FAX 3/9/79

To: DARL HOOD, NRR

FROM: R. Shewmaker, IE

SUBJECT: Input of Questions for
10 CFR 50.54(f) Ltr.
to Consumers on MIDLAND

2 pages follow

Shewmaker depo Exp 6
1-19-81 WPB

C/111

MIDLAND QUESTIONS

1. The licensee has stated that the fill has settled under its own weight. What assurance is provided that the fill has not settled locally under

   a. Structures with rigid mat foundations as portions of the auxiliary building or service water pump structure?

   b. Class I piping in the fill resulting in lack of continuous support causing additional stress not accounted for in design?

2. How has the lack of compaction and the increase in soil compressibility effected the seismic response spectra used in design and therefore the soil-structure interaction during seismic loading?

3. After current preloading material is removed will additional borings be taken to ascertain that the material has been compacted to the original requirements set forth in the PSAR and construction license application?

4. Since the foundation material is variable as described in 50.55(e) interim report number 4, how can long term differential settlement be predicted to assure reliable startup of the D/G in the event of emergency?

5. What tolerance does the D/G manufacturer require on the alignment of the D/G for reliable operation and startup?

6. Preliminary information indicates that the piping in fill under and in the vicinity of the D/G building have gross deformations induced either prior to or during the preload program. What is the extent of deformation? Is this deformation beyond predicted? If so, what plans are being taken to correct the condition?

7. The borated water storage tanks and diesel fuel oil tanks have not yet been constructed and are to be located in questionable plant fill of varying quality. Why should those Class I structures be constructed prior to assuring the foundation material is capable of supporting such structures for the plant life?

MIDLAND QUESTIONS

8. PSAR Figure 2.5-48 shows estimated ultimate settlements which indicate a differential settlement across individual mat foundation and within individual structures. Was this differential accounted for in the original design of the mat foundation and in the design of structural member within the structure? If not, what effect does this differential settlement have on additional stresses induced in the mat or in structure members such as slab-beam-column connections?

9. Based on the information provided in CPCo interim report number 4, it appears that the tests performed on the exploratory borings indicate soil properties that do not meet the original compaction criteria set forth in the PSAR and specification for soils work. What assurance is there that the soil under other Class I structures not accessible to exploratory boring meet the control compaction requirements?

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

MAY 17 1979

MEMORANDUM FOR: Domenic B. Vassallo, Assistant Director for Light Water Reactors, NRR

FROM: Dudley Thompson, Executive Officer for Operations Support, IE

SUBJECT: RECOMMENDATION FOR BOARD NOTIFICATION AND UPDATING OF PREVIOUS NOTIFICATION - MIDLAND NUCLEAR PLANT

The enclosed information is being forwarded for your consideration and possible Board notification. Part of the enclosed information concerns a new item at Midland involving the qualification of components. Additional information is provided as an update of BN-78-27.

We request to be informed whether or not all, or part, of the information is provided to the Boards.

Dudley Thompson
Executive Officer for
Operations Support, IE

Enclosure:
Memo HDThornburg to DThompson
dtd 5/14/79 w/enclosures

cc: H. D. Thornburg, RCI w/o encl
R. F. Heishman, RIII w/o encl
G. C. Gower, XOOS w/encl
IE Files w/o encl

JUN 6 1979

(31)

Docket No. 50-329/330

MEMORANDUM FOR: James G. Keppler, Director, Region III

FROM: Harold D. Thornburg, Director
Division of Reactor Construction Inspection, IE

SUBJECT: RECOMMENDATION FOR NOTIFICATION OF THE LICENSING BOARD ON MIDLAND

Your memorandum dated April 20, 1979 recommended that a series of interim 50.55(e) reports on the diesel generator settlement problem (first reported to the Board on November 16, 1978) be sent to the Board. NRR has acted on the IE recommendation for Board notification in a negative sense. The enclosed memorandum from Vassallo to Christenbury, dated May 29, 1979, outlines the reasons for the denial.

The second item which we had recommended for Board notification, qualification of components, was also denied on the basis that the licensee was proceeding properly and problems of equipment not being able to qualify were not evident.

Of particular note in this NRR denial is the fact that they indicate once the issue has been identified there is no requirement that the staff provide the routine documentation on the resolution to the Board unless requested. The staff is expected to provide the results of the evaluation in the SER or its supplements, but not all the background unless requested.

If you have questions on this item, please contact us.

Harold D. Thornburg, Director
Division of Reactor Construction
Inspection

Enclosure:
Memo Vassallo to Christenbury
dtd 5/29/79 w/enclosures

cc w/enclosures:
J. G. Davis, IE
D. Thompson, IE
G. M. Reinmuth, IE
G. C. Gower, IE

CONTACT: R. E. Shewmaker, IE
49-27551

RCI	AD:RCI	D:RCI
REShewmaker:	GMReinmuth	HDThornburg
6/ /79 mk	6/ /79	6/ /79

[redacted] 8406070336

Distribution
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NRR Reading
F. Williams
F. Williams Reading
J. Lee
D. B. Vassallo

May 29, 1979

MEMORANDUM FOR: Edward S. Christenbury, Chief Hearing Counsel, OELD

FROM: D. B. Vassallo, Assistant Director for Light Water Reactors, Division of Project Management

SUBJECT: BOARD NOTIFICATION RECOMMENDATION - MIDLAND - DIESEL GENERATOR BUILDING FOUNDATION AND QUALIFICATION OF COMPONENTS (BN-79-21)

A memorandum from OIE on May 17, 1979 recommended that the Midland Board be notified of (a) followup information on the Diesel Generator Building Foundation problem (BN-79-27) and (b) 50.55(e) reports on the qualification of components.

The Midland case is not in the Board Notification time frame. The SER Supplement addressing ACRS concerns has not been issued. BN-79-27 provided information to the Board on the foundation problem due to a special request from OELD which noted that a prehearing conference was to be held in which that information could be useful.

Additional reports on that problem need not be sent to the Board. They have been made aware of the situation and will be provided with the staff assessment in the SER and SER Supplement and then they will automatically be provided with staff correspondence on that subject.

The information regarding the qualification of components does not appear to qualify as Board notification information regardless of the time frame. It represents a program by the applicant to assure proper qualification of components. Board notification would be required if the program indicated that they were unable to properly qualify components.

D. B. Vassallo

D. B. Vassallo, Assistant Director
for Light Water Reactors
Division of Project Management

Enclosure:
As Stated

cc: H. Denton, E. Case, D. Eisenhut, J. Davis, IE, R. Boyd, V. Stello, R. DeYoung, V. Moore, L. Nichols, B. Grimes, R. Baer, O. Parr, S. Varga, IE(7), D. Thompson, D. Hood

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OFFICE ▶	[illegible]	[illegible]	[illegible]	TC:[illegible]	AD:LWR:DPM
SURNAME ▶				[illegible]:ab	DBVassallo
DATE ▶				5/ /79	5/ /79

NRC FORM 318 (9-76) NRCM 0240 ★ U.S. GOVERNMENT PRINTING OFFICE: 1979 — 289-369

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

EXHIBIT

February 15, 1979

MEMORANDUM FOR: H. D. Thornburg, Director, Division of Reactor Construction Inspection, IE

FROM: James G. Keppler, Director

SUBJECT: MIDLAND SUMMARY REPORT

The attached report, which represents Region III's overall assessment of the Midland construction project to date from a regulatory standpoint, was discussed with you and representatives from your staff, NRR, and OELD during our meeting at HQ's on February 6, 1979. During that meeting, it was concluded that this report should be provided to OELD for transmittal to the Licensing Board and the various parties to the hearing. As such, this information is being forwarded for your action.

We believe the meeting was quite useful in receiving feedback from the various NRC people involved relative to our position on the status of this facility.

Please contact me if you have any questions regarding this matter.

James G. Keppler
Director

Attachment:
Midland Summary Report

8104160335

C/113

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 . . 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 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 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.

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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 LAL, 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 LAL 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 contensous 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 gound water level. It is not known at this time what effect (if any) the higher site ground water level has had on the plan 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. <u>Inspection and Quality Documentation to Establish Acceptability of Equipment</u>

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 vender 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.

Year	Number of Noncompliances	Number of Inspections	Inspector Hours On Site
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

Criteria (10 CFR 50 Appendix B)
( ) Number of Occurrances

V, X, XI, XVI

Construction haulted pending CP

II V(5) XIII, XV, XVII

V(2) XVI

V(4) X, XII, XV, XVI, XVII, XVIII

V(5) 10 CFR 50.55(e) item

V(4) VI(2), VII, IX(3), XVI

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ocedures Drawing Control Work

ased Material

al Processes

g - Test Equipment

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ENFORCEMENT ACTIONS

Noncompliances

Year	# Total	Criteria (10 CFR 50 Appendix B) ( ) Number of Occurrances
1970	4	V, X, XI, XVI
1971-1972	0	Construction haulted 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

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 has been an overview program which has been steadly 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.

Distribution:
Docket File
LWR #4 File
S. Varga
D. Hood
F. Williams
M. Service

NOV 27 1978

Docket Nos: 50-329
50-330

MEMORANDUM FOR: R. DeYoung, Director, Division of Site Safety and Environmental Analysis

R. Mattson, Director, Division of Site Safety

FROM: S. Varga, Chief, Light Water Reactors Branch No. 4, DPM

SUBJECT: TECHNICAL ASSISTANCE REQUEST

Your assistance is requested for the following:

Plant: Midland Plant, Units 1 & 2

Applicant: Consumers Power Company

Contact: Darl S. Hood, LWR #4 (27331)

Review Branches: Geotechnical Branch
Structural Engineering Branch

Description of Request: Provide support associated with technical resolution of settlement of structures at the Midland site as requested in attached letter from transfer of lead responsibility. Also provide for support in hearings for this matter.

Target Completion Date: Acceptable resolution required prior to issuance of operating license.

Original signed by:
S. A. Varga
Steven A. Varga, Chief
Light Water Reactors Branch No. 4
Division of Project Management

cc: R. Hartfield
D. Vassallo
L. Crocker
H. Berkow

OFFICE	DPM:LWR #4	DPM:LWR #4	
SURNAME	DHood:tlb	SVarga	
DATE	11/22/78	11/25/78	

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