was issued by CP

3/26/76 RIII inspector requested CP to inform RIII when stop-work order to be lifted and to investigate the cause and the extent of the problem. Additional rebar problems identified during site inspection

3/31/76 CP lifted the stop-work order

4/19 thru 5/14/76 RIII performed in-depth QA inspection at Midland

5/14/76 RIII management discussed inspection findings with site personnel

5/20/76 RIII management meeting with CP President, Vice President, and others.

6/7 & 8/76 RIII follow up meeting with CP management and discussed the CP 21 correction commitments

6/1-7/1/76 Overall rebar omission reviewed by R. E. Shewmaker

7/28/76 CP stops concrete placement work when further rebar placement errors found by their overview program. PN-III-76-52 issued by RIII

8/2/76 RIII recommends HQ notice of violation be issued

8/9 - 9/9/76 Five week full-time RIII inspection conducted

8/13/76 Notice issued

10/29/76 CP responded to HQ Notice of Violations

12/10/76 CP revised Midland QA program accepted by NRR

2/28/77 Unit 2 bulge of containment liner discovered

4/19/77 Tendon sheath omissions of Unit 1 reported

4/29/77 IAL issued relative to tendon sheath placement errors

5/5/77 Management meeting at CP Corporate Office relative to IAL regarding tendon sheath problem

5/24-27/77 Special inspection by RIII, RI and HQ personnel to determine adequacy of QA program implementation at Midland site

6/75 - 7/77 Series of meetings and letters between CP and NRR on applicability of Regulatory Guides to Midland. Commitments by CP to the guides was responsive

7/24/78 Construction resident inspection assigned

8/21/78 Measurements by Bechtel indicate excessive settlement of Diesel Generator Building. Officially reported to RIII on September 7, 1978

12/78 - 1/79 Special investigation/inspection conducted at Midland sites Bechtel Ann Arbor Engineering offices and at CP corporate offices relative to Midland plant fill and Diesel Generator building settlement problem

## Selected Major Events

### Past Problems

#### 1. Cadweld Splicing Problem and Show Cause Order

A routine inspection, conducted on November 6-8, 1973, as a result of intervenor information, identified eleven examples of four noncompliance items relative to rebar Cadwelding operations. These items were summarized as: (1) untrained Cadweld inspectors; (2) rejectable Cadwelds accepted by QC inspectors; (3) records inadequate to establish cadwelds met requirements; and (4) inadequate procedures.

As a result, the licensee stopped work on cadweld operations on November 9, 1973 which in turn stopped rebar installation. The licensee agreed not to resume work until the NRC reviewed and accepted their corrective action. However, Show Cause Order was issued on December 3, 1973, suspending Cadwelding operations. On December 6-7, 1973 RIII and HQ personnel conducted a special inspection and determined that construction activity could be resumed in a manner consistent with quality criteria. The show cause order was modified on December 17, 1973, allowing resumption of Cadwelding operations based on the inspection results.

The licensee answered the Show Cause Order on December 29, 1973, committing to revise and improve the QA manuals and procedures and make QA/QC personnel changes.

Prehearing conferences were held on March 28 and May 30, 1974, and the hearing began on July 16, 1974. On September 25, 1974, the Hearing Board found that the licensee was implementing its QA program in compliance with regulations and that construction should not be stopped.

#### 2. Rebar Omission/Placements Errors Leading to IAL

Initial identification and report of rebar nonconformances occurred during an NRC inspection conducted on December 11-13, 1974. The licensee informed the inspector that an audit, had identified rebar spacing problems at elevations 642' - 7" to 652' - 9" of Unit 2 containment. This item was subsequently reported per 10 CFR 50.55(e) and was identified as a item of noncompliance in report Nos. 50-329/74-11 and 50-330/74-11.

Additional rebar deviations and omissions were identified in March and August 1975 and in April, May and June 1976. Inspection report Nos. 50-329/76-04 and 50-330/76-04 identified five noncompliance items regarding reinforcement steel deficiencies.

*and concrete placement work*



Licensee response dated June 18, 1976, listed 21 separate items (commitments) for corrective action. A June 24, 1976 letter provided a plan of action schedule for implementing the 21 items. The licensee committed not to resume concrete placement work until the items addressed in licensee's June 24 letter were resolved or implemented. This commitment was documented in a RIII letter to the licensee dated June 25, 1976. Although not stamped as an IAL, in-house memos referred to it as such.

Rebar installation and concrete placement activities were resumed in early July 1976, following completion of the items and verification by RIII.

Additional action taken is as follows:

a. By the NRC

- (1) Assignment of an inspector full-time on site for five weeks to observe civil work in progress
- (2) IE management meetings with the licensee at their corporate offices
- (3) Inspection and evaluation by Headquarter personnel

b. By the Licensee

- (1) June 18, 1976 letter committing to 21 items of corrective action
- (2) Establishment of an overview inspection program to provide 100% reinspection of embedments by the licensee following acceptance by the contractor QC personnel

c. By the Contractor

- (1) Personnel changes and retraining of personnel
- (2) Prepared technical evaluation for acceptability of each identified construction deficiency
- (3) Improvement in their QA/QC program coverage of civil work (this was imposed by the licensee)

3. Tendon Sheath Placement Errors and Resulting Immediate Action Letter (IAL)

On April 19, 1977, the licensee reported, as a Part 50, Section 50.55(e) item, the inadvertent omission of two hoop tendon sheaths from a Unit 1 containment concrete placement at

elevation 703' - 7". The tendon sheaths were, for the most part, located at an elevation in the next higher concrete placement lift, except that they were diverted to the lower placement lift to pass under a steam line penetration and it was where they were omitted. Failure to rely on the proper source documents by construction and inspection personnel, contributed to the omission.

An IAL was issued to the licensee on April 29, 1977, which spelled out six licensee commitments for correction which included: (1) repairs and cause corrective action; (2) expansion of the licensee's QC over view program; (3) revisions to procedures and training of construction and inspection personnel.

A special QA program inspection was conducted in early May 1977. The inspection team was made up of personnel from RI, RIII, and HQ. Although five items of noncompliance were identified, it was the consensus of the inspectors that the licensee's program was an acceptable program and that the Midland construction activities were comparable to most other construction projects.

The licensee issued its final report on August 12, 1977. Final review on site was conducted and documented in report No. 50-329/77-08.

#### Current Problems

##### 1. Plant Fill - Diesel Generator Building Settlement

The licensee informed the RIII office on September 8, 1978, of per requirements of 10 CFR 50.55(e) that settlement of the diesel generator foundations and structures were greater than expected.

Fill material in this area was placed between 1975 and 1977, with construction starting on diesel generator building in mid-1977. Filling of the cooling pond began in early 1978 with the spring run-off water. Over the year the water level has increased approximately 21 feet and in turn increasing the site ground water level. It is not known at this time what effect (if any) the higher site ground water level has had on the plant fill and excessive settlement of the Diesel Generator Building. It is interesting to note however, that initially the PSAR indicated an underdrain system would be installed to maintain the ground water at its normal (pre pond) level but that it later was deleted.

The NRC activities, to date, include:

- a. Transfer of lead responsibility to NRR from IE by memo dated November 17, 1978
- b. Site meeting on December 3-4, 1978, between NRR, IE, Consumers Power and Bechtel to discuss the plant fill problem and proposed corrective action relative to the Diesel Generator Building settlement
- c. RIII conducted an investigation/inspection relative to the plant fill and Diesel Generator Building settlement

The Constructor/Designer activities include:

- a. Issued NCR-1482 (August 21, 1978)
- b. Issued Management Corrective Action Report (MCAR) No. 24 (September 7, 1978)
- c. Prepared a proposed corrective action option regarding placement of sand overburden surcharge to accelerate and achieve proper compaction of diesel generator building sub soils

Preliminary review of the results of the RIII investigation/inspection into the plant fill/Diesel Generator Building settlement problem indicate many events occurred between late 1973 and early 1978 which should have alerted Bechtel and the licensee to the pending problem. These events included nonconformance reports, audit findings, field memos to engineering and problems with the administration building fill which caused modification and replacement of the already poured footing and replacement of the fill material with lean concrete.

2. Inspection and Quality Documentation to Establish Acceptability of Equipment

This problem consists of two parts and has just recently been identified by RIII inspectors relative to Midland. The scope and depth of the problem has not been determined.

The first part concerns the adequacy of engineering evaluation of quality documentation (test reports, etc.) to determine if the documentation establishes that the equipment meets specification and environmental requirements. The licensee,

by the licensee's  
overview program

on November 13, 1978, issued a construction deficiency report (10 CFR 50.55(e)) relative to this matter. Whether the report was triggered by RIII inspector inquiries or by IE Circular or Bulletin is not known. An interim report dated November 28, 1978 was received and stated Consumers Power was pursuing this matter not only for Bechtel procured equipment but also for NSS supplied equipment.

The second part of the problem concerns the adequacy of equipment acceptance inspection by Bechtel shop inspectors. Examples of this problem include: (1) Decay Heat Removal Pumps released by the shop inspector and shipped to the site with one pump assembled backwards, (2) electrical penetrations inspected and released by the shop inspector for shipment to the site. Site inspections to date indicate about 25% of the vendor wire terminations were improperly crimped.

### Inspection History

The construction inspection program for Midland Units 1 and 2 is approximately 50% complete. This is consistent with status of construction of the two units. (Unit 1 - 52%; Unit 2 - 56%) In terms of required inspection procedures approximately 25 have been completed, 33 are in progress and 36 have not been initiated.

The routine inspection program has not identified an unusual number of enforcement items. Of the selected major events described above, only one is directly attributable to RIII enforcement activity (Cadweld splicing). The other were identified by the licensee and reported through the deficiency report system (50.55(e)). The Midland data for 1976 - 78 is tabulated below.

<u>Year</u>	<u>Number of Noncompliances</u>	<u>Number of Inspections</u>	<u>Inspector Hours On Site</u>
1976	14	9	646
1977	5	12	648
1978	11	18	706

A resident inspector was assigned to the Midland site in July 1978. The on site inspection hours shown above does not include his inspection time.

The licensee's QA program has repeatedly been subject to in-depth review by IE inspectors. Included are:

1. July 23-26 and August 8-10, 1973, inspection report Nos. 50-329/73-06 and 50-330/73-06: A detailed review was conducted relative to the implementation of the Consumers Power Company's QA manual and Bechtel Corporation's QA program for design activities at the Bechtel Ann Arbor office. The identified concerns were reported as discrepancies relative to the Part 50, Appendix B, criteria requirements.



2. September 10-11, 1973, report Nos. 50-329/73-08 and 50-330/73-08: A detailed review of the Bechtel Power Corporation QA program for Midland was performed. Noncompliances involving three separate Appendix B criteria with five different examples, were identified.
3. February 6-7, 1974, reports No. 50-329/74-03 and 50-330/74-03: A followup inspection at the licensee's corporate office, relative to the items identified during the September 1973 inspection (above) along with other followup.
4. June 16-17, 1975, report Nos. 50-329/75-05 and 50-330/75-05: Special inspection conducted at the licensee's corporate office to review the new corporate QA program manual.
5. August 9 through September 9, 1976, report Nos. 50-329/76-08 and 50-330/76-08: Special five-week inspection regarding QA program implementation on site primarily for rebar installation and other civil engineering work.
6. May 24-27, 1977, report Nos. 50-329/77-05 and 50-330/77-08: Special inspection conducted at the site by RIII, IE and RI personnel to examine the QA program implementation on site by Consumers Power Company and by Bechtel Corporation. Although five examples of noncompliance to Appendix B, Criterion V, were identified, the consensus of the inspectors involved was that the program and its implementation for Midland was considered to be adequate.

Although the licensee's Quality Assurance program has under gone a number of revisions to strengthen its provisions, no current concern exist regarding its adequacy. Their Topical QA Plan has been reviewed and accepted by NRR through revision 7. Implementation of the program has been and continues to be subject to further review with the mid-construction program review presently scheduled for March or April 1979.

Consumers Power Company expanded their QA/QC auditing and surveillance coverage to provide extensive overview inspection coverage. This began in 1975 with a commitment early in their experience with rebar installation problems and was further committed by the licensee in his letter of June 18, 1976, responding to report Nos. 50-329/76-04 and 50-330/76-04. This overview inspection activity by the licensee has been very effective as a supplement to the constructor's own program. Currently, this program is functioning across all significant activities at the site.

#### Enforcement History

Approximately 6 months after restart of construction activities (11 months after CP issuance) an inspection identified four noncompliance items regarding cadwelding activities. This resulted in a show cause order being issued on December 3, 1973. This enforcement action was aired publicly during hearings held by the Atomic Safety Licensing Board in May 1974. The hearing board issued its decision in September 1974



that concluded that construction could proceed with adequate assurance of quality.

Identification of reinforcing bar problems began in December of 1974 with the licensee reporting improper spacing of rebar in the Unit 2 containment wall. Further reinforcing bar spacing and/or omission of rebar was identified in August 1975 and again in May 1976 with the citations of 5 noncompliances in an inspection report. An IE:HQ notice of violation was issued regarding the citations in addition to the licensee issuing a stop work order. The licensee issued a response letter dated June 18, 1976 committing to 21 items of corrective action. A Bechtel prepared technical assessment for each instance of rebar deficiency was submitted to and review by IE:HQ who concluded that the structures involved will satisfy the SAR criteria and that the function of these structures will be maintained during all design conditions. The RIII office of NRC performed a special five week inspection to assess the corrective action implementation without further citation.

The licensee reported that two hoop tendon sheaths were omitted in concrete placements of Unit 2 containment wall in April 1977. An Immediate Action Letter was issued to the licensee on April 29, 1977 listing six items of licensee commitments to be completed. A special inspection was performed on May 24-27, 1977 with four NRC inspectors (1-HQ, 1-RI, and 2-RIII). Although five items of noncompliance were identified, it was the consensus of the inspectors that the QA/QC program in effect was adequate. The constructors nonconformance report provided an alternate method of installation for the tendon sheaths that was accepted.

The RIII office of inspection and enforcement instituted an augmented on site inspection coverage program during 1974, this program has continued in effect ever since and is still in effect. It is noted that the noncompliance history with this program is essentially the same as the history of other RIII facilities with a comparable status of construction. Further on site inspection augmentations was accomplished with the assignment of a full time resident inspector in August, 1978.

The noncompliance history for the Midland Project is provided in the following table.

ENFORCEMENT ACTIONS

Noncompliances

<u>Year</u>	<u># Total</u>	<u>Criteria (10 CFR 50 Appendix B)</u> <u>( ) Number of Occurrences</u>
1970	4	V, X, XI, XVI
1971-1972	0	Construction halted pending CP
1973	9	II V(5) XIII, XV, XVII
1974	3	V(2) XI
1975	0	
1976	10	V(4) X, XII, XV, XVI, XVII, XVIII
1977	5	V(5) 10 CFR 50.55(e) item
1978	11	V(4) VI(2), VII, IX(3), XVI

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Criteria

II	QA Program
V	Instructions Procedures Drawing Control Work
VI	Document Control
VII	Control of Purchased Material
IX	Control of Special Processes
X	Inspection
XII	Control Measuring - Test Equipment
XIII	Handling - Storage
XV	Nonconforming Parts
XVI	Corrective Actions
XVII	QA Records
XVIII	Audits

## Summary and Conclusions

Since the start of construction Midland has experienced some significant problems resulting in enforcement action. In evaluating these problems they have occurred in clumps: (1) in September 1970 relative to improper placement, sampling and testing of concrete and failure of QA/QC to act on identified deficiencies; (2) in September 1973 relative to drawing control and lack of or inadequate procedures for control of design and procurement activities at the Bechtel Engineering offices; (3) in November 1973 relative to inadequate training, procedures and inspection of cadweld activities; (4) in April, May and June 1976 resulting from a series of RIII in-depth QA inspections and meetings to identify underlying causes of weakness in the Midland QA program implementation relative to embedments. (The noncompliance items identified involved inadequate quality inspection, corrective action, procedures and documentation, all primarily concerned with installation of reinforcement steel); (5) in April 1977 relative to tendon sheath omissions; and (6) in August 1978 concerning plant soil foundations and excessive settlement of the Diesel Generator Building.

Following each of these problem periods (excluding the last which is still under investigation), the licensee has been responsive and has taken extensive action to evaluate and correct the problem and to upgrade his QA program and QA/QC staff. The most effective of these licensee actions have been an overview program which has been steadily expanded to cover almost all safety related activities.

The evaluation both by the licensee and IE of the structures and equipment affected by these problems (again except the last) has established that they fully meet design requirements.

Since 1974 these problems have either been identified by the licensee's quality program or provided direction to our inspectors.

Looking at the underlying causes of these problems two common threads emerge: (1) Consumers Power historically has tended to over rely on Bechtel, and (2) insensitivity on the part of both Bechtel and Consumers Power to recognize the significance of isolated events or failure to adequately evaluate possible generic application of these events either of which would have led to early identification and avoidance of the problem including the last on plant fill and diesel generator building settlement.

Notwithstanding the above, it is our conclusion that the problems experienced are not indicative of a broadbreakdown in the overall quality assurance program. Admittedly, deficiencies have occurred which should have been identified earlier by quality control personnel, but the licensee's program has been effective in the ultimate identification and subsequent correction of these deficiencies. While we cannot dismiss the possibility that problems may have gone undetected by the licensee's overall quality assurance program, our inspection program has not identified significant problems overlooked by the licensee --- and this inspection effort has utilized many different inspectors.

The RIII project inspectors believe that continuation of: (1) resident site coverage, (2) the licensee overview program including its recent expansion into engineering design/review activities, and (3) a continuing inspection program by regional inspectors will provide adequate assurance that construction will be performed in accordance with requirements and that any significant errors and deficiencies will be identified and corrected.

MIDLAND PLANT FACT SHEET

UTILITY: CONSUMERS POWER COMPANY

LOCATION: MIDLAND, MICHIGAN

REACTOR VENDOR: BABCOCK AND WILCOX

ARCHITECT/ENGINEER: BECHTEL POWER CORP. (ANN ARBOR, MI)

REACTOR TYPE: PWR B&W MODEL 177

POWER RATING: UNIT 1 - 2,452 MW<sub>T</sub>, 505 MW<sub>E</sub>

UNIT 2 - 2,452 MW<sub>T</sub>, 852 MW<sub>E</sub>

UNIQUE PLANT FEATURES: UNIT 1 IS DESIGNED TO SUPPLY UP TO 4 MILLION LB/HR OF PROCESS STEAM TO THE ADJACENT DOW CHEMICAL PLANT IN CONJUNCTION WITH GENERATING UP TO 505 MW OF ELECTRICAL ENERGY.



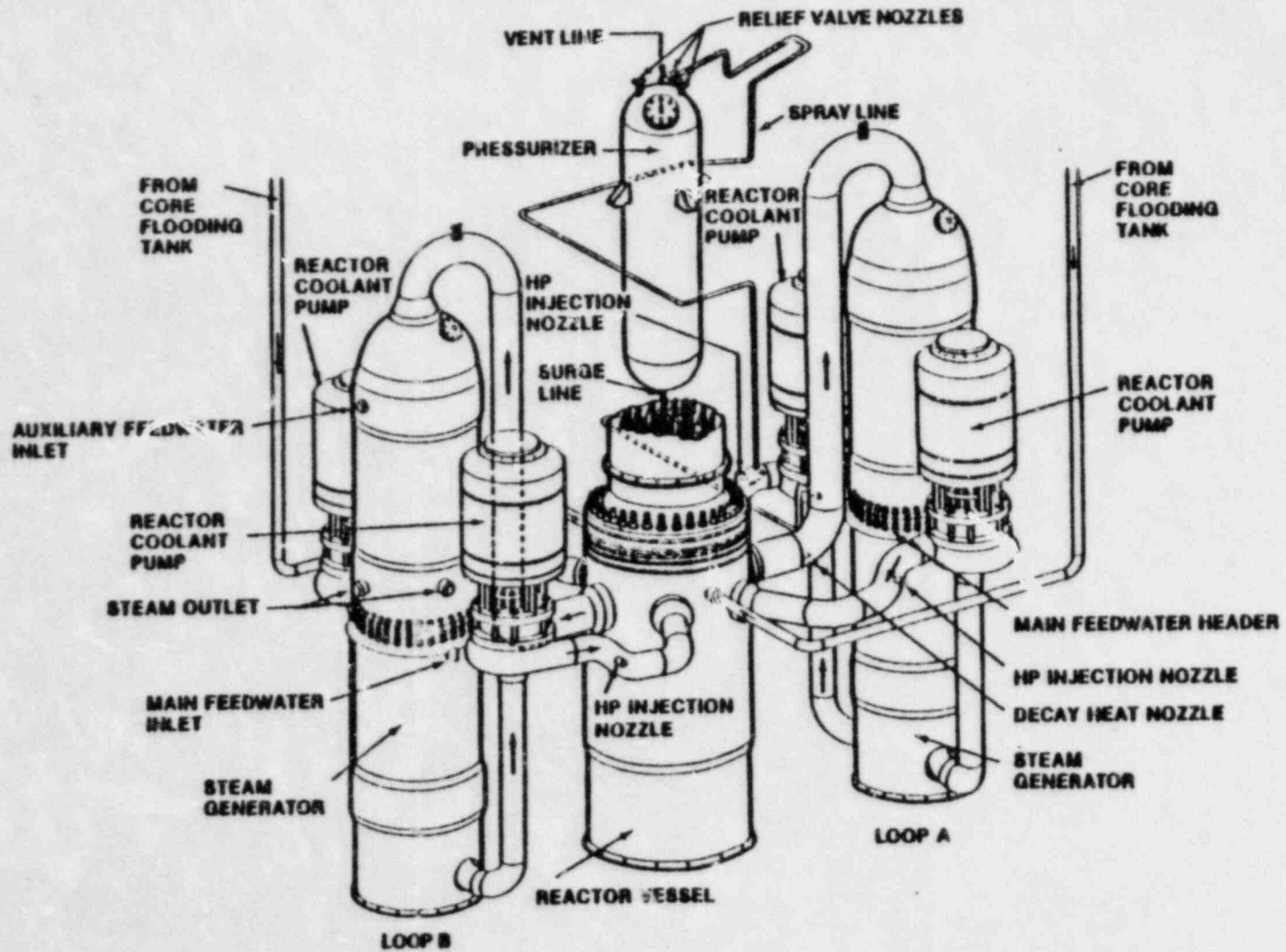
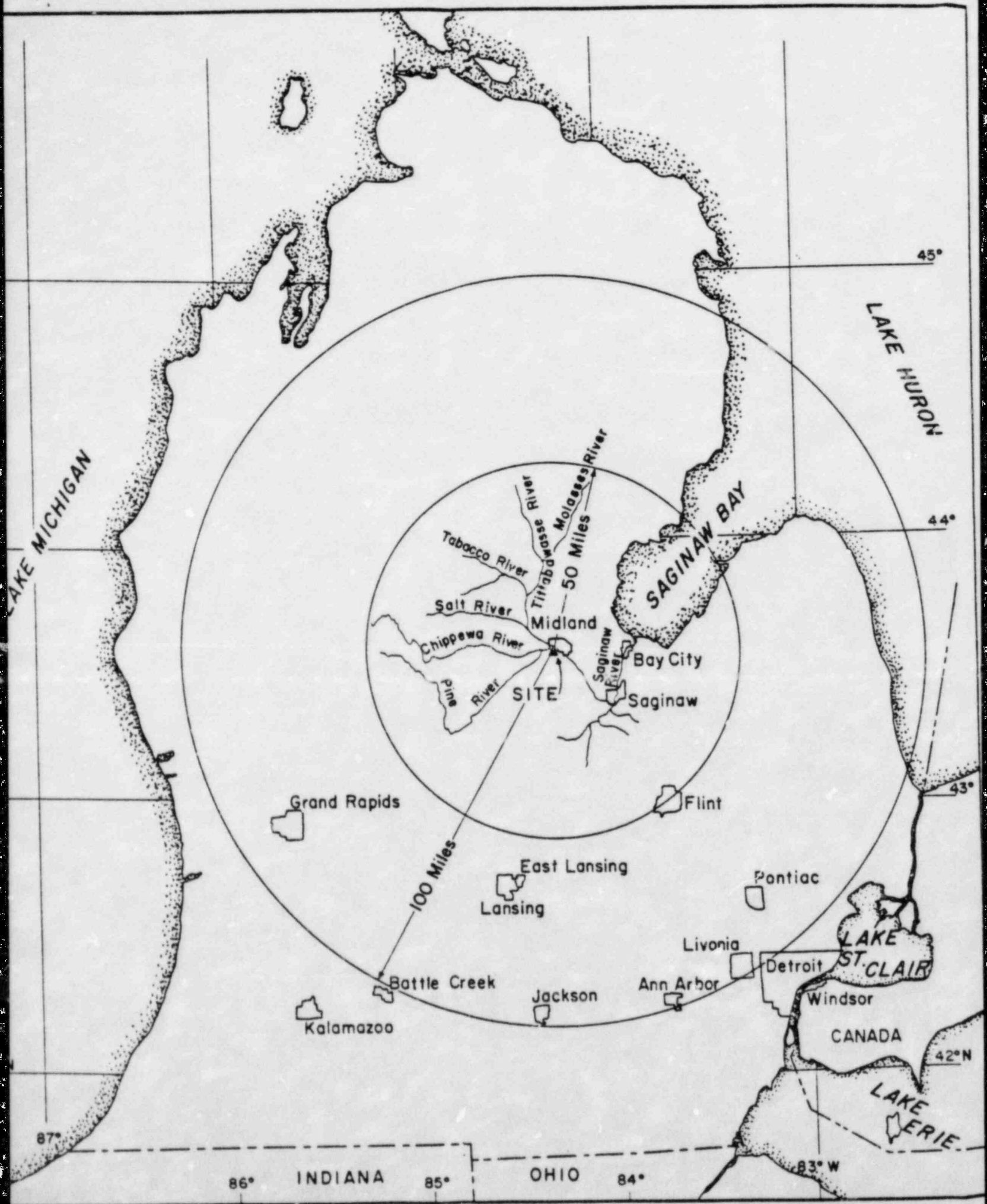


Figure 1.2 Midland reactor coolant system

MAJOR LICENSING MILESTONES

1/13/69	CP APPLICATION FILED
7/30/70	LWA ISSUED
12/15/72	CPs ISSUED
11/17/77	OL APPLICATION DOCKETED
(3/79	TMI-2 ACCIDENT)
7/81	START OF CONSOLIDATED OL AND SOILS HEARINGS (ON GOING)
2/82	DES ISSUED
5/82	SER ISSUED
6/8/82	ACRS INTERIM LETTER
6/30/82	SSER #1 ADDRESSES ACRS LETTER
7/82	FES ISSUED
10/82	SSER #2 ADDRESSES REMEDIAL SOILS ACTIVITIES



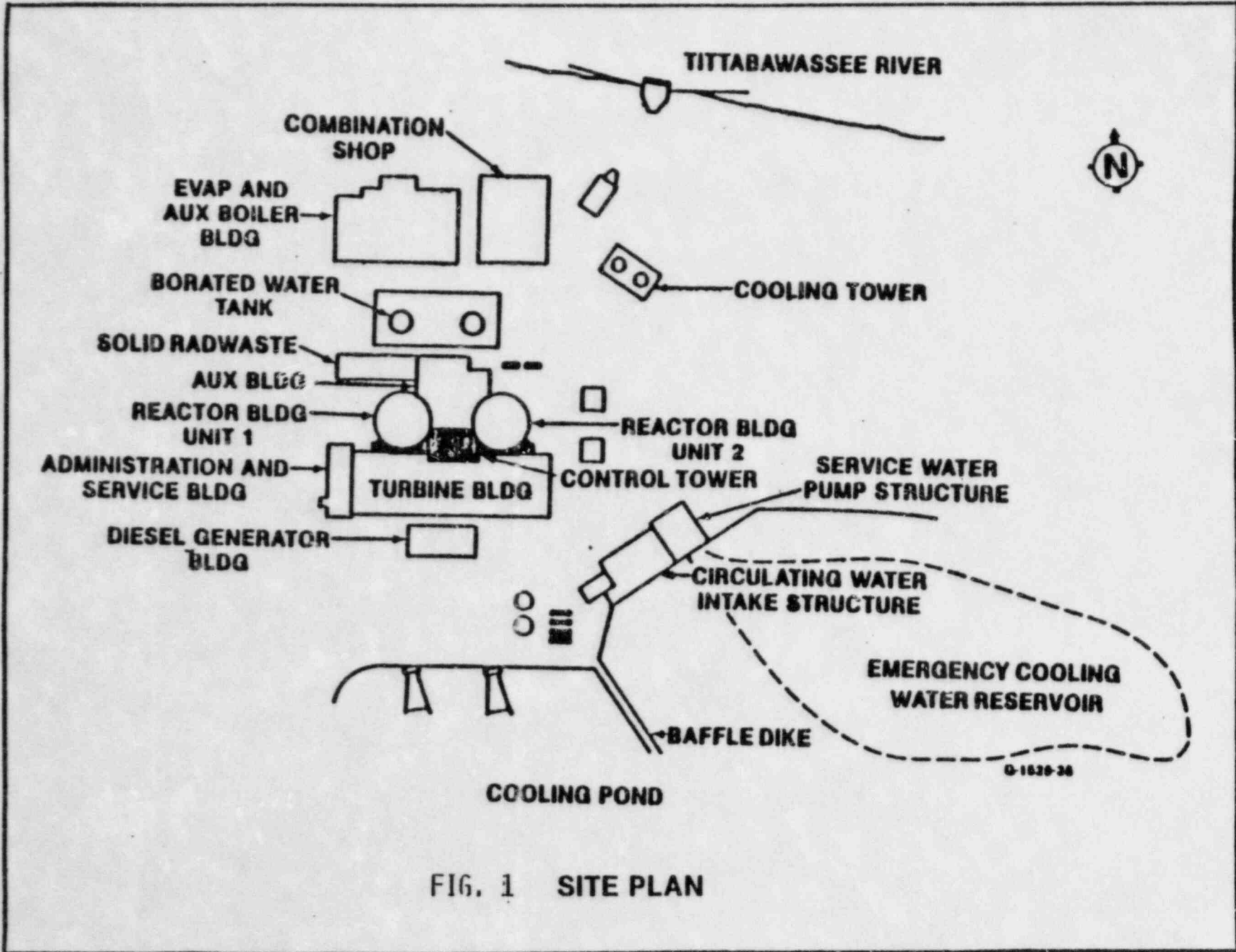
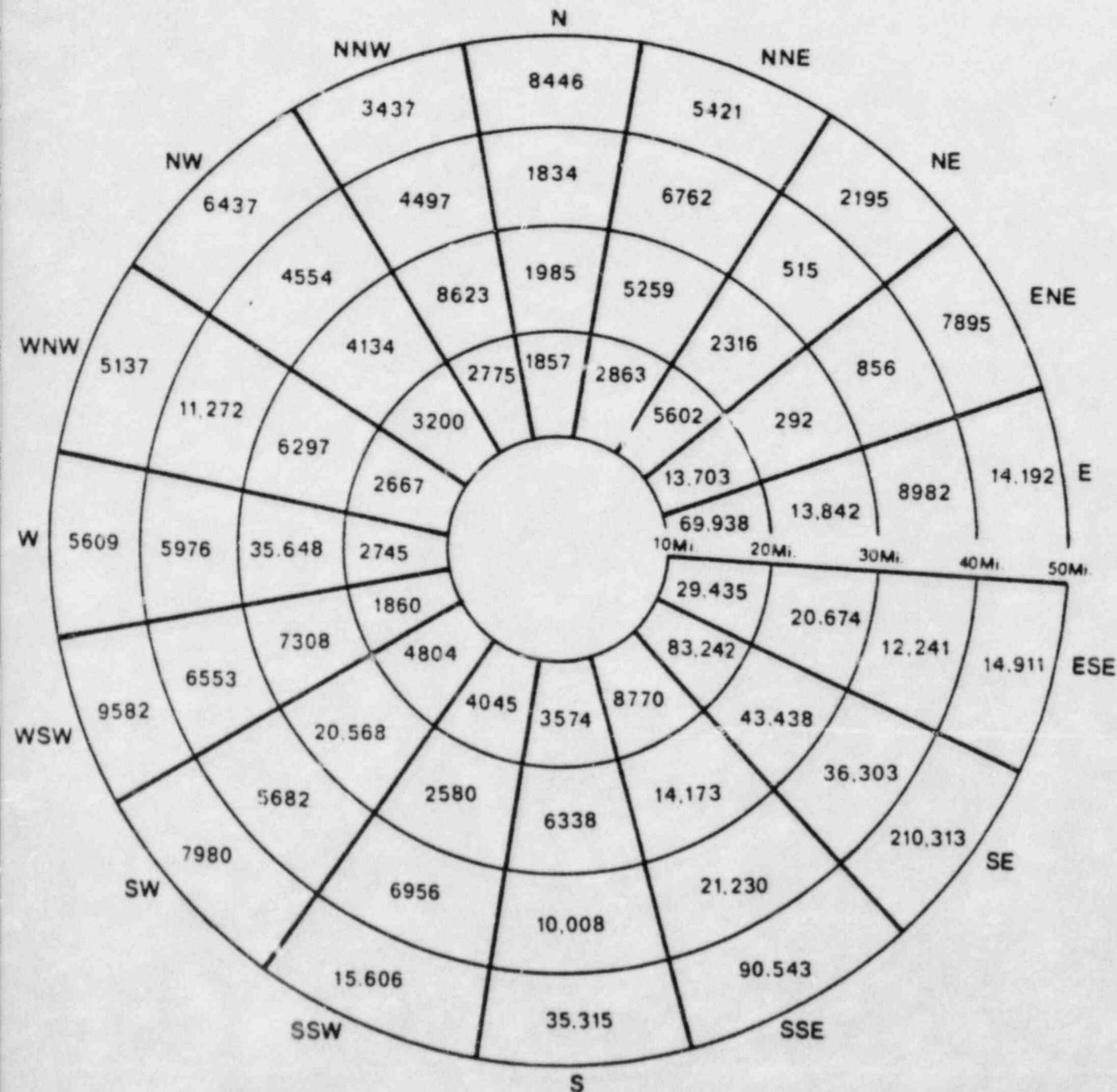


FIG. 1 SITE PLAN

Q-1020-28

Annulus	10-20Mi.	20-30Mi.	30-40Mi.	40-50Mi.	Total
Population	241,080	193,475	144,221	443,019	1,021,795

FOR POPULATION TOTALS OF EACH SEGMENT SEE TABLE 2.1-6



**CONSUMERS POWER COMPANY  
MIDLAND PLANT UNITS 1 & 2  
FINAL SAFETY ANALYSIS REPORT**

Population Distribution  
0-10 and 10-50 miles  
1980

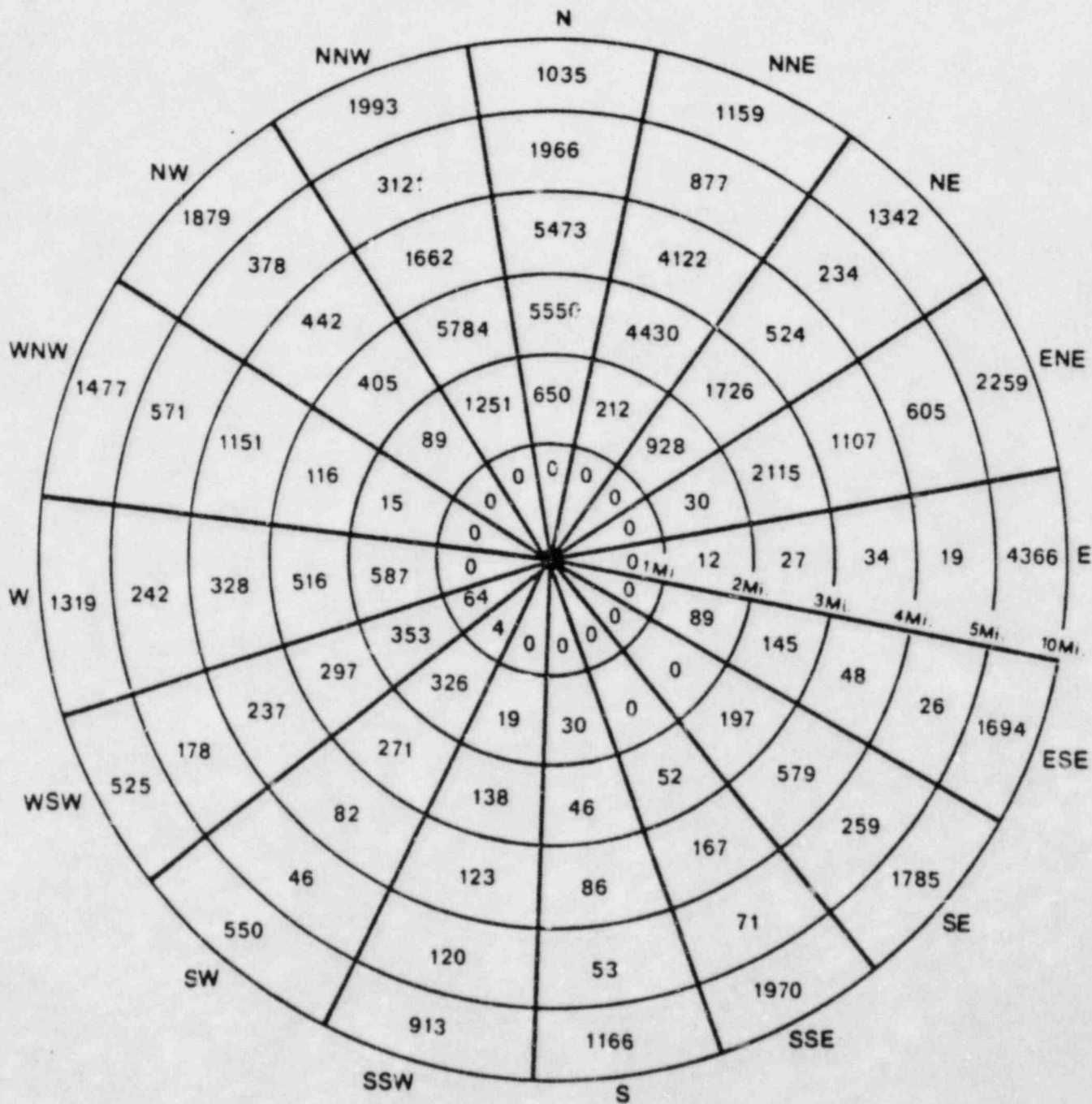
FSAR Figure 2.1-6



Annulus	0-1Mi.	1-2Mi.	2-3Mi.	3-4Mi.	4-5Mi.	5-10Mi.	Total
Population	68	4591	21,815	16,165	8766	25,432	76,837

FOR POPULATION TOTALS OF EACH SEGMENT SEE TABLE 2, 1-2

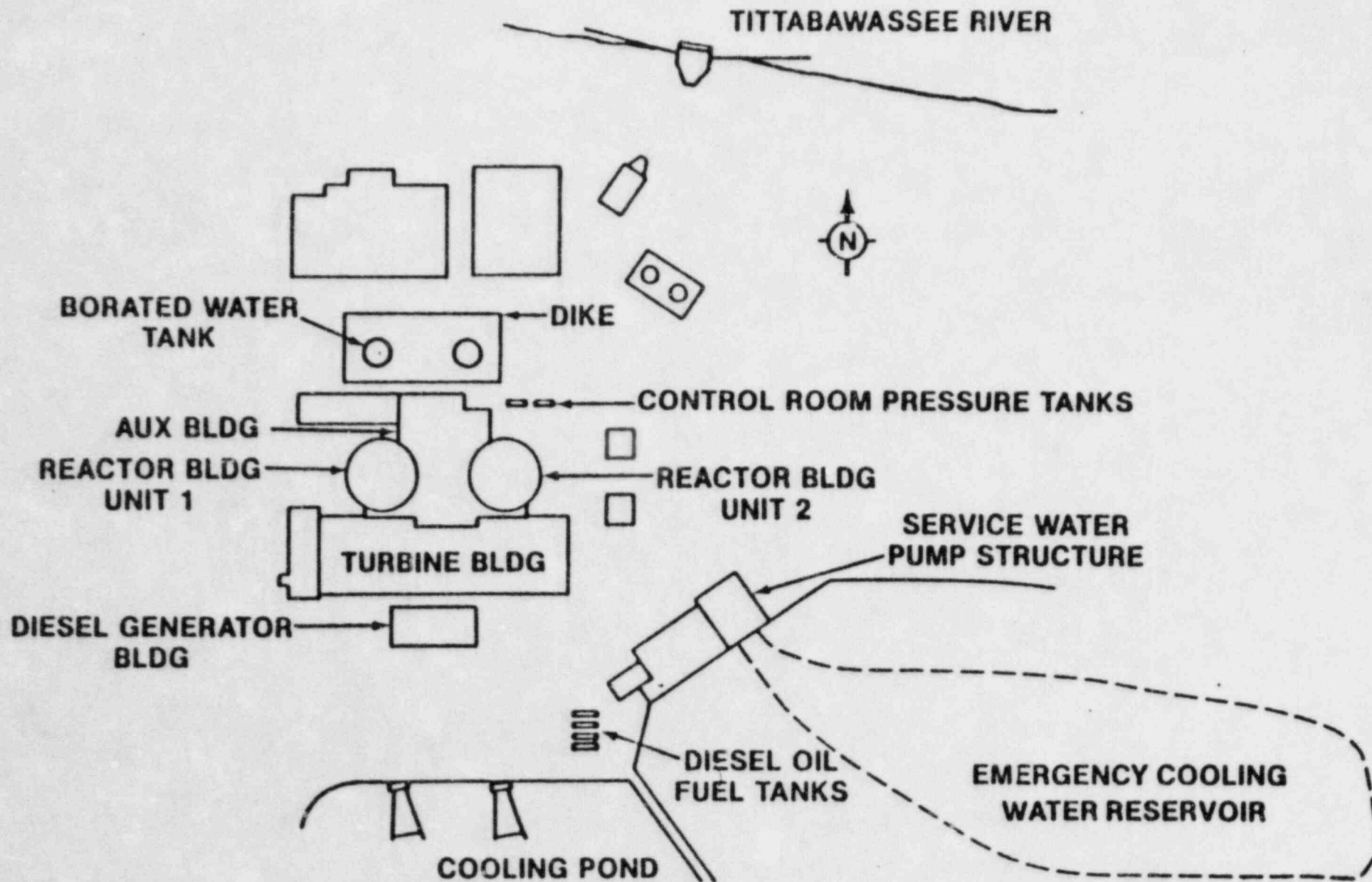
51, 20, 7



**GENERAL CIVIL DESIGN  
MAJOR CATEGORY I  
STRUCTURES**

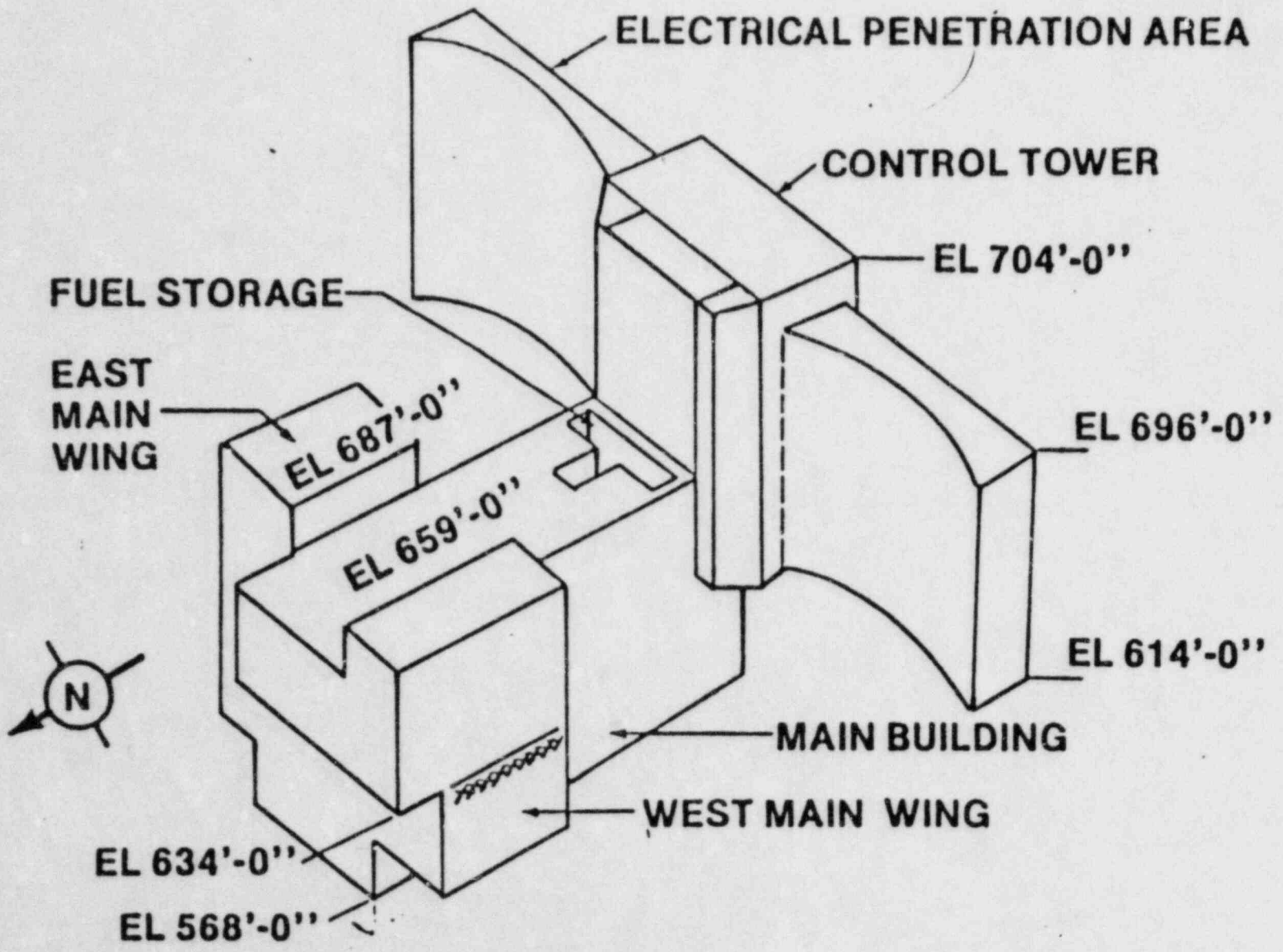
- REACTOR BUILDINGS
- AUXILIARY BUILDING
- DIESEL GENERATOR BUILDING
- SERVICE WATER PUMP STRUCTURE
- BURIED PIPES AND TANKS
- BORATED WATER TANKS

# GENERAL CIVIL DESIGN MIDLAND SITE PLAN

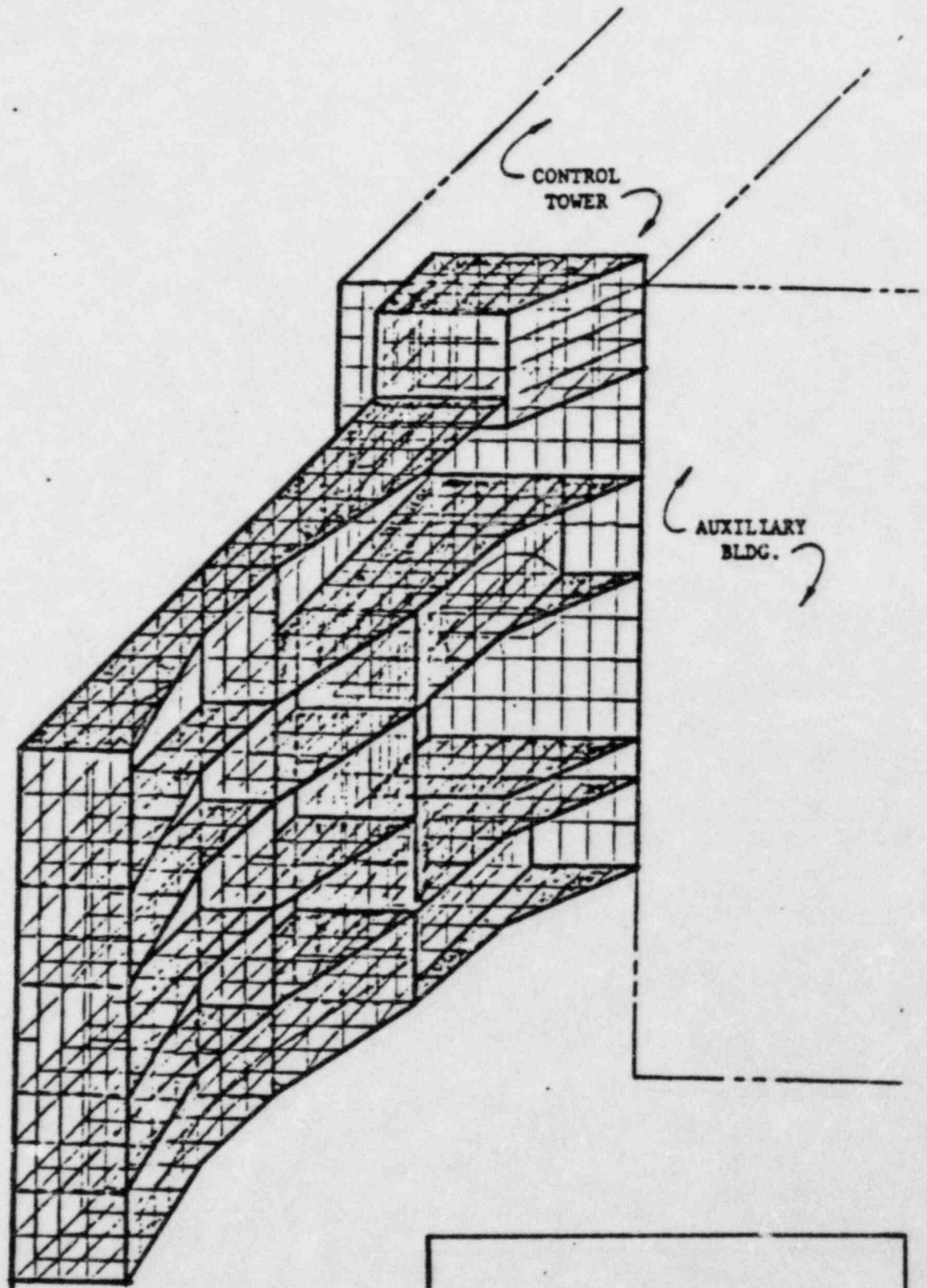












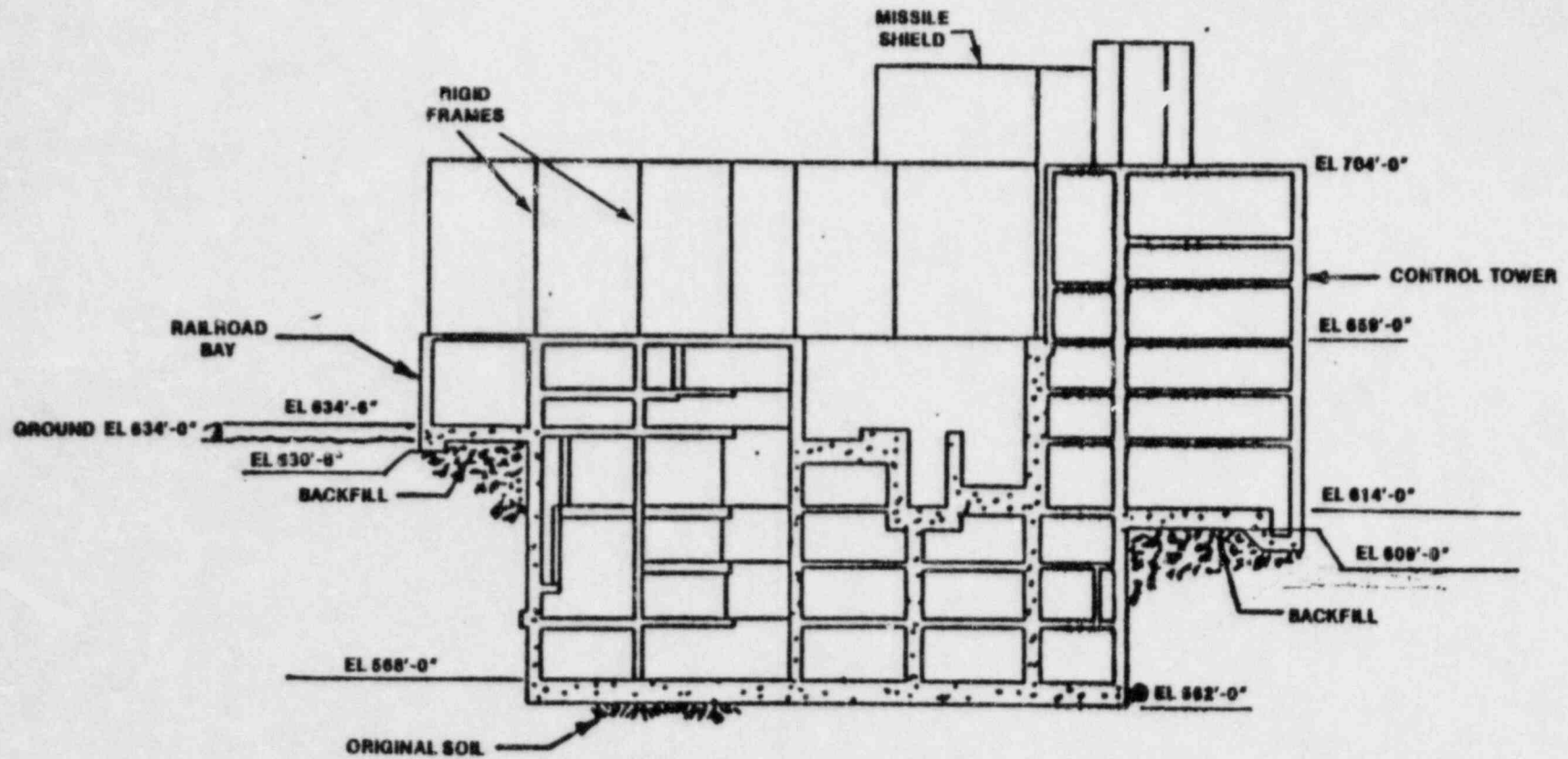
FINITE ELEMENT MODEL

# AUXILIARY BUILDING

UNIT #2 ELECTRICAL PENETRATION AREA (LOOKING WEST)

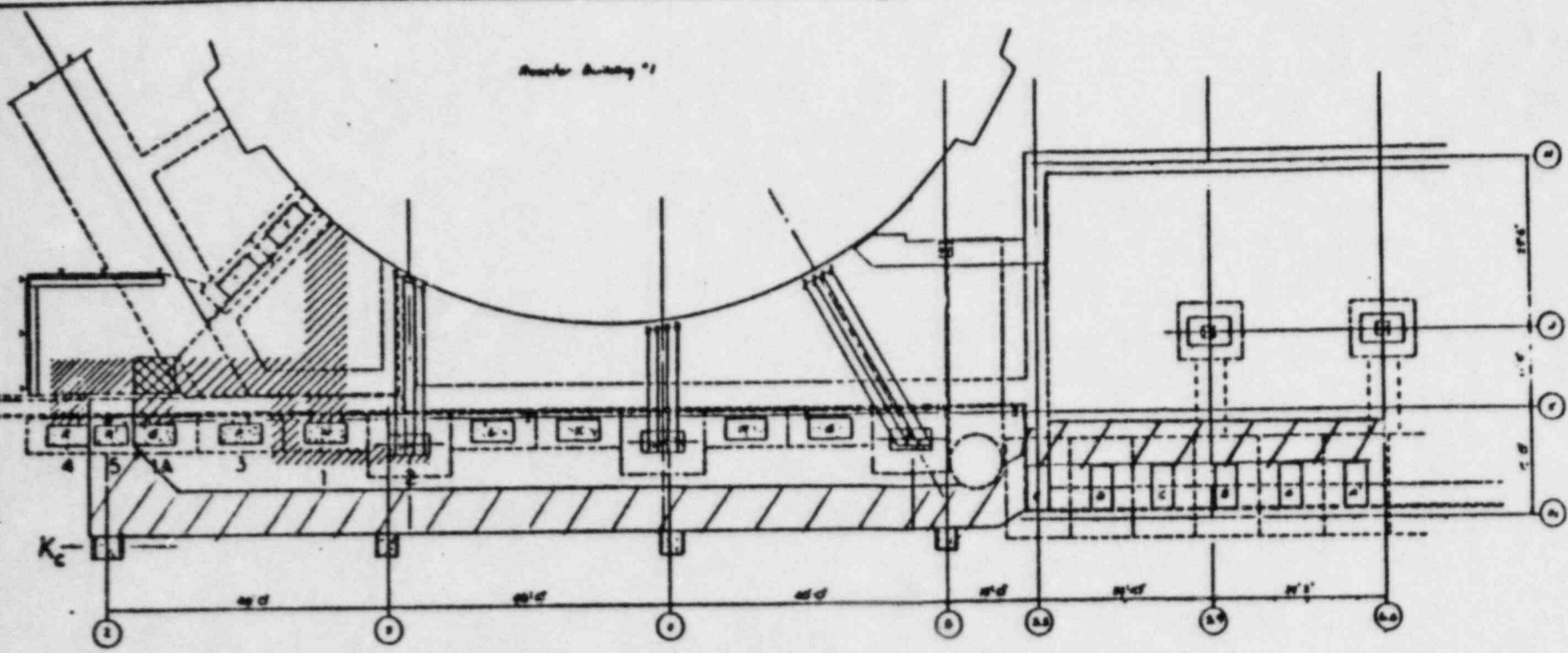
ELECTRICAL PENETRATION WING -  
PRELIMINARY FINITE ELEMENT MODEL

**MIDLAND PLANT UNITS 1&2**  
CONSUMERS POWER COMPANY



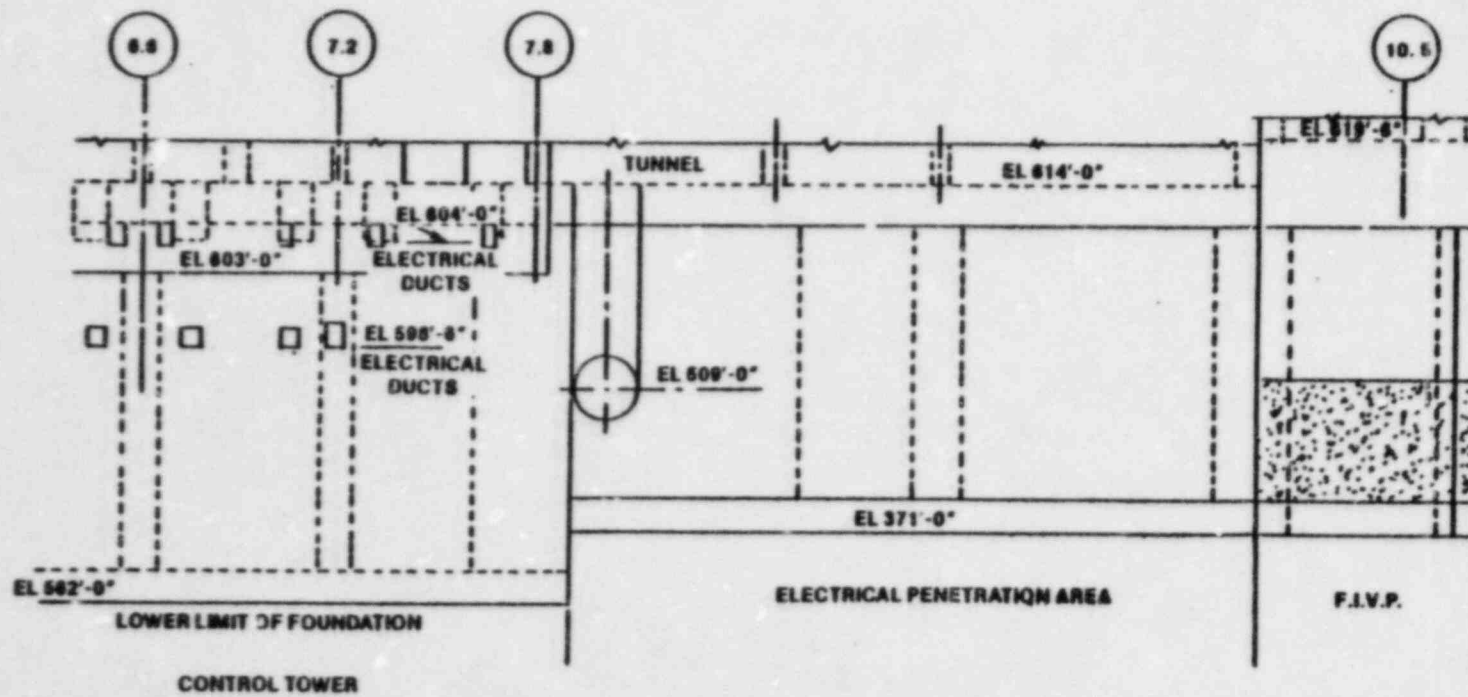
TYPICAL SECTION (LOOKING EAST)

<p><b>CONSUMERS POWER COMPANY MIDLAND UNITS 1 AND 2</b></p>
<p><b>AUXILIARY BUILDING SECTION</b></p>
<p><b>FIGURE II-2</b></p>



GENERAL PLAN  
(WEST SIDE)

<p>CONSUMERS POWER COMPANY MIDLAND PLANT UNITS 1 &amp; 2</p>
<p>CONCEPT DRAWING UNDERPINNING AUXILIARY BUILDING GENERAL PLAN</p>
<p>APPENDIX C FIGURE 1</p>

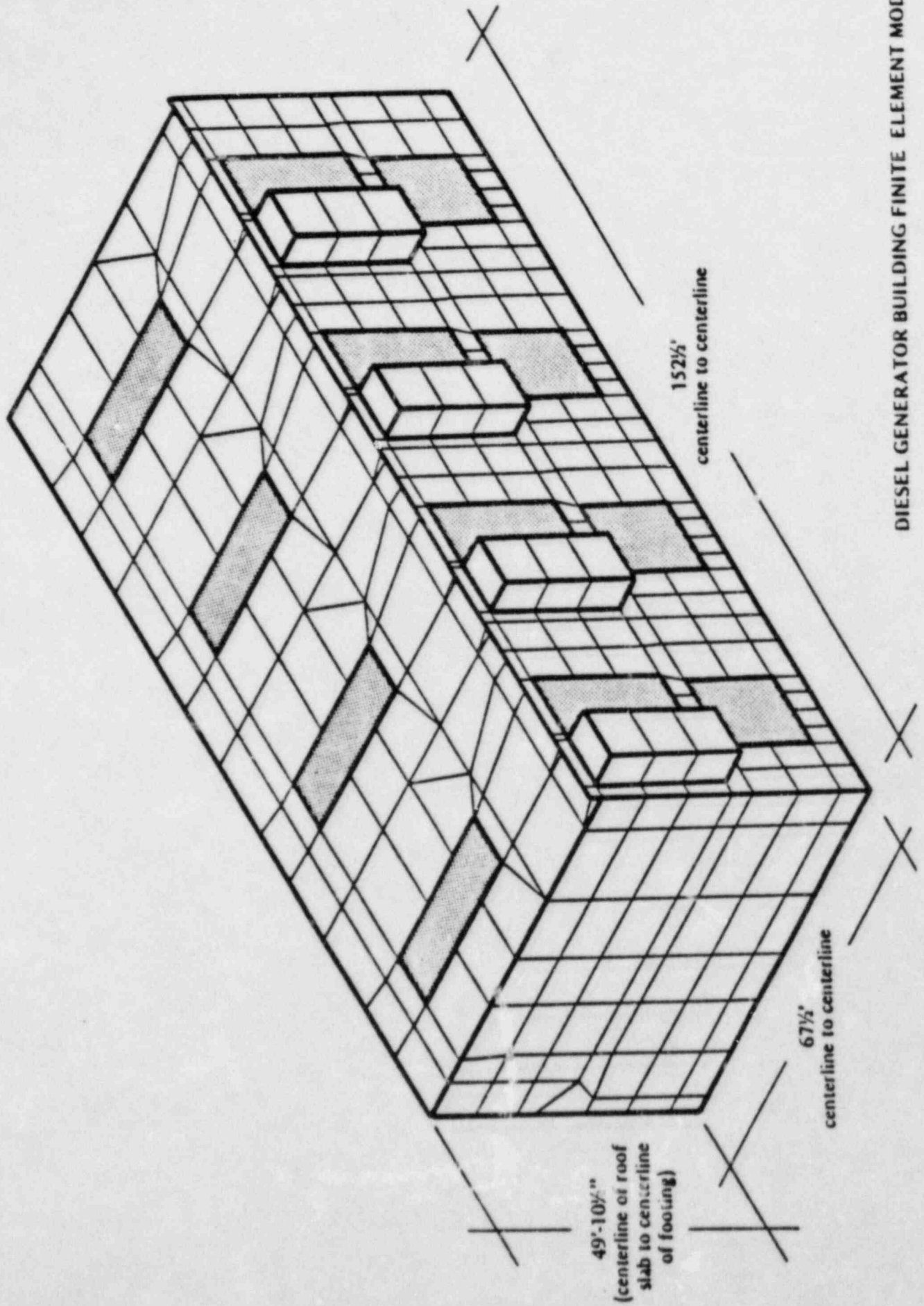


**CONSUMERS POWER COMPANY  
 MIDLAND UNITS 1 AND 2**

**SOUTH ELEVATION OF  
 UNDERPINNING WALL**

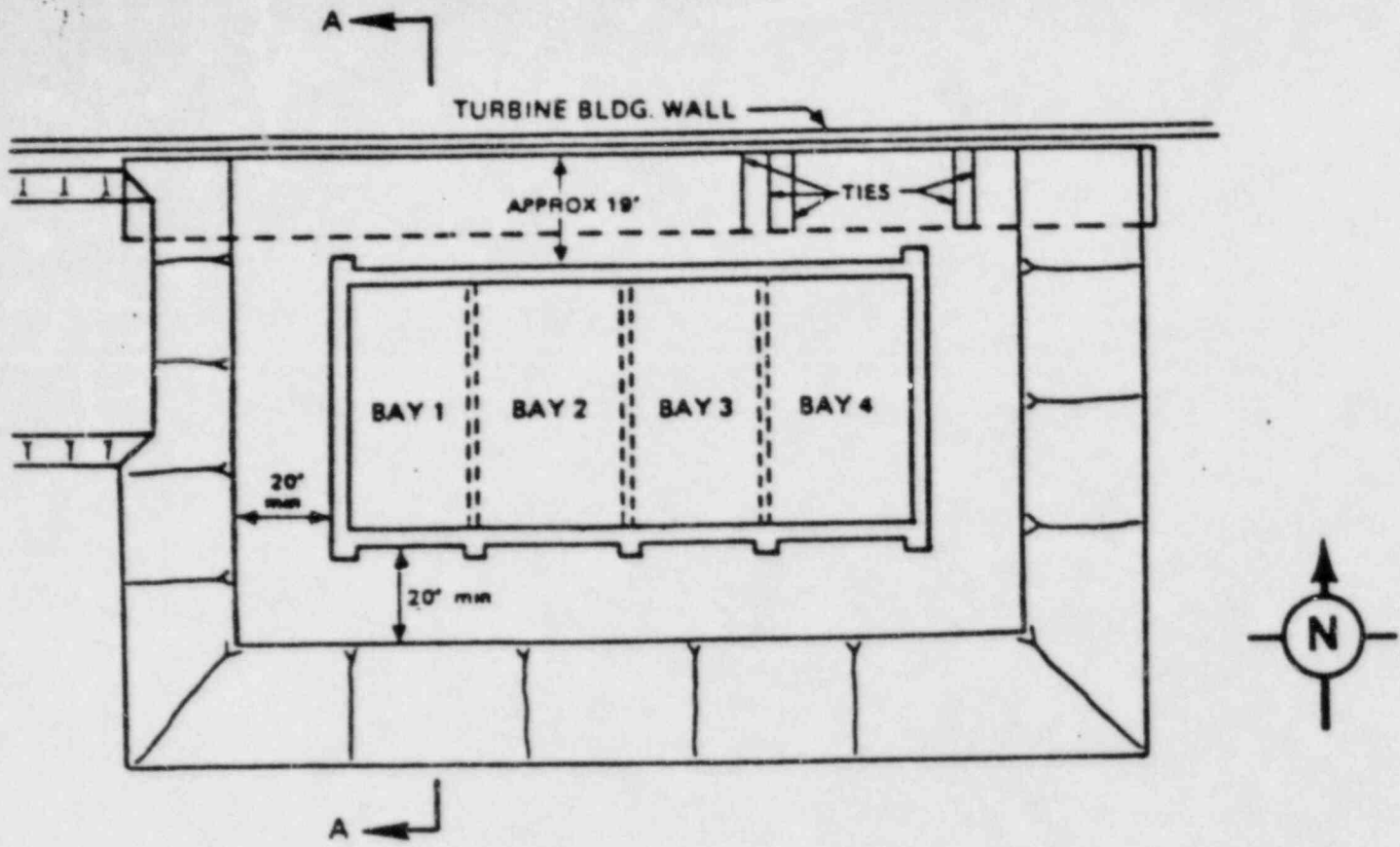
**FIGURE II-4**



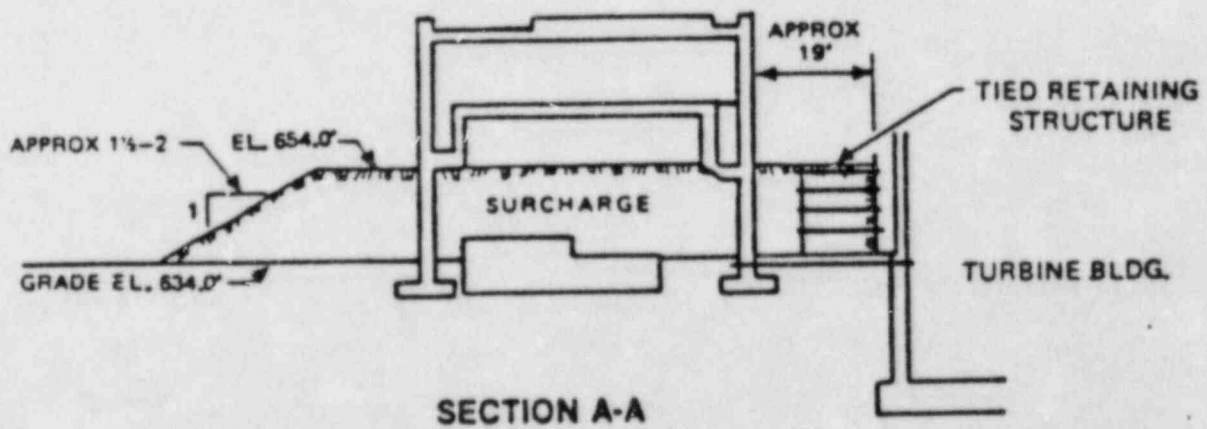


DIESEL GENERATOR BUILDING FINITE ELEMENT MODEL

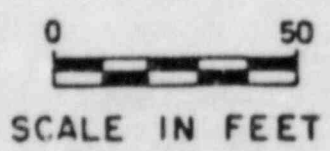




PLAN



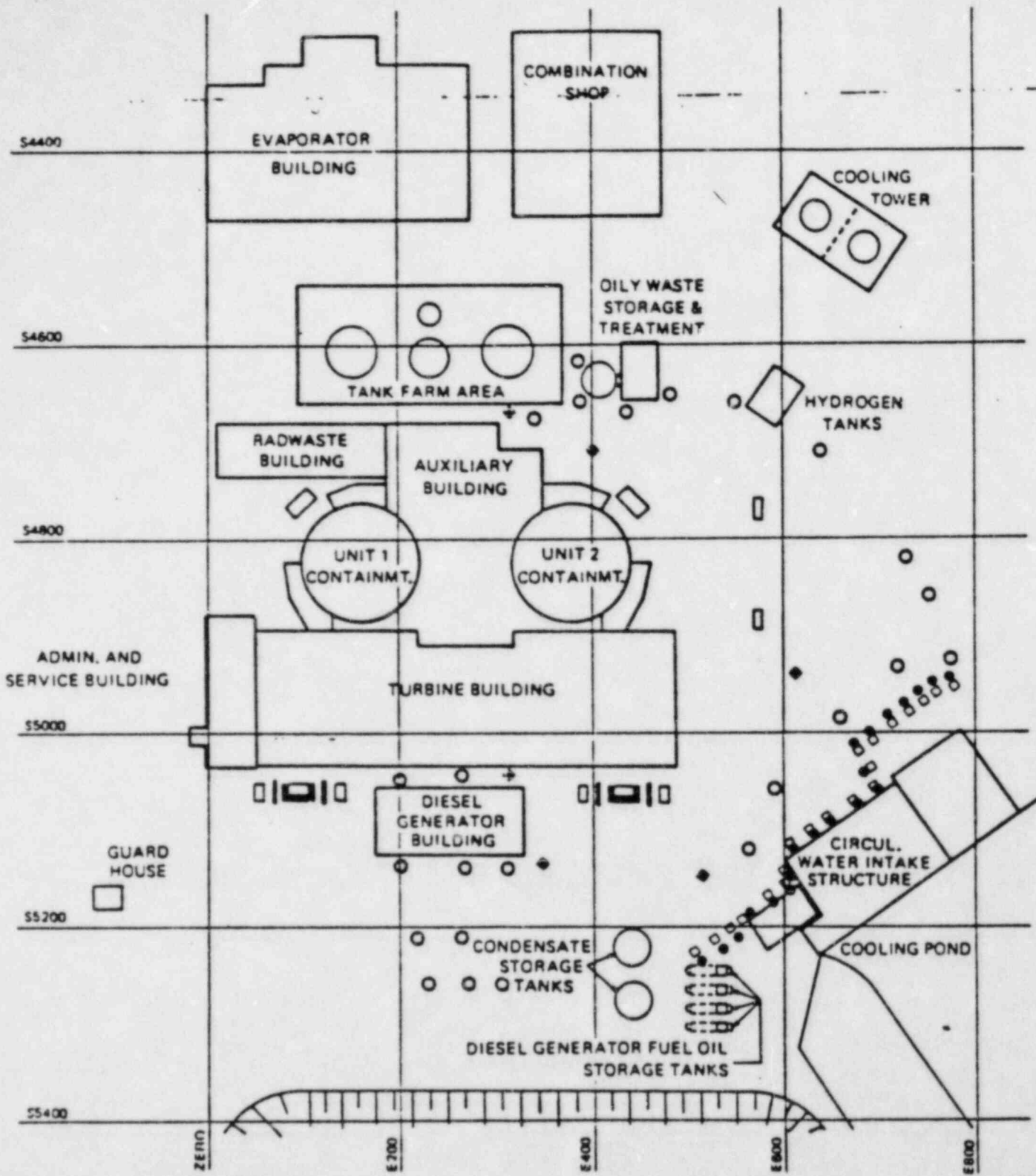
SECTION A-A



CONSUMERS POWER COMPANY  
MIDLAND UNITS 1 AND 2

GENERAL LAYOUT OF  
SURCHARGE LOAD DIESEL  
GENERATOR BUILDING

FIGURE I-1



- EXPLANATION**
- INTERCEPTOR WELL
  - BACKUP INTERCEPTOR WELL
  - AREA WELL
  - ◆ MONITORING WELL

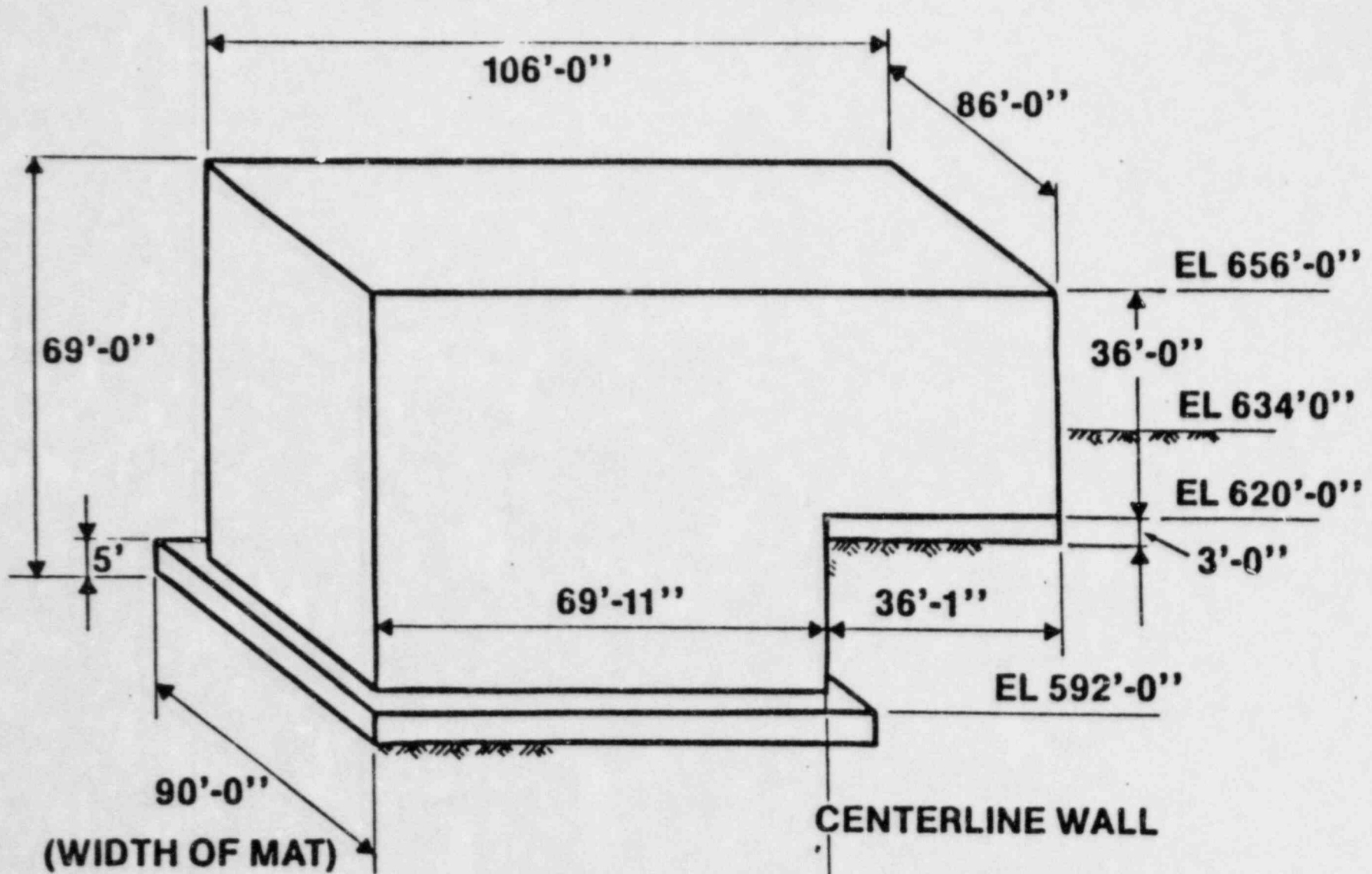


**CONSUMERS POWER COMPANY  
MIDLAND UNITS 1 AND 2**

**PLAN OF PERMANENT  
DEWATERING SYSTEM**

**FIGURE V-2**

# SERVICE WATER PUMP STRUCTURE

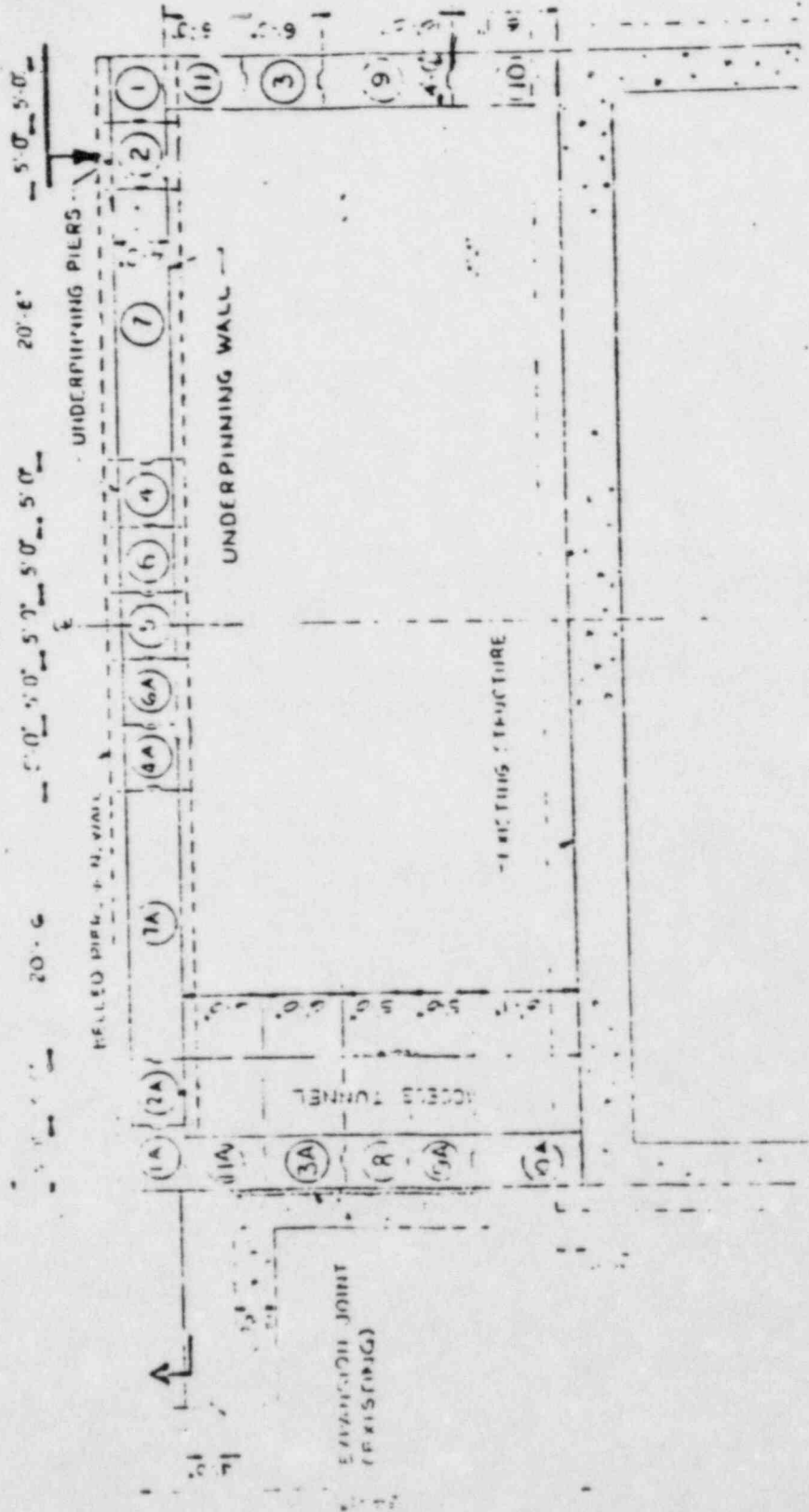




CIRCULATING WATER  
HEAVY STEEL TUBE

SERVICE WATER PUMP STRUCTURE

86'-0"



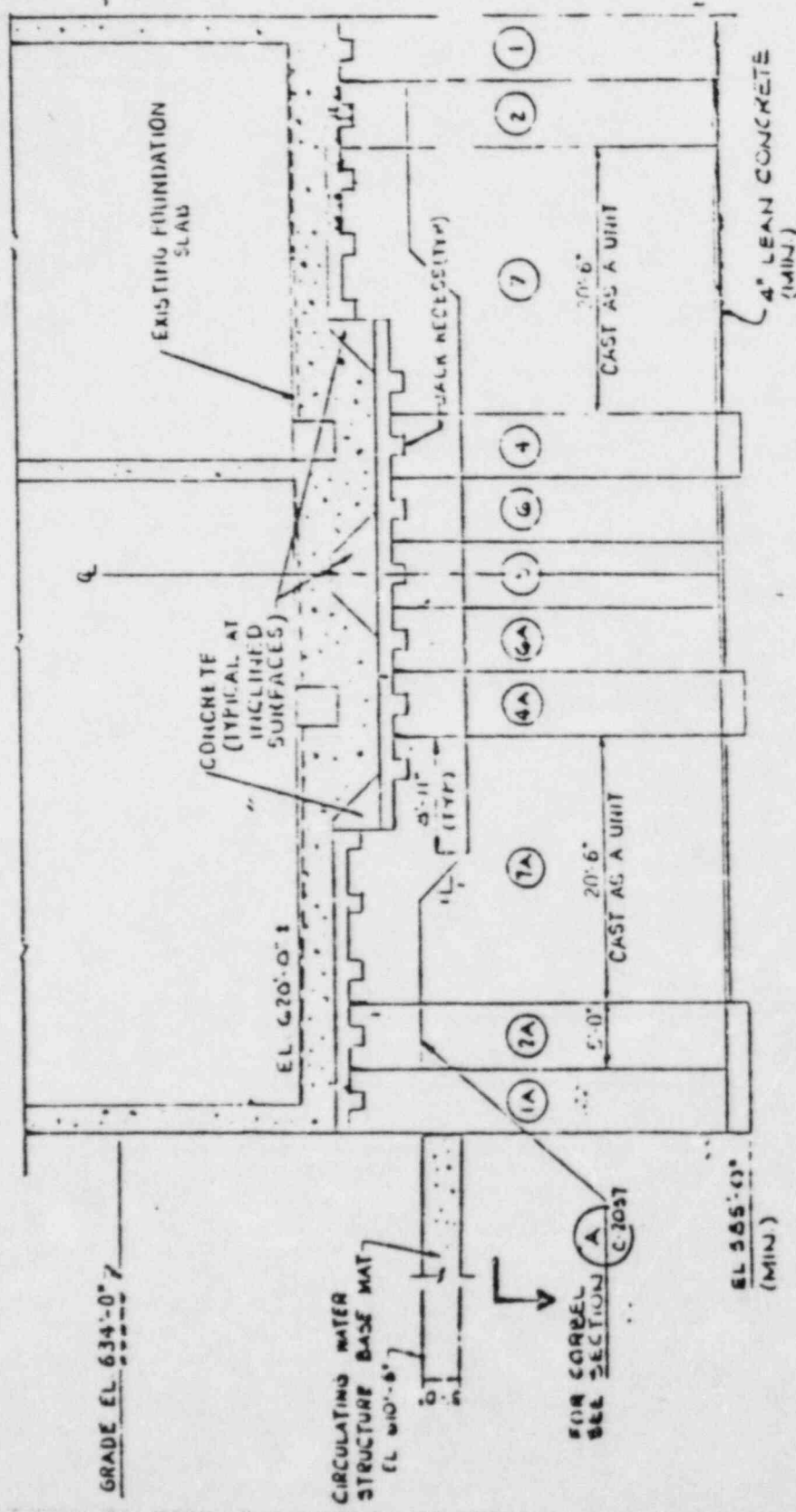
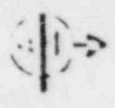
SECTION A  
51235

4'-0"

- ⑤ UNDERPINNING PIERS, CON-  
STRUCTION 5/19/61 BORING
- ⑥ UNDERPINNING PIERS
- ⑦ CONSTRUCTION JOINT

Figure 2.9 Continued

EL. 64



SECTION **B**  
C-2035

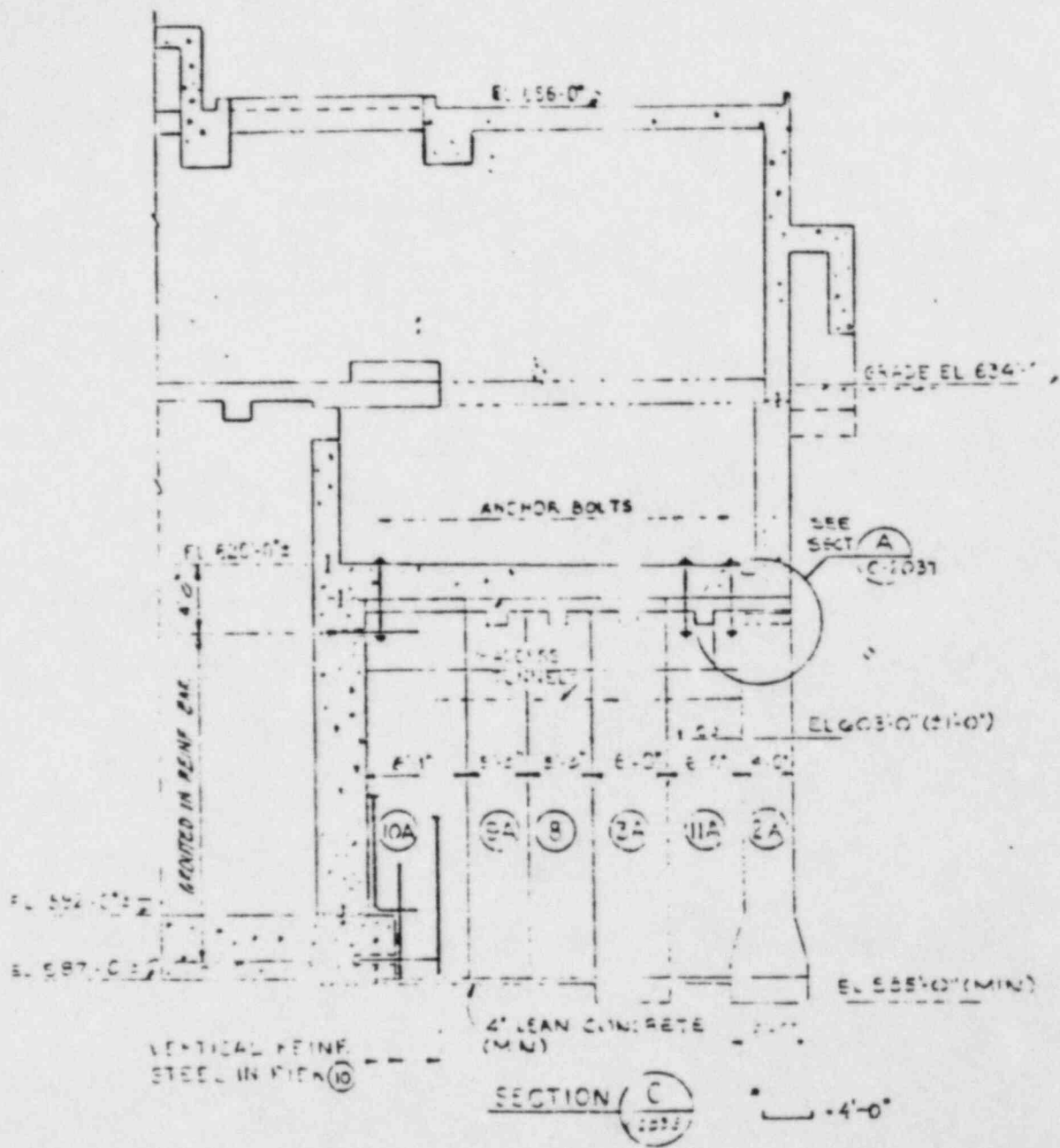
(PIERS NO. (1) NOT SHOWN)

LEGEND

- ③ UNDERPINNING PIERS CONSTRUCTION SEQUENCE NUMBER
- NEW UNDERPINNING PIERS
- ▨ EXISTING STRUCTURE
- C-J CONSTRUCTION JOINT

Figure 2.9 Continued

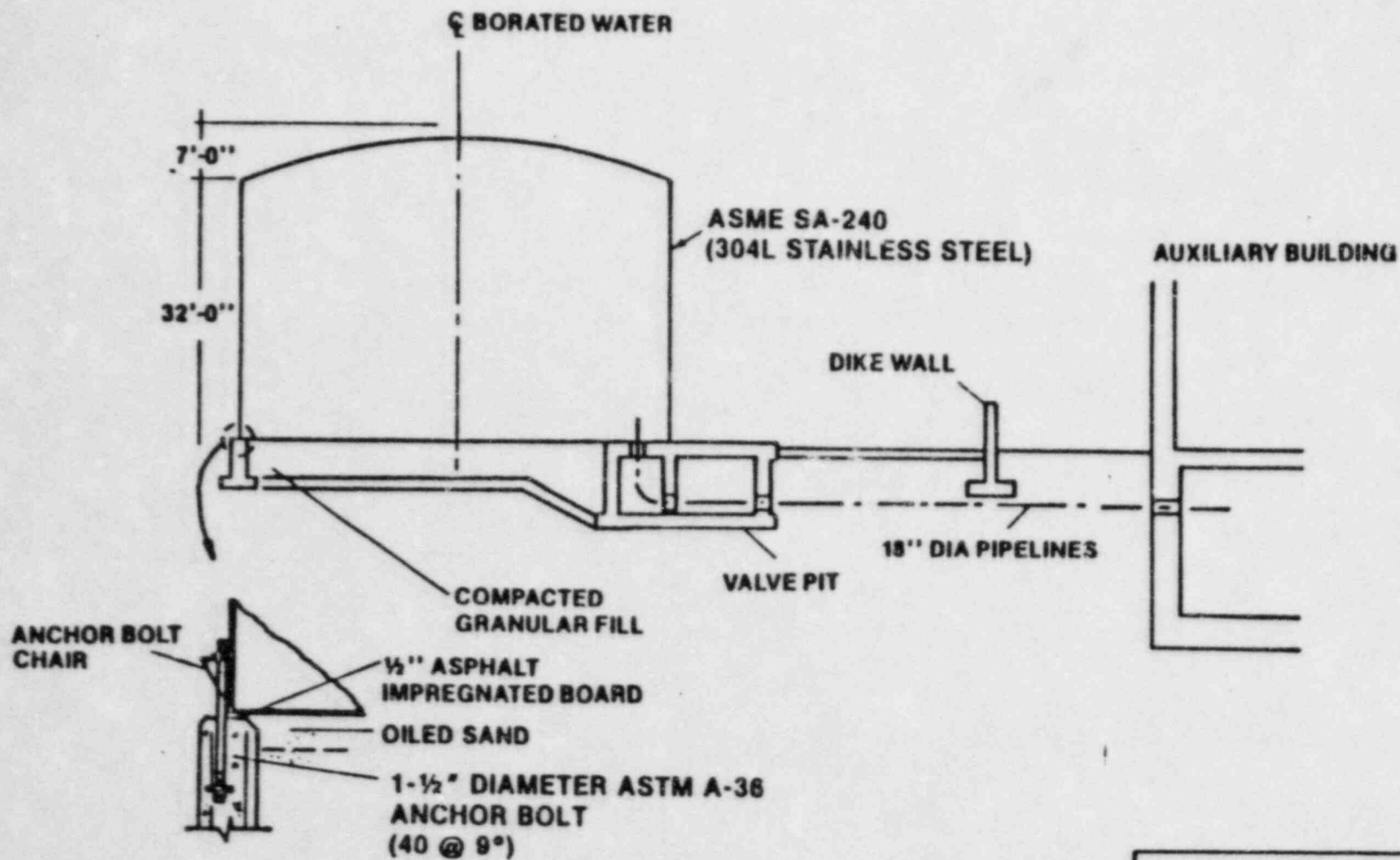




NOTE: CLEARANCE BETWEEN PIERS IS SHOWN

LEGEND	
(S)	UNDERPINNING PIERS CONSTRUCTION SEQUENCE NUMBER
—	NEW UNDERPINNING PIERS
—	EXISTING STRUCTURE
C	CONSTRUCTION JOINT

Figure 2.9 Continued



CONSUMERS POWER COMPANY  
 MIDLAND UNITS 1 AND 2

BORATED WATER STORAGE  
 TANK

FIGURE IV-1

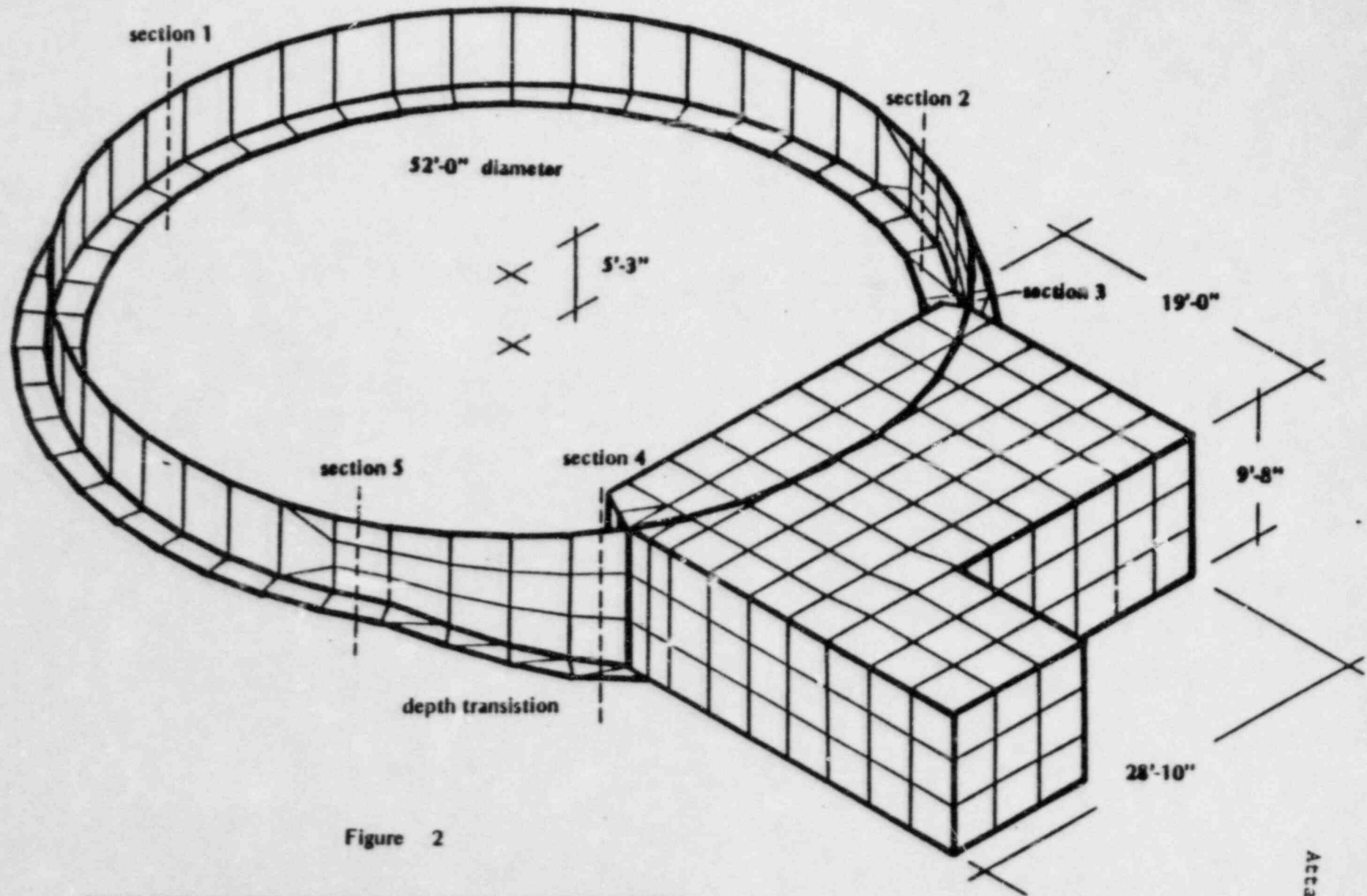


Figure 2

BWST FOUNDATION STRUCTURE FINITE ELEMENT MODEL

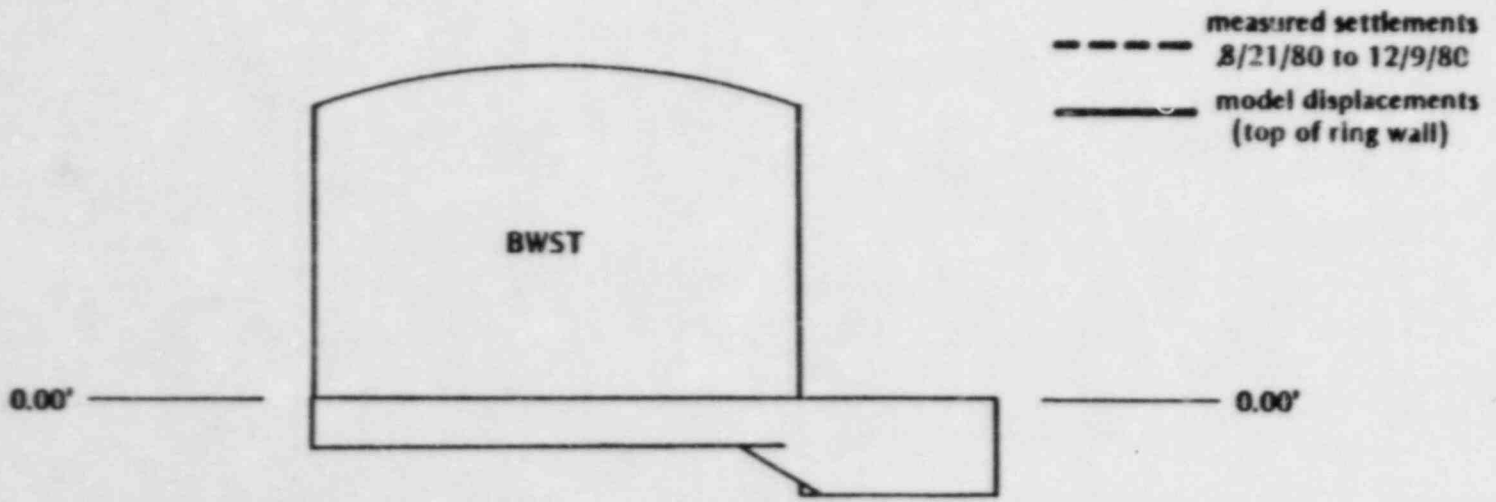
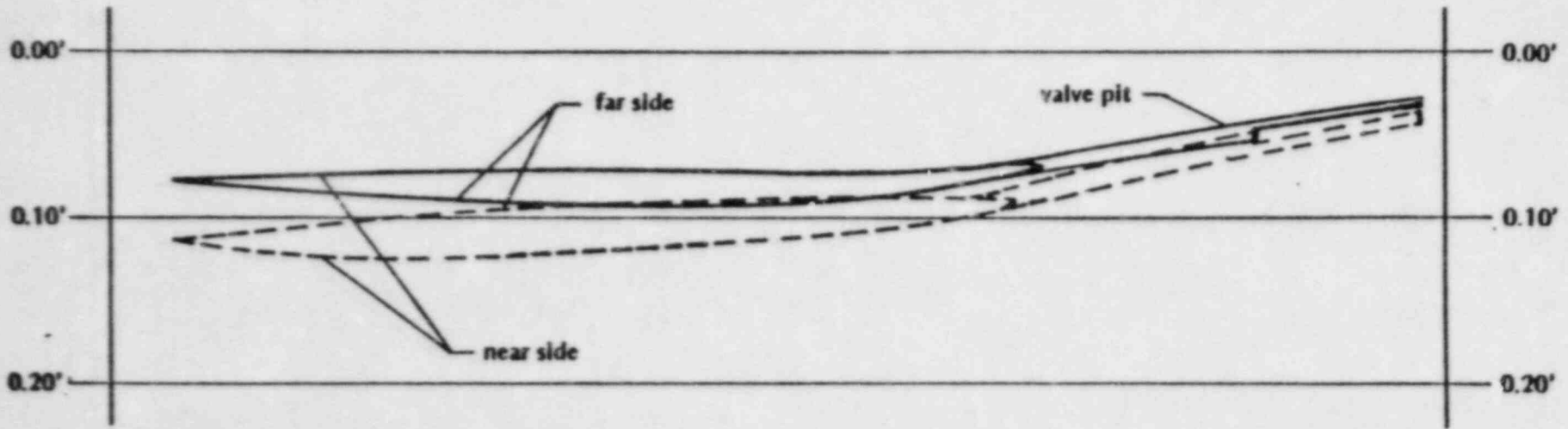
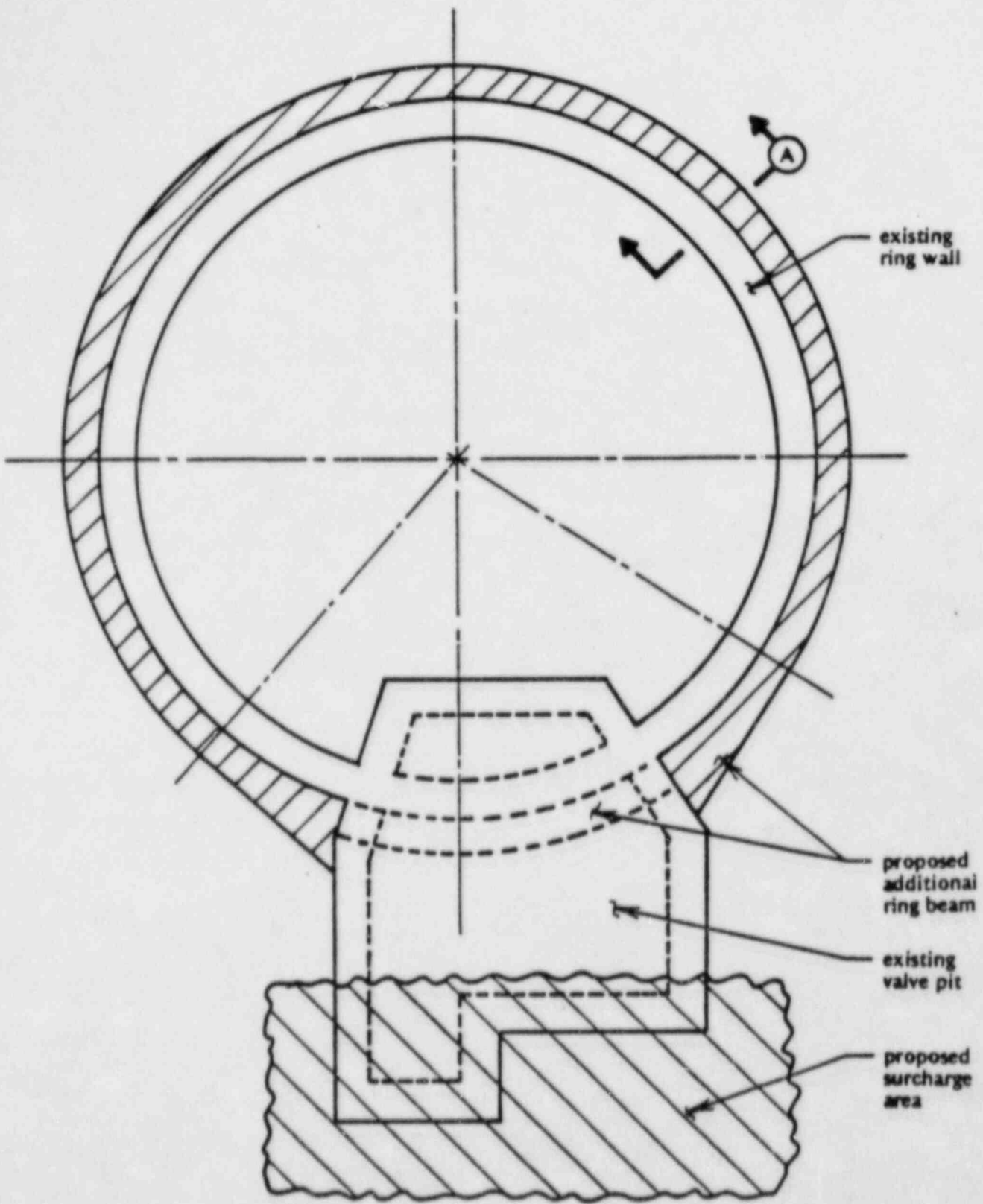


Figure 5

BWST FINITE ELEMENT MODEL DISPLACEMENTS & MEASURED SETTLEMENTS



plan BWST 1T-60 (2T-60 sim.)

Figure 1  
REMEDIAL MEASURES FOR BWST FOUNDATION STRUCTURE



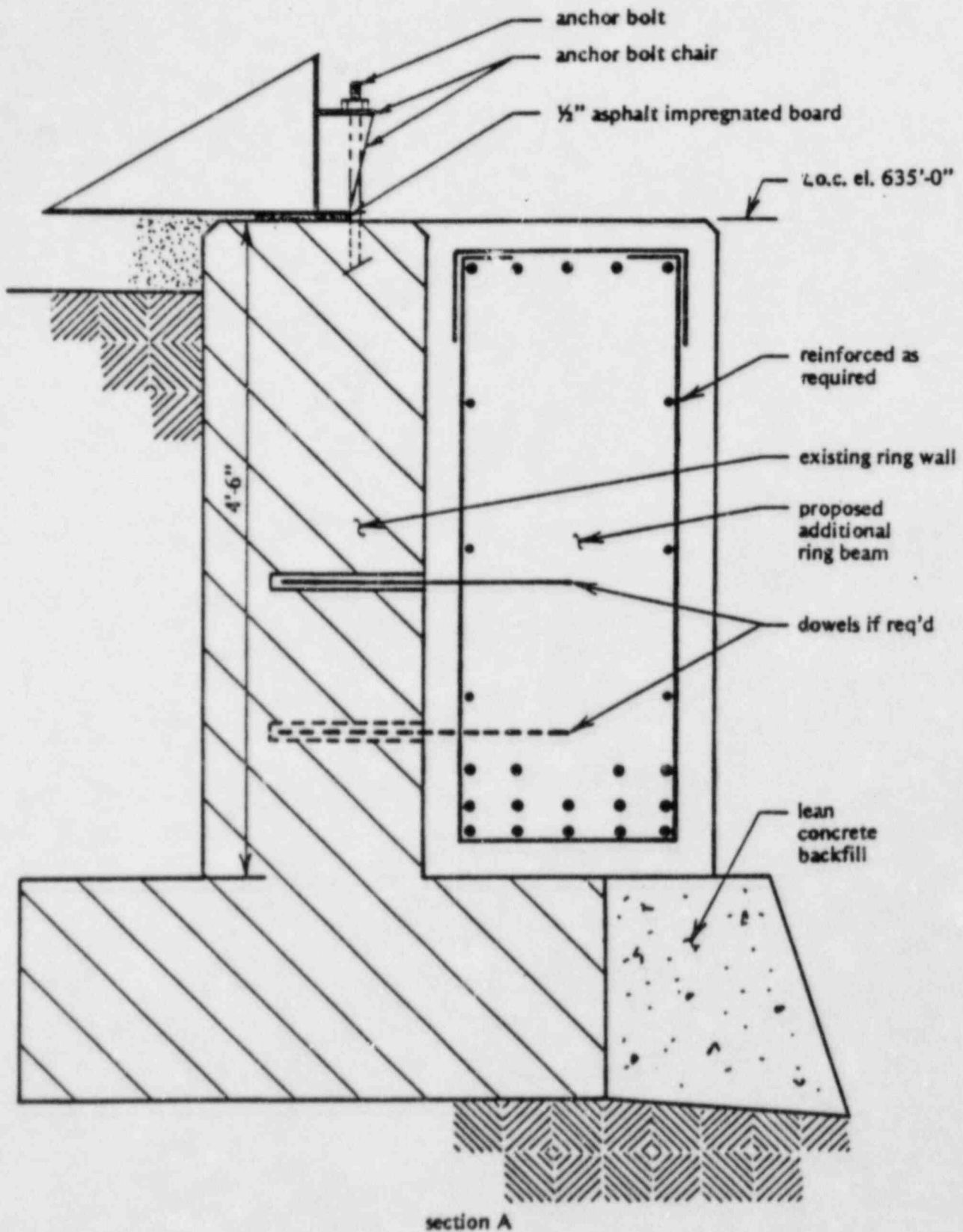


Figure 2

REMEDIAL MEASURES FOR BWST FOUNDATION STRUCTURE

L 3-1/2" x 2-1/2" x 5'16"

R = 52'

1/4" TYP

3/8" (BOTTOM RING)

TOC EL  
635'-1 1/2"

1/4" BOTTOM

F N GR 634 1/2

2'-0"

6" OILED SAND

1'-6"

RING BEAM

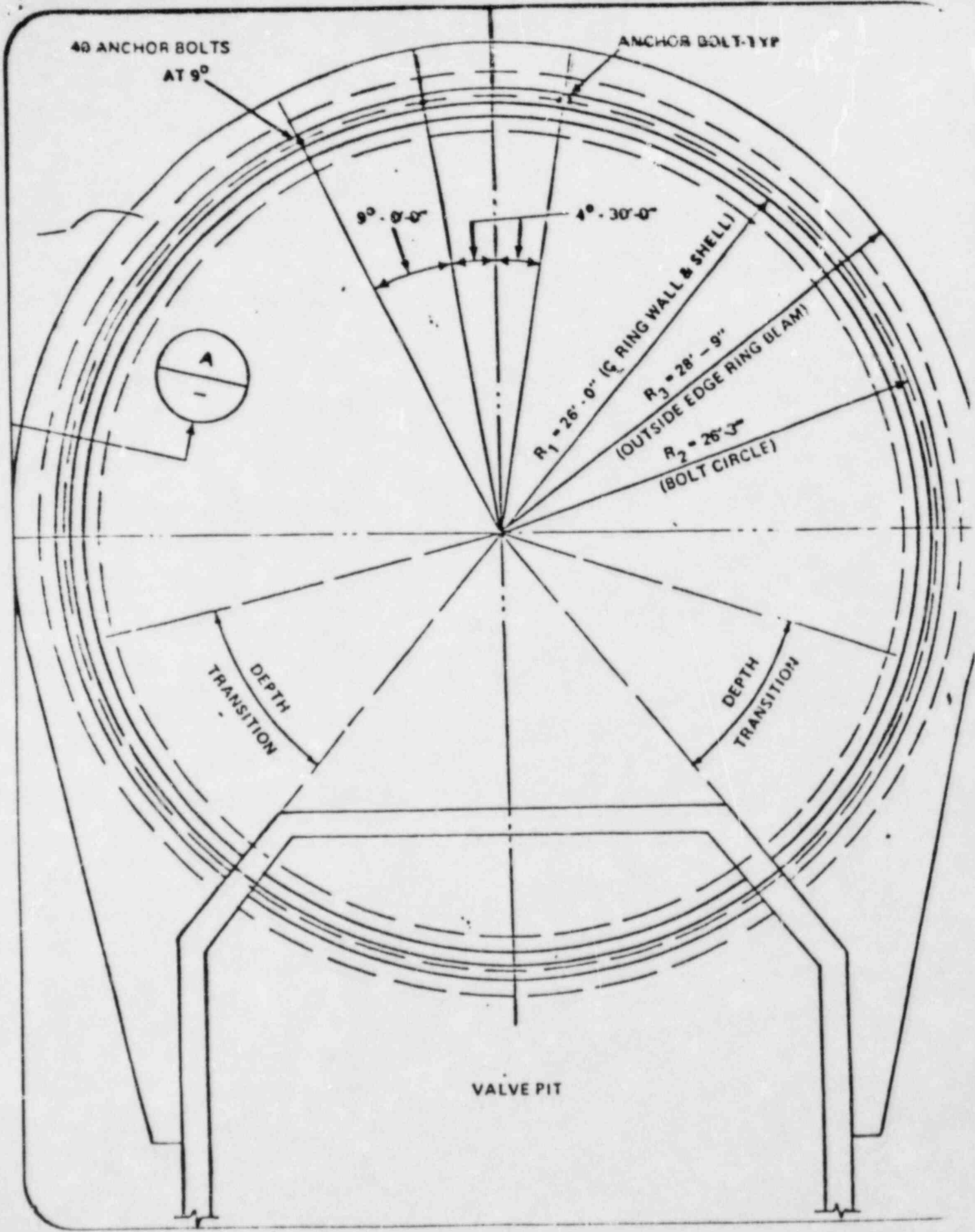
RING WALL

LEAN  
CONCRETE  
BACKFILL

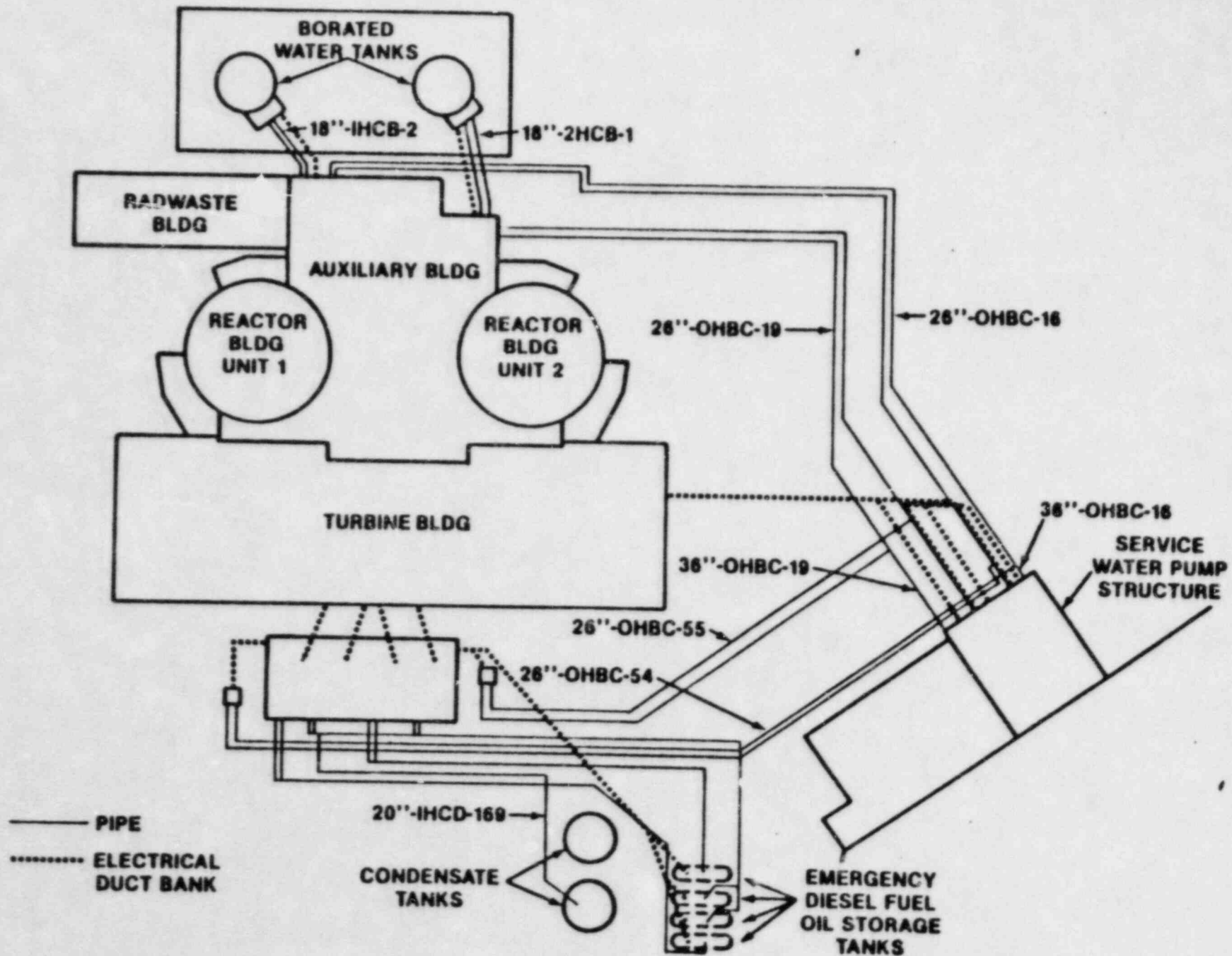
FOOTING

SECTION





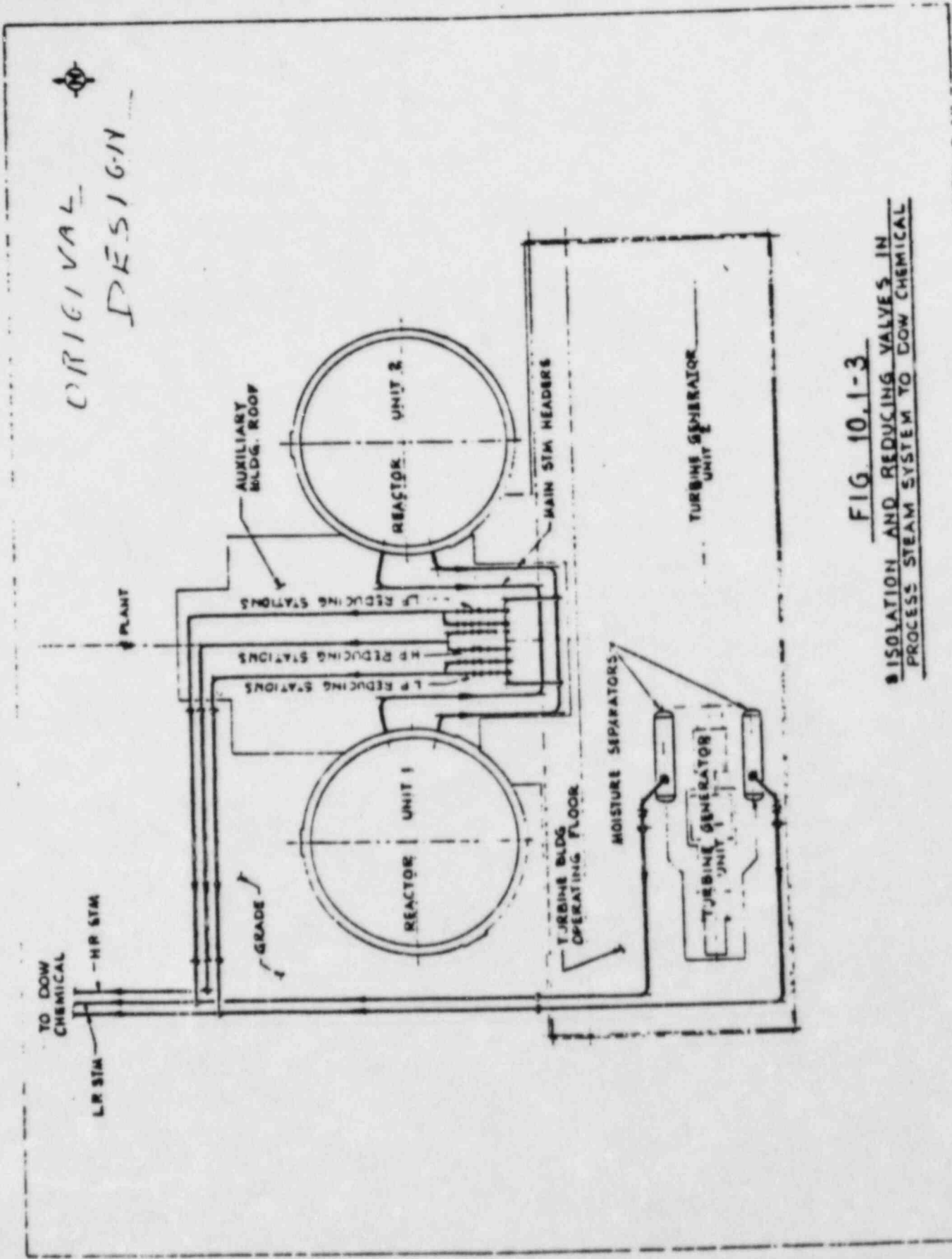
# PLAN OF PIPE PROFILING LOCATIONS



## STATUS OF SOILS WORK

20 FT. SAND SURCHARGE FOR DIESEL GENERATOR BUILDING	COMPLETED
30 FT. UNDERPINNING WALL BENEATH SOUTHERN PORTION OF AUXILIARY BUILDING AND FEED-WATER ISOLATION VALVE PIT	APPROACH DRIFT AND PIERS BENEATH ADJACENT TURBINE BUILDING BEGAN 12/82.
30 FT. UNDERPINNING WALL BENEATH NORTHERN PORTION OF SERVICE WATER PUMP STRUCTURE (SWPS)	CONSTRUCTION DEWATERING IN PROGRESS
STIFFEN BORATED WATER STORAGE TANK RING FOUNDATION	EXCAVATION FOR NEW WALL COMPLETED
REPLACE AND REBED UNDERGROUND PIPE	COMPLETED EXCEPT NEAR SWPS
PERMANENT SITE DEWATERING	WELLS INSTALLED

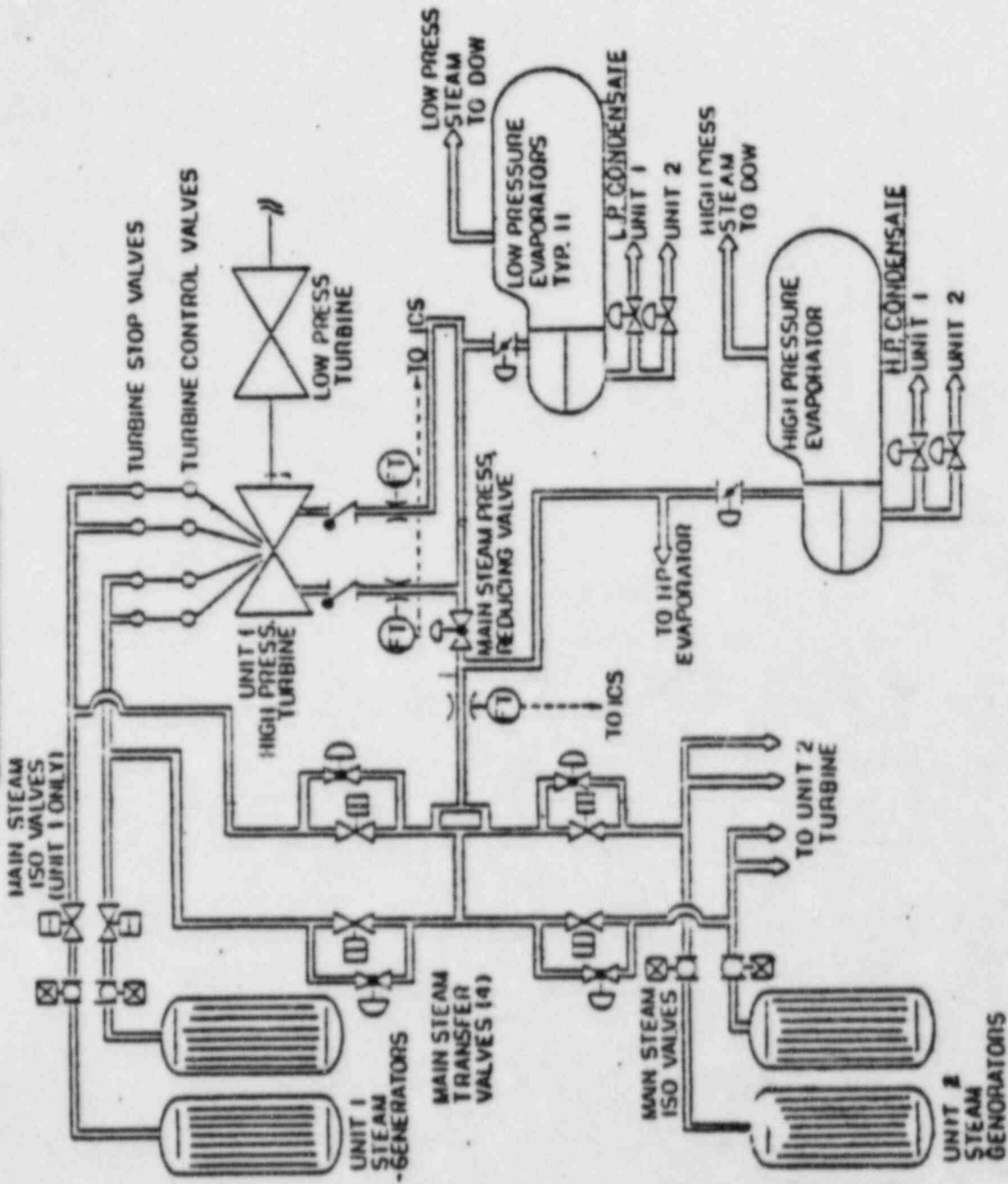


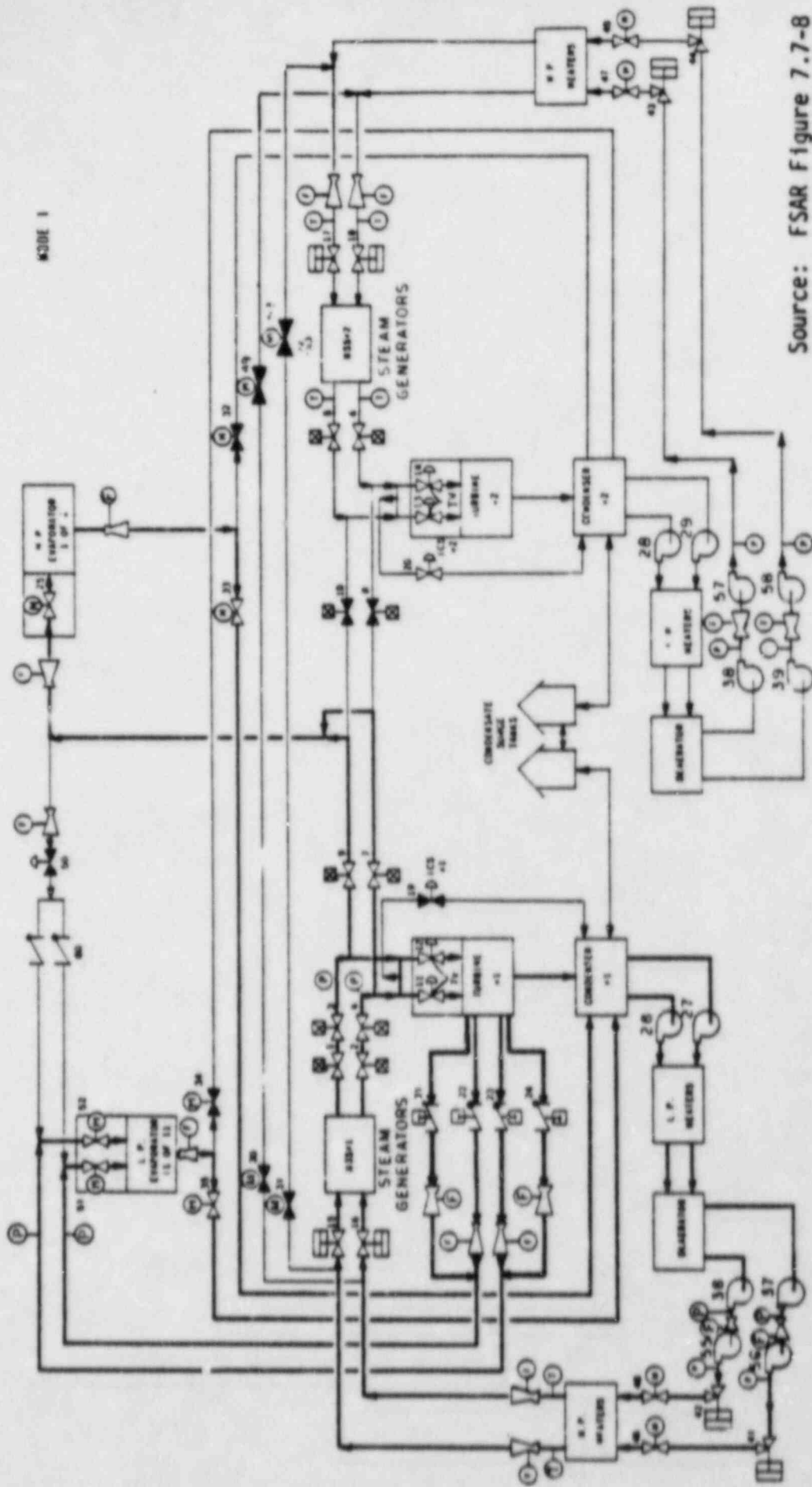


ORIGINAL  
DESIGN

FIG. 10.1-3  
ISOLATION AND REDUCING VALVES IN  
PROCESS STEAM SYSTEM TO DOW CHEMICAL

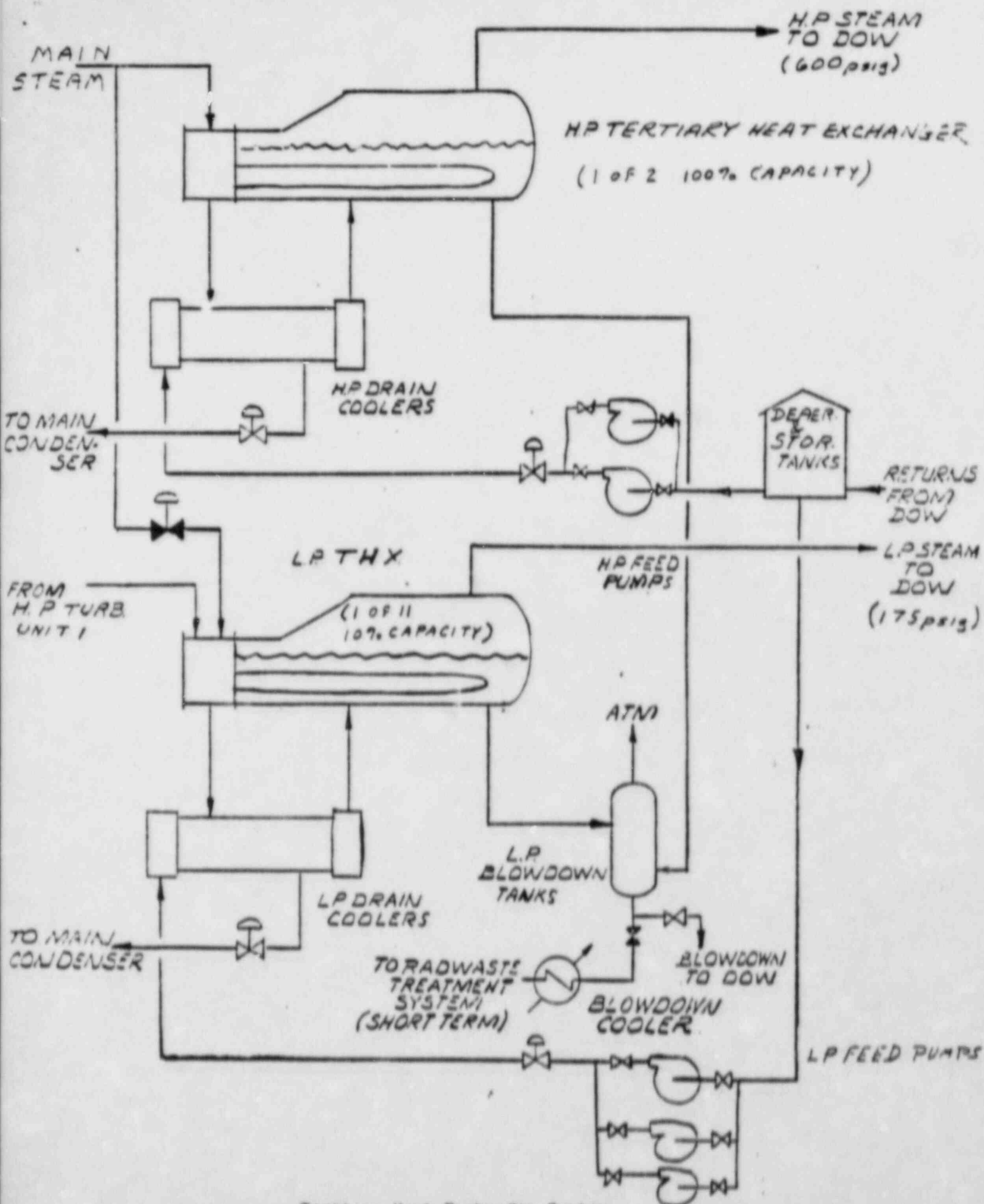
# PROCESS STEAM SYSTEM



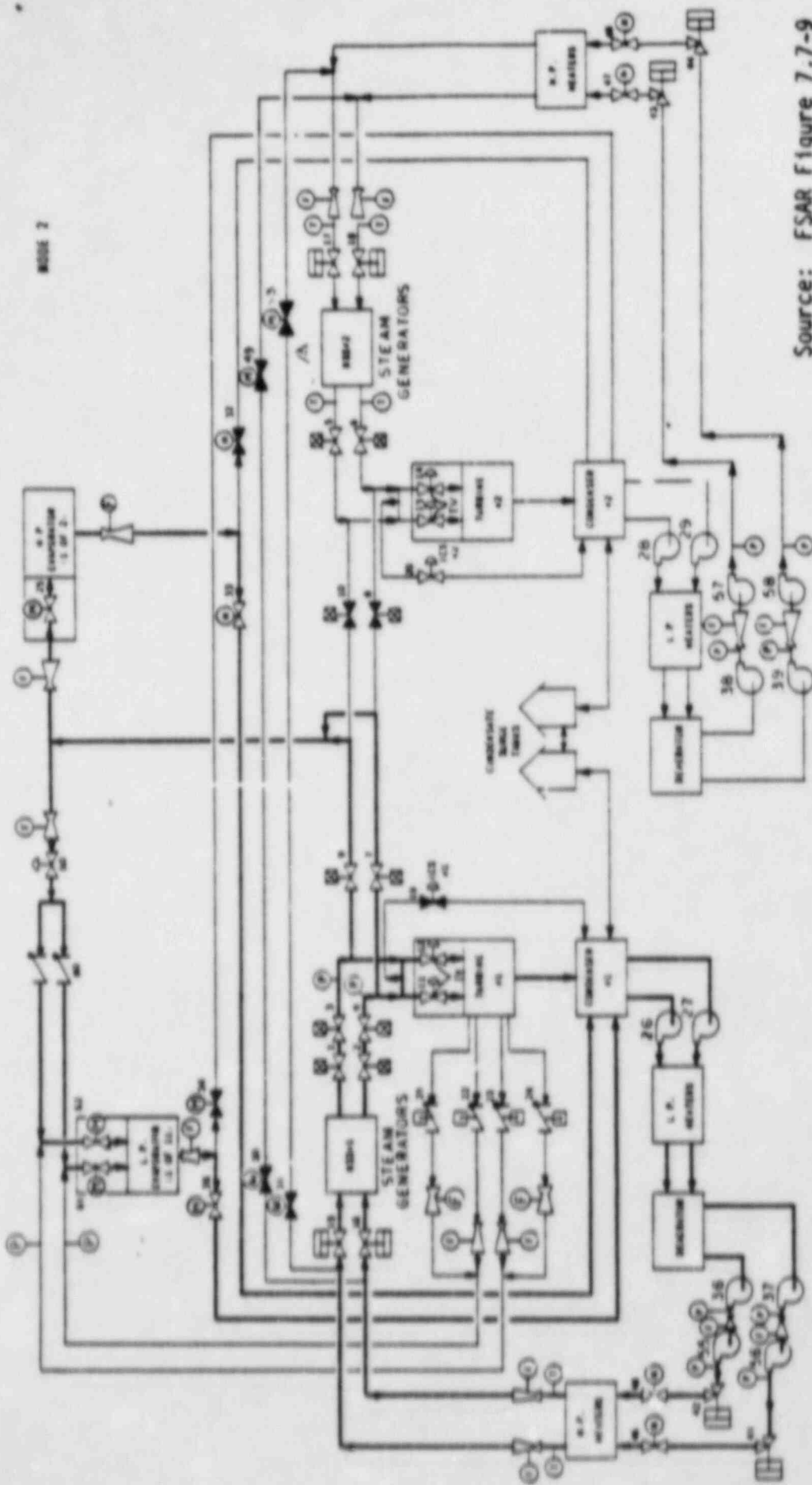


Source: FSAR Figure 7.7-8

Figure 10.1 Process steam transfer system, mode 1



Tertiary Heat Exchanger System

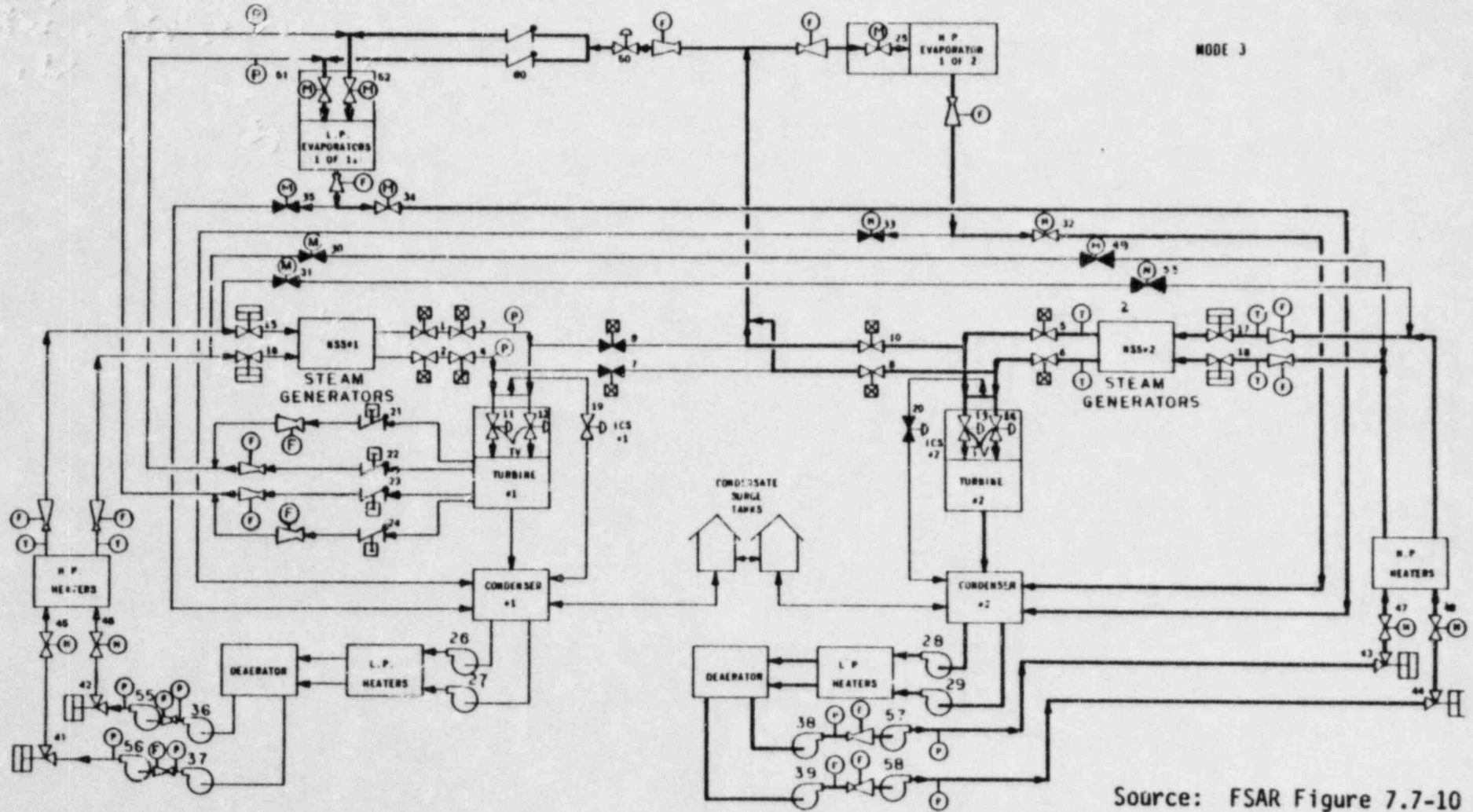


MODE 2

Source: FSAR Figure 7.7-9

Figure 10.2 Process steam transfer system, mode 2

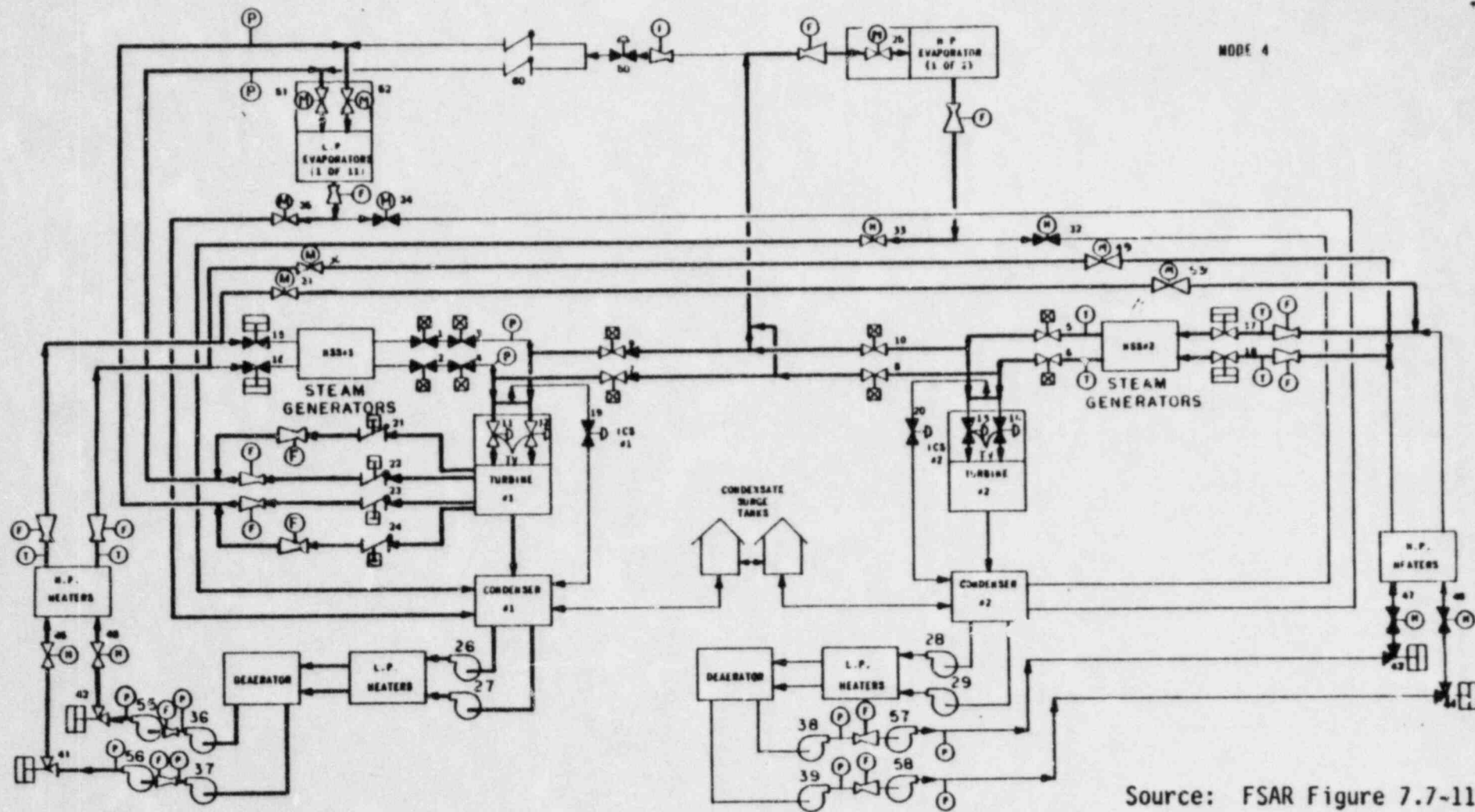




MODE 3

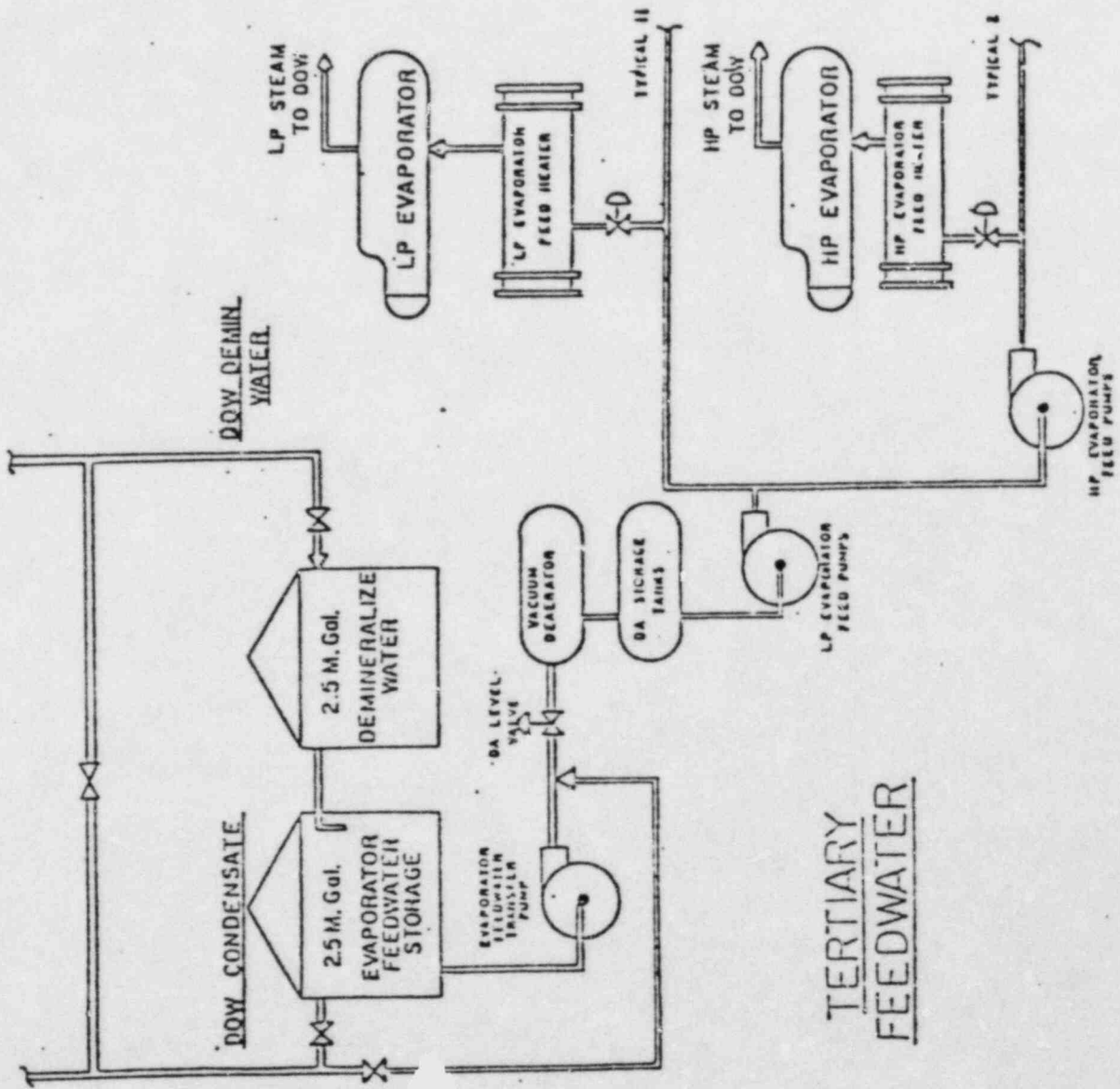
Source: FSAR Figure 7.7-10

Figure 10.3 Process steam transfer system, mode 3

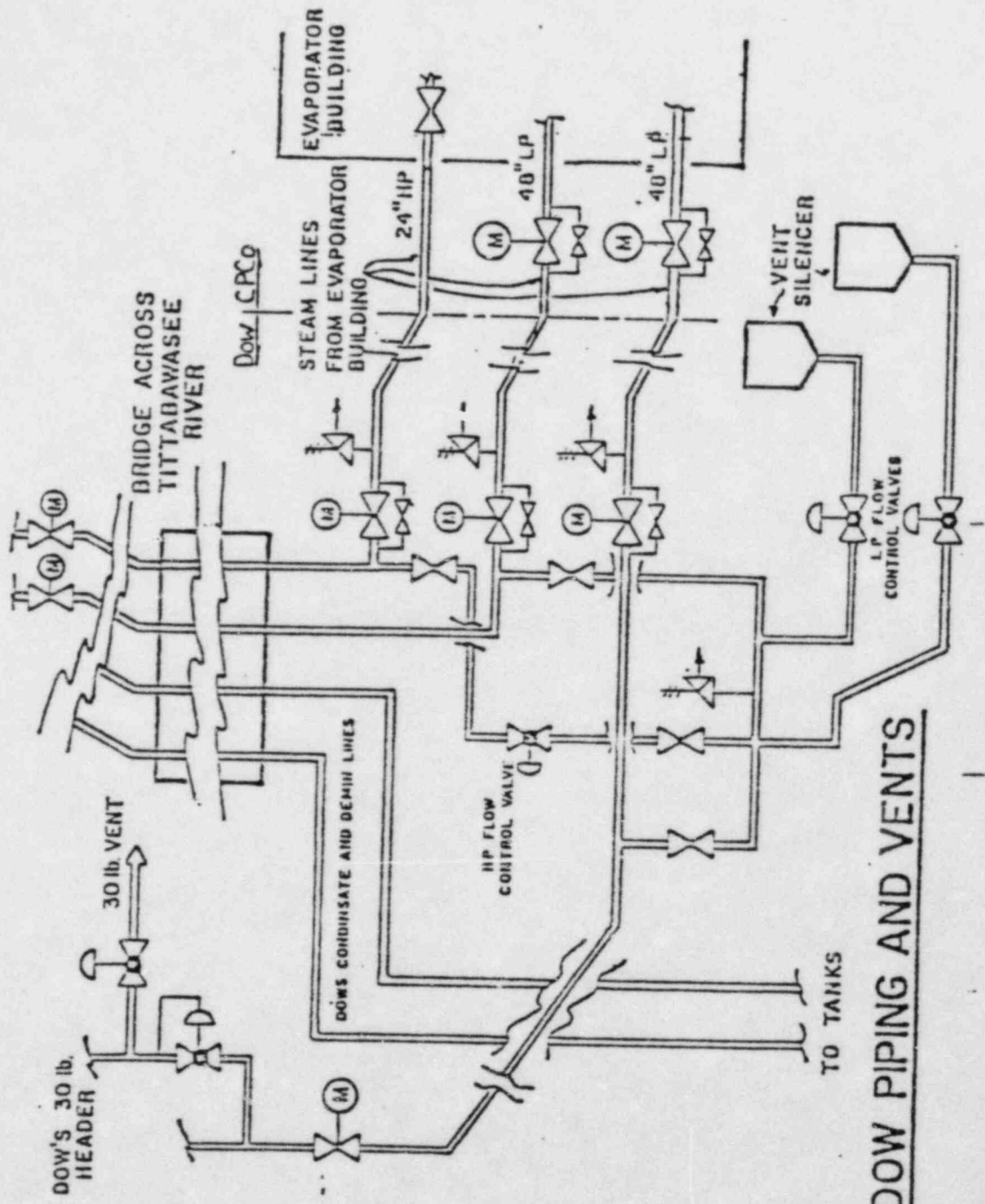


Source: FSAR Figure 7.7-11

Figure 10.4 Process steam transfer system, mode 4 (Note: This figure is provided for information only. Mode 4 is not a licensed operating mode.)



TERTIARY  
FEEDWATER



**DOW PIPING AND VENTS**





UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

July 22, 1983

DR Warnick  
R III  
E Jili

Docket Nos: 50-329 OM, OL  
and 50-330 OM, OL

Mr. Howard Levin, Project Manager  
TERA Corporation  
7101 Wisconsin Avenue  
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Mr. J. W. Cook  
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Consumers Power Company  
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Jackson, Michigan 49201

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A/RA	PAO
OPRP	SLO
DRMA	RC
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OL	FILE

3

Gentlemen:

Subject: Protocol for Communications for Midland  
Independent Design and Construction  
Verification Program

During an April 13, 1983, meeting on the Independent Design and Construction Verification (IDCV) program plans for Midland Plant, Units 1 and 2, TERA requested clarification of the Protocol Governing Communications (Enclosure 1) submitted by J. Keppler's letter of March 28, 1983. At the April 13 meeting TERA stated its interpretation that the protocol regarding the noticing of meetings to discuss substantive matters is intended to apply to the findings stage, not during solicitation of information. On May 27, 1983, TERA issued a Monthly Status Report which also contained a notice of a meeting to be held June 3, 1983. The June 3 meeting in Ann Arbor discussed Confirmed Items submitted as Attachment 3 of the May 27, 1983, Status Report and provided information which will establish the disposition of these items (i.e., whether they progress to the Findings stage). The NRC staff considers such discussions of Confirmed Items to constitute substantive matters. Hence, the protocol procedures for the June 3, 1983, meeting may not have been strictly followed. The staff requests that such future meetings be conducted subject to the Protocol, including paragraphs 3 and 4 therein. We request that written minutes for the June 3, 1983, meeting be prepared by TERA and that these be served on the May 24, 1983, modified service list.

Mr. G. Keeley of Consumers Power Company (CPCo) commented on April 13, 1983, that the noticing of meetings and preparation of written minutes of meetings pursuant to

~~8508060598~~

JUL 27 1983

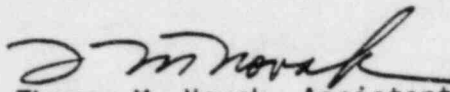


Mr. Howard Levin  
Mr. J. W. Cook

- 2 -

paragraph 3 of the Protocol should be performed by TERA, rather than by CPCo. The staff agrees that once its approval of TERA is indicated, TERA should assume this responsibility.

Sincerely,



Thomas M. Novak, Assistant Director  
for Licensing  
Division of Licensing

Enclosure:  
As stated

cc w/encl:  
See next page

MIDLAND

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Mr. J. W. Cook

- 3 -

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Jerry Harbour, Esq.  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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ATTN: Dr. Steve J. Poulos  
1017 Main Street  
Winchester, Massachusetts 01890



PROTOCOL GOVERNING COMMUNICATIONS BETWEEN CONSUMERS

POWER COMPANY AND THE ORGANIZATION CONDUCTING THE INDEPENDENT DESIGN/

CONSTRUCTION VERIFICATION PROGRAM

1. Recommendations, findings, evaluations and all exchanges of correspondence, including drafts, between the independent reviewer and CPCo will be submitted to the Regional Administrator at the same time as they are submitted to CPCo. For purposes of this protocol, the independent reviewer includes the independent reviewer and any of its subcontractors and Consumers Power Company (CPCo) means CPCo, Babcock and Wilcox, Bechtel, Management Analysis Corporation, S&W, and all of their subcontractors.
2. The independent reviewer has a clear need for prompt access to whatever information is required to fulfill its role. To this end, the independent reviewer may request documentary material, meet with and interview individuals, conduct telephone conversations, or visit the site to obtain information without prior notification to the NRC. All communications and transmittals of information shall, however, be documented and such documentation shall be maintained in a location accessible for NRC examination.
3. If the independent reviewer wishes to discuss with CPCo substantive matters related to information obtained, to provide an interim report to CPCo, or to discuss its findings or conclusions with CPCo in advance of completing its report, or if CPCo desires such communication, such discussions shall be accomplished in meetings open to public observation. In this regard, CPCo shall provide a minimum of five days advance notice to the Regional Administrator of any such meeting. The Regional Administrator shall make reasonable efforts to notify representatives of interested members of the public of the meeting, but the inability of any person to attend shall not be cause of delay or postponement of the meeting. Transcripts or written minutes of all such meetings should be prepared by the organization requesting the meeting and provided to the NRC in a timely manner. Any portion of such meetings which deals with proprietary information may be closed to the public.
4. All meetings between the Staff and CPCo and/or the independent reviewer will be open to public observation, except where the Staff determines that it is appropriate to conduct a meeting(s) in private with CPCo and/or the independent reviewer.
5. All documents submitted to, or transmitted by, the NRC subject to this Protocol, unless exempt from mandatory public disclosure, will be placed in the NRC Public Document Rooms in Midland, Michigan and Washington, D. C., and will be available there for public examination and copying.



4259

Drift



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

Docket Nos: 50-329 OM, OL  
and 50-330 OM, OL

Mr. Howard Levin, Project Manager  
TERA Corporation  
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Mr. J. W. Cook  
Vice President  
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Mr. Howard Levin  
Mr. J. W. Cook

- 2 -

paragraph 3 of the Protocol should be performed by TERA, rather than by CPCo. The staff agrees that once its approval of TERA is indicated, TERA should assume this responsibility.

Sincerely;

Thomas M. Novak, Assistant Director  
for Licensing  
Division of Licensing

Enclosure:  
As stated

cc w/encl:  
See next page

Docket No. 50-329  
Docket No. 50-330

PROTOCOL GOVERNING COMMUNICATIONS BETWEEN CONSUMERS  
POWER COMPANY AND THE ORGANIZATION CONDUCTING THE INDEPENDENT DESIGN/  
CONSTRUCTION VERIFICATION PROGRAM

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2. The independent reviewer has a clear need for prompt access to whatever information is required to fulfill its role. To this end, the independent reviewer may request documentary material, meet with and interview individuals, conduct telephone conversations, or visit the site to obtain information without prior notification to the NRC. All communications and transmittals of information shall, however, be documented and such documentation shall be maintained in a location accessible for NRC examination.
3. If the independent reviewer wishes to discuss with CPCo substantive matters related to information obtained, to provide an interim report to CPCo, or to discuss its findings or conclusions with CPCo in advance of completing its report, or if CPCo desires such communication, such discussions shall be accomplished in meetings open to public observation. In this regard, CPCo shall provide a minimum of five days advance notice to the Regional Administrator of any such meeting. The Regional Administrator shall make reasonable efforts to notify representatives of interested members of the public of the meeting, but the inability of any person to attend shall not be cause of delay or postponement of the meeting. Transcripts or written minutes of all such meetings should be prepared by the organization requesting the meeting and provided to the NRC in a timely manner. Any portion of such meetings which deals with proprietary information may be closed to the public.
4. All meetings between the Staff and CPCo and/or the independent reviewer will be open to public observation, except where the Staff determines that it is appropriate to conduct a meeting(s) in private with CPCo and/or the independent reviewer.
5. All documents submitted to, or transmitted by, the NRC subject to this Protocol, unless exempt from mandatory public disclosure, will be placed in the NRC Public Document Rooms in Midland, Michigan and Washington, D. C., and will be available there for public examination and copying.

4/13/83 - Supplied by Gil Keeley  
For Discussion Only

PROTOCOL GOVERNING COMMUNICATIONS BETWEEN  
CP CO, NRC AND TERA DURING CONDUCT OF IDV

1. The independent reviewer (Tera) has a clear need to prompt access to whatever information is required to fulfill its role. To this end, the independent reviewer may request documentary material, meet with and interview individuals, conduct telephone conversations, or visit the site or offices to obtain information without prior notification to the NRC. All verbal communications that address scope, findings, recommendations, or evaluations and all transmittals of information shall however, be documented and such documentation shall be maintained by Consumers Power Co in a location accessible for NRC examination. Detailed information utilized by Tera to conduct the evaluation such as drawings, specs, procedures and design calculations shall be maintained by Tera in a location accessible for NRC examination. To the extent that any individual contacted or interviewed requests that his or her name not be revealed, that information need not be included in the documentation, but shall, if requested be made available to appropriate NRC personnel.
2. All exchanges of correspondence, including drafts and final copies of recommendations, findings, evaluations and the final report between the independent reviewer and CP Co\* will be submitted by Tera to NRR for the design area and to the Regional Administrator for the construction area at the same time they are submitted to CP Co.
3. If the NRC, CP Co, or Tera wishes to discuss substantive matters related to information concerning recommendations, findings, evaluations and the

\*Anywhere CP Co appears it also includes CP Co Contractors



final report, such discussions shall be accomplished in meetings open to public observation. Such communications must avoid any real or apparent attempt by CP Co or NRR or the Region to influence the work, judgement, or conclusions of the IDV. Examples of substantive matters are those matters which concern engineering judgements, engineering calculations, disagreements on design bases, disagreements on interpretation of licensing or code requirements and resolution of findings. Tera is responsible for determining when a matter is considered substantive.

In this regard, Tera shall provide a minimum of five days advance notice to NRR and the Regional Administrator of any such meeting. NRR or the Regional Administrator shall make reasonable efforts to notify representatives of interested members of the public of the meeting, but the inability of any person to attend shall not be cause for delay or postponement of the meeting. Transcripts or written minutes of all such meetings shall be prepared by Tera and provided to NRR, the Regional Administrator and CP Co in a timely manner. Any portions of such meetings which deal with proprietary information may be closed to the public.

4. All meetings resulting from 3 above between NRR, the Region, CP Co or Tera will be open to public observation, except where NRR or the Region determines that it is appropriate to conduct a meeting in private with CP Co and Tera. NRC to notify intervenors of record of meetings in 3 above.
5. All documents submitted to, or transmitted by, the NRC subject to this Protocol, unless exempt from mandatory public disclosure, will be placed in the NRC Public Document Rooms in Midland, Michigan and Washington, DC and will be available there for public examination and copying.



6. There will be no audits by CP Co of Tera activities. Tera will be responsible for auditing their own program with copies of audit findings reports provided to NRC and CP Co in status reports.
7. Communications between Tera and CP Co on commercial and administrative items are outside the scope of the above.

Docket No. 50-329

Docket No. 50-330

PROTOCOL\$SGOVERNING\$SCOMMUNICATIONS\$\$SBETWEEN\$SCONSUMERS\$\$SPOWERS\$U

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1. Recommendations, findings, evaluations and all exchanges of correspondence, including drafts, between the independent reviewer and CG&E will be submitted to the Regional Administrator at the same time as they are submitted to the licensee.
  
2. The independent reviewer has a clear need for prompt access to whatever information is required to fulfill its role. To this end, the independent reviewer may request documentary material, meet with and interview individuals, conduct telephone conversations, or visit the site to obtain information without prior notification to the NRC. All communications and transmittals of information shall, however, be documented and such documentation shall be maintained in a location accessible for NRC examination. To the extent that any individual contacted or interviewed requests that his or her name not be revealed, that information need not be included in the documentation, but shall, if requested, be made available to appropriate NRC personnel.

3. If the independent reviewer wishes to discuss with CPCo substantive matters related to information obtained, to provide an interim report to CPCo, or to discuss its findings or conclusions with CPCo in advance of completing its report, or if CPCo desires such communication, such discussions shall be accomplished in meetings open to public observation. In this regard, CPCo shall provide a minimum of five days advance notice to the Regional Administrator of any such meeting. The Regional Administrator shall make reasonable efforts to notify representatives of interested members of the public of the meeting, but the inability of any person to attend shall not be cause for delay or postponement of the meeting. Transcripts or written minutes of all such meetings should be prepared by the organization requesting the meeting and provided to the NRC in a timely manner. Any portion of such meetings which deals with proprietary information may be closed to the public.
4. All meetings between the Staff and CPCo and/or the independent reviewer will be open to public observation, except where the Staff determines that it is appropriate to conduct a meeting(s) in private with CPCo and/or the independent reviewer.
5. All documents submitted to, or transmitted by, the NRC subject to this Protocol, unless exempt from mandatory public disclosure, will be placed in the NRC Public Document Rooms in Midland, Michigan, and Washington, D. C., and will be available there for public examination and copying.