

DEC 1 1980

Docket Nos. 50-329/330

MEMORANDUM FOR: Midland Technical Hearing Participants

FROM: Carl Hood, Project Manager, Licensing Branch #3, DL

SUBJECT: STAFF REQUESTS FOR INFORMATION AND STATUS OF MIDLAND SOIL SETTLEMENT MATTER PRIOR TO DECEMBER 6, 1979

To assist you in preparing for the Midland hearing on soils, Enclosure 1 identifies the formal requests for information requested prior to December 6, 1979 by the MRC staff in regards to the soil settlement problem at Midland Plant, Units 1 and 2. The date December 6, 1979 corresponds to the issuance of the order by the MRC which prohibits certain construction activities related to soils until the applicant seeks and is granted an amendment to the construction permits. Enclosure 1 does not include requests, if any, during meetings, telephone discussions, or site tours unless such requests were followed up by formal written requests.

Enclosure 1 also shows all of the applicant's responses related to soils by revision number and revision date, to the present date. Revisions listed below the broken line occur after December 6, 1979. The FSAP and 50.54(f) responses maintained by the staff project manager provide a complete set, including superceded pages, and may be reviewed upon request.

In some cases, staff follow-up requests are identified in Enclosure 1. However, the list of follow-up requests is not necessarily complete.

Enclosure 2 provides a chronology of events related to staff review of the soil settlement matter at Midland through 1979.

15/

Darl Hood
Licensing Branch #3
Division of Licensing

Enclosures:
As stated

POOR ORIGINAL

DISTRIBUTION:

Docket File 50-329/330
LPDR
LB #3 RDG
FMiraglia
DHood
LHeller
JKane(2)

FRinaldi (2)
ACappucci (2)
JGilray
RShewmaker
EGallagher (IE-R-III)
WPaton
Brad Jones
RJackson

JKimball
TCardone
GLear
JKnight
Ray Gonzales
RBosnak
FSchauer
GFiorelli

80122901076

| | | | | | |
|---------|----------|---------|--|--|--|
| OFFICE | LB3:DL | LB3 | | | |
| SURNAME | DHood:ch | Agia | | | |
| DATE | 12/1/80 | 12/1/80 | | | |

Enclosure 1

Staff Requests on Soil Settlement Issued Prior
to December 6, 1979

1. S. Varga letter of December 11, 1978, "Staff Positions and Requests for Additional Information (Part 1)":

- (a) SEB 130.21 Asks for seismic/structural evaluation of settling Cat. I structures, how stresses from differential settlement of foundations and preloading activities have been or will be factored into evaluations, and for comparison to calculated stresses to ACI code allowables.

Applicant Response Dates:

Rev. 17, 1/25/79
Rev. 18, 2/26/79
Rev. 20, 4/26/79
Rev. 24, 9/28/79

Rev. 26, 1/30/80
Rev. 27, 3/31/80

Staff Follow-up Requests: 15, 25, 26

- (b) G/TE 362.11 Questions differential settlement between Reactor Containment and Auxiliary Building. Asks for assurance that the D&M maximum limit will not be exceeded.

Applicant Response Dates:

Rev. 17, 1/25/79
Rev. 18, 2/26/79
Rev. 20, 4/26/79
Rev. 24, 9/28/79

Rev. 26, 1/30/80

- (c) G/TE 362/12 Asks for description of, and schedule for, the preloading program for Diesel Generator Building.

Applicant Response Dates:

Rev. 17, 1/25/79
Rev. 18, 2/26/79
Rev. 20, 4/26/79
Rev. 21, 5/31/79

Rev. 26, 1/30/79

- (d) G/TE 362.13 Asks for program for reassessing backfill properties after preloading. Also asks for program and schedule for confirming dynamic characteristics of fill for seismic analysis.

Applicant Response Dates:

Rev. 17, 1/25/79
Rev. 18, 2/26/79
Rev. 20, 4/26/79

Staff Follow-up Requests: "Fill" Request 5, 35, 37

- 2 S. Varga letter of January 18, 1979, "Staff Positions and Requests for Additional Information (Part 3)"

- (a) PSB 40.106
- (1) Asks for criteria and considerations to preclude adverse affects of settlement on diesel generator fuel oil lines.
 - (2) Asks for method of monitoring and criteria for fuel oil line functional assurance in view of settling and preloading.
 - (3) Asks for criteria and considerations to preclude adverse affects of settlement on fuel oil tanks, identification of tank backfill, monitoring and settlement results to date, and program to preclude overstressing lines due to tank settlement.

Applicant Response Dates:

Rev. 18, 2/26/79
Rev. 20, 4/26/79
Rev. 24, 9/28/79

Rev. 26, 1/30/80

Note: Applicant's response fails to reveal that some of the fill for the fuel tanks was not placed as Zone 2.

Staff Follow-up Requests: 6, 33

- (b) G/TE 362.14 what measures to avoid excessive settlement of Service Water Intake Structure?

Applicant Response Dates:

Rev. 18, 2/26/79

Rev. 20, 4/26/79

Rev. 24, 9/28/79

Rev. 26, 1/30/80

- (c) G/TE 362.15 Identify changes in compaction control spec.

Applicant Response Dates:

Rev. 18, 2/26/79

Rev. 24, 9/28/79

- (d) G/TE 362.16 Asks for copy of "Settlement Evaluation for Plant Area"

Applicant Response Dates:

Rev. 18, 2/26/79

Rev. 24, 9/28/79

Rev. 26, 1/30/80

- (e) G/TE 362.17 Asks for ultimate settlement of Diesel Generator Building using proper foundation configuration.

Applicant Response Dates:

Rev. 18, 2/26/79

Rev. 19, 3/27/79

Rev. 20, 4/26/79

Rev. 24, 9/28/79

Rev. 26, 1/30/80

3. H. Denton letter of March 21, 1979, "10 CFR 50.54 Request Regarding Plant Fill"

Question 1 - Quality Assurance

| | |
|---------------------------|---------------------------|
| Applicant Response Dates: | Staff Follow-up Requests: |
| "Fill" Rev. 0, 4/24/79 | Question 23 |
| Fill Rev. 1, 5/31/79 | |

Question 2 - Grouting natural sand deposits

Applicant Response Date:
Fill Rev. 0, 4/24/79

Question 3 - Clarify when the settlement problem was discovered.

Applicant Response Date:
Fill Rev. 0, 4/24/79

Question 4 - Asks for criteria and justification of fill, structures and utilities after preloading program. Also asks for allowable settlement limits after fix and basis.

| | |
|---------------------------|-----------------------------|
| Applicant Response Dates: | Staff Follow-up Request: 40 |
| "Fill" Rev. 0, 4/24/79 | |
| Fill Rev. 3, 9/13/79 | |
| ----- | |
| Fill Rev. 5, 2/28/80 | |

Question 5 - What borings will be taken after preload?
(Follow-up of 362.13)

Applicant Response Date:
Rev. 0, 4/24/79

Question 6 - Asks for assurance for proposed tank fixes.

| | |
|---------------------------|---------------------------|
| Applicant Response Dates: | Staff Follow-up Requests: |
| Rev. 0, 4/24/79 | 31, 32, 33, 43, 44 |
| Rev. 1, 5/31/79 | |
| Rev. 3, 9/13/79 | |

Question 7 - How to determine adequacy of electrical duct banks?

| | |
|---------------------------|--------------------------|
| Applicant Response Dates: | Staff Follow-up Request: |
| Rev. 0, 4/24/79 | 30 |
| Rev. 3, 9/13/79 | |

Question 8 - Criteria for diesel generator pedestals.

Applicant Response Date:
Rev. 0, 4/24/79

Questions 9
and 11 - Expresses need for borings under structures

Applicant Response Date:
Rev. 0, 4/24/79

Question 10- Effects of settlement under mat foundations

Applicant Response Date:
Rev. 0, 4/24/79

Question 12- Determine properties and performance of soils and natural sands under structures. Compare to PSAR.

Applicant Response Dates:
Rev. 0, 4/24/79
Rev. 1, 5/31/79
Rev. 2, 7/9/79
Rev. 3, 9/13/79

Question 13- How has seismic response spectra changed?

Applicant Response Dates:
Rev. 0, 4/24/79
Rev. 1, 5/31/79

Question 14- Asks for evaluation of Cat. I structures on fill. Also evaluate cr-

Applicant Response Dates:
Rev. 0, 4/24/79
Rev. 3, 9/13/79

Rev. 5, 2/28/80

Question 15 - Evaluate structures partially on fill. Include settlement before and during SSE.

Applicant Response Dates:

Rev. 0, 4/24/79 (load combinations)

Rev. 3, 9/13/79

Question 16 - Assurance of continuous support for underground pipe

Applicant Response Dates:

Rev. 0, 2/24/79

Rev. 5, 2/28/80 (deletes borings promised by Rev. 0)

Question 17 - Criteria for underground pipe

Applicant Response Dates:

Rev. 0, 4/24/79

Rev. 2, 7/9/79

Rev. 5, 2/28/80

Staff Follow-up Request:

Tedesco letter of 10/20/80 and
and applicant's reply of 11/14/80

Question 18 - Criteria for piping in and between buildings

Applicant Response Dates:

Rev. 0, 4/24/79

Rev. 5, 2/28/80

Question 19 - Pipe deformation

Applicant Response Dates:

Rev. 0, 4/24/79

Rev. 5, 2/28/80

Question 20 - Stress levels of components

Applicant Response Dates:

Rev. 0, 4/24/79

Rev. 2, 7/9/79

Rev. 5, 2/28/80

Question 21 - Basis for selection of D.G. options

Applicant Response Date:

Rev. 0, 4/24/79

Question 22 - Effect of stop work on planned activities

Applicant Response Date:

Rev. 0, 4/24/79

4. S. Varga letter of March 30, 1979, "Open Items Associated with Staff Review of Midland Plant, Units 1 & 2 FSAR"

PSB Item 3 - Reiterates PSB Question 40.106

ASB Item 7 - Expresses concern for integrity of underground pipe

GSB Item 1 - Notes that staff does not accept seismic input design information (g value

GTE Item 1 - Repeats 50.54(f) concerns due to settlement

GTE Item 2 - Notes staff concern as to whether applicant removed loose natural sands at site as required by CP review

GTE Item 3 - Notes staff concerns per 362.8 regarding development of Phreatic surface in cooling pond embankment and comparison of observed surface to that assumed for stability analysis

SEB Item I - Repeats 130.21 and 130.17 concern for stress evaluations of structures on fill and load combination term for differential settlement

5. L. Rubenstein letter of September 11, 1979, "Request for Additional Quality Assurance Information" (23)

Request 23 - Quality Control

Applicant Response Dates:

Rev. 4, 11/13/79

Rev. 5, 2/28/80

Rev. 8, 8/15/80

6. L. Rubenstein letter of November 19, 1979, "Supplemental 10 CFR 50.54 Requests Regarding Plant Fill" (24 - 35)

Note: As stated in the Order, none of these responses were made as of December 6, 1979

Enclosure 2

Chronology of Soils Related Events Through 1979

8/22/78 IE Resident Inspector first advised of unusual settlement

9/7/78 Applicant provides verbal report to IE, Reg. III

9/29/78 First 50.55(e) interim report issued

11/1/78 Keppler memo to Thornburg asking NRR support

11/7/78 Applicant issues second 50.55(e) interim report

11/17/78 NRC extends CP completion dates

12/3-4/78 Tour and meeting with NRC at site

12/11/78 NRC issues Q-2s, part 1

12/14/78 OL Special Prehearing Conference held. Includes two contentions on soil settlement.

12/21/78 Applicant issues third 50.55(e) interim report. States that Preload is corrective action selected for Diesel Generator Building.

1/5/79 Applicant issues further third 50.55(e) interim report.

1/18/79 NRC issues Q-2s, part 3

1/25/79 Applicant issues FSAR Amendment 17 responding to requests 130.21, 362.11, 362.12, 362.13

2/1/79 Applicant begins placing fill at site

2/23/79 OL Prehearing Conference Order accepts Marshall contention 2 and Sinclair contention 24

2/23/79 Applicant issues fourth 50.55(e) interim report

2/23/79 Meeting with applicant at Region III office

2/26/79 Applicant submits FSAR Revision 18 changing responses to requests 130.21, 362.11, 362.12, 362.13, and providing initial response to 40.106, 362.14 through 362.17

3/5/79 Meeting with applicant, IE and NRR at site

3/6/79 Site tour

3/21/79 Staff issues first set of 50.54(f) requests (1-22)

3/27/79 Applicant submits FSAR Revision 19 changing response to request 362.17

3/28/79 TMI-2 accident occurs

3/30/79 Staff letter on open items from FSAR review

4/24/79 Applicant submits initial reply to 50.54(f) requests (1-22)

4/26/79 Applicant submits FSAR Revision 20 (130.21, 362.11-360.14, 40.106, 362.17)

4/30/79 Applicant submits fifth 50.55(e) interim report

5/31/79 Applicant submits FSAR Revision 21 (362.12)

5/31/79 Applicant submits Revision 1 to 50.54(f) responses (#1, 6, 12, 13)

6/7/79 NRC site visit to observe test pits

6/25/79 Applicant issues sixth 50.55(e) interim report

7/9/79 Applicant issues Revision 2 to 50.54(f) responses (#12, 17, 20)

7/18/79 Meeting on soils fixes

7/19/79 Meeting with applicant on seismic design input and geology

8/10/79 Applicant issues summary of 7/18/79 meeting as part of 50.55(e) interim report 6.

9/5/79 Applicant issues 50.55(e) interim report 7

9/5/79 Meeting on draft 50.54(f) request 23 on quality assurance

9/11/79 NRC issues 50.54(f) request 23 on quality assurance

9/13/79 Applicant issues Revision 3 to 50.54(f) responses (4, 6, 7, 12, 14, 15)

9/15/79 Applicant begins removal of surcharge from DG Building

9/28/79 Applicant issues FSAR Revision 24 (130.21, 362.11, 40.106, 362.14-362.17)

9/30/79 Soil surcharge removal completed

10/16/79 NRC advises that Corps of Engineers to assist with geotech review

11/2/79 Applicant issues 50.55(e) interim report 8

11/13/79 Applicant submits Revision 4 to 50.54(f) responses (23)

11/14/79 Corps of Engineers and NRC visit site

11/19/79 Staff issues supplemental 50.54(f) requests 24-35

12/6/79 NRC issues Order modifying construction permits

12/19/79 Applicant files request for CP amendment and requests staff approval of proposed remedial actions. Amendment 72.

12/26/79 Applicant requests hearing pursuant to Order