



STONE & WEBSTER MICHIGAN, INC.

P.O. Box 2325, BOSTON, MASSACHUSETTS 02107

United States Nuclear Regulatory Commission
Midland Site Resident Inspection Office
Route 7
Midland, MI 48640

June 27, 1983

J. O. No. 14358
Ref. MPF 40

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 & 2
INDEPENDENT ASSESSMENT OF UNDERPINNING
REPORT NO. 40

A copy of the Independent Assessment of the Underpinning, Weekly Report No. 40 for the period June 19, 1983 through June 25, 1983 is enclosed with this letter. Included as attachments, are the minutes of the daily meetings held during the week between members of the Assessment Team and Site Engineering, Construction, and Quality Assurance personnel.

If you have any questions with respect to this report, please contact me at (617) 589-2067 .

Very truly yours,

A. Stanley Lucks
Project Manager

Enclosures

ASL/pd

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PDR FOIA
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Midland Plant
Units 1 & 2
Independent Assessment of Underpinning

Weekly Report No. 40

June 19, 1983 through June 25, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

P. Barry 6/23 - 6/25
B. Holsinger 6/20 - 6/21
A.B. Scott 6/19 - 6/25
W. Kilker 6/21 - 6/25

Parsons; Brinckerhoff Michigan, Inc.

P. Parish 6/23 - 6/24

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
6/20 through 6/23	Stone & Webster Bechtel Consumers Power Parsons (6/23-6/24)	Daily Meeting
6/21	Consumers Power (MPQAD) Stone & Webster	Weekly Information Meeting
6/22	Bechtel Consumers Power Stone & Webster	Weekly Engineering and Construction Coordination Meeting
6/24	Bechtel Consumers Power Stone & Webster	Project Soils Meeting
6/22	Bechtel Mergentine Stone & Webster Consumers Power	Discussion of Proposed Pressure Grouting Test Set-up

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Activities:

Construction:

Pier KC11: Installation of the jackstands and jacks continued.

Pier E8: Placed the shaft concrete up to the hammerhead level.

E8 N-S Bulkhead: The installation of the soldier piles and braces commenced.

Pier E10: Jacks were installed and load transfer was initiated. The load will remain on the jacks for an extended time period as directed by Engineering.

Pier KC2: The upper and lower leveling plates were installed and grouted. The Contractor chose to replace the upper plate dry-pack grout after the initial strength tests were below requirements.

Pier W8: Installation and re-work of instrumentation and reinforcing continued in preparation for the concrete placement.

W8 N-S Bulkhead: Installation of the soldier piles and braces was begun.

Pier W10: Installation of instrumentation and jackstands continued.

SWPS: Deep probing and deep-seated benchmark installations continued. The drilling of the first soldier pile borehole was initiated.

Quality Control, Documentation and Records:

1. Reviewed requirements of ACI code relevant to the proposed concrete mixes.
2. Verified conformance of the concrete test requirements to the respective ASTM standard during placement of pier E8 shaft concrete.
3. Verified the consolidation of the concrete by vibration.

Observations

Construction - Progress throughout the week was very limited. On pier W8 there were delays associated with the reinforcement installation and acceptance. At pier W10 the Contractor experienced problems with grout strength and fit-up installation of the jack stands and plates. At pier KC2 the dry-pack required reworking. The E8 pier completion was delayed by the unavailability of fabricated materials. It is the Assessment Team's opinion that the rate of progress on completing the piers should be improved considerably in order to limit the exposure time of the structures to unsupported conditions. The Contractor demonstrated on piers E/W9 and 11 that construction, from the start of excavation to load transfer, could be accomplished in 25-30 days. Since then the minimum completion time for a pier has been 40 days.

In the vicinity of pier W8 the Contractor with the concurrence of the RGE intended to lay back the slope to the north of the turbine building to the extent that

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the top of the slope extended approximately 6 ft. under the EPA structure over a length of about 12 ft. After reviewing the project drawings, the Assessment Team feels that in permitting this slope lay-back the intent of the design was not necessarily followed. The EPA foundation exposure was to be limited by the excavation of a slot trench to install the N-S bulkhead followed by mass excavation of the remainder of the area to allow installation of the grillage beams. Project Engineering was immediately aware of the situation after and a site inspection determined that no corrective action was necessary since the area under discussion will be unsupported during the grillage installation. In addition, Project Engineering is evaluating the need to clarify the appropriate documents and of instructions to avoid future misinterpretations.

During the early part of the week, the benchmark monitoring building settlement near pier W8 indicated a sudden increase in the rate of settlement. Engineering evaluated the situation and attributed the change in rate to be due, at least in part, to disturbance of the benchmark casing pipe during removal of mudmat concrete for installation of the N-S bulkhead lateral support system. Nevertheless, the decision was made to put the 3 in-service piers on the west side (W9, 11 and 12) into the active jacking mode. In less than two days after the initial change in the rate of settlement, the rate had been reduced to that experienced over the previous several weeks. The Assessment Team feels the Contractor took prudent and conservative action in addressing and correcting the condition.

Deep probing and installation of deep seated benchmarks at the SWPS were being carried out in accordance with the requirements of project documents. Work on the installation of the first soldier pile required telecoping the casing so that the hole could be sealed and cuttings removed.

Quality Control, Documentation and Records: -

Based upon a review of the preliminary test data for qualifying the proposed concrete mix designs the Assessment Team raised concerns over the small difference between 2 of the 3 water/cement ratios used to define the 3 point curve, and the presence of a water reducing agent in the qualification a mix design according to the appropriate ACI code. These concerns were relayed to the Owner and are being addressed.

The Assessment Team's observation of the concrete testing and vibration at pier E8 indicated that the requirements of the appropriate ASTM standards and project documents were met.

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Nonconformance Identification Report

Status of previous issues: (NIR numbers no longer listed have been closed out.)

<u>NIR No.</u>	<u>Description</u>	<u>Date</u>
12	NCR Review for Responsibility under 10 CFR 50.55 (e) part 21.	(Opened) (Closed) 6/16/83

Paul Barry for Wick.
Project Engineering

all
Project Manager

Notes of Daily Meeting
Independent Assessment of Underpinning
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
June 20, 1983

Present For:

Consumers Power

G. Murray

Bechtel

M. Blendy
J. Gaydos
J. Darby
V. Verma
D. Lavelle

MPQAD

G. Carpenter

Stone & Webster

A. Scott
B. Holsinger

Parsons

Purpose

This meeting is held each day to discuss items regarding the Independent Soils Assessment at the Midland Plant, Units 1 & 2.

Discussion

Item 1 - Concrete Placement Schedule.

John Gaydos advised the Assessment Team that concrete for Pier E8 from the bell to a point below the T head would be placed on June 20, 1983 and that the concrete for Pier W8 would be placed June 21, 1983. The batch plant would not have ice until after 2 P.M. today.

Item 2 - Piers KC-2 & KC11.

Load transfer for Piers KC2 and KC11 will not commence until after July 4, 1983 as delivery of wedges will not permit it.

Item 3 - Excavation Road Map Meeting. (Mass Excavation)

The Assessment Team was advised that the Road Map meeting for excavation would be held later this week. Mergentime will advise time and date.

Items Requiring Resolution.

None

Notes of Daily Meeting
Independent Assessment of Underpinning
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland ,Michigan
June 21, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	M. Blendy	R. Sevo	A. Scott
J. Schaub	J. Gaydos		
	V. Verma		
	D. Lavelle		
	N. Swanberg		
			<u>Parsons</u>
			None

Purpose

This meeting is held each day to discuss items regarding the Independent Soils Assessment at the Midland Plant, Units 1 & 2 .

Discussion

Item 1 -Hilti Anchor Bolts

Neil Swanberg advised the Assessment Team that a DCN would be issued on June 30, 1983 reducing the torque value for the Hilti bolts installed in the Turbine Bldg. slab.

Item 2 - Sister Splice Testing

John Gaydos advised that the U. S. Testing procedure is being revised to eliminate the holding period of 24 hours in the laboratory prior to testing sister splices.

* Item 3 - Action Alert Values

G. Murray asked when the welding inspection will be performed on the structural beam fixes. When this work is inspected; the beam fix would be complete allowing relaxation of Action Alert values as per Drawing 7220-C-1493.FSO & MPQAD will resolve.

Item 4- SWPS Instrumentation

J. Schaub asked when the instrumentation would be completed on the Service Water Pump Structure. D. Lavelle will respond.

Items Requiring Resolution

Items requiring resolution indicated by an *.

Notes of Daily Meeting
Independent Assessment of Underpinning
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
June 22, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	M. Blendy J. Gaydos N. Swanberg	J. McMaster	A. Scott W. Kilker

Purpose

This meeting is held each day to discuss items regarding the Independent Soils Assessment at the Midland Plant, Units 1 & 2.

Discussion

Item 1 - Beam Fix Inspection.

M. Blendy advised that the beam fix welding has been released for QC inspection.

Item 2 - Work Releases.

G. Murray discussed the need to improve on the timely preparation of supplemental items, such as permits, so that once the NRC releases work activities the Subcontractor can immediately proceed.

* Item 3 - Removal of Certain Lagging Supports.

A. Scott questioned why certain lagging is still in-place when there is no soil on either side to support. N. Swanberg replied that participants in this week's coordination meeting will address this issue.

Item 4 - Pressure Grout Mock-ups.

M. Blendy reported that Mergentine had completed a mock-up of a pressure-grouting installation. A meeting will be held today to discuss the results and methods to improve on the technique.

Items Requiring Resolution.

Items requiring resolution are indicated by an *.

Notes of Daily Meeting
Independent Assessment of Underpinning
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
June 23, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	M. Blendy	R. Sevo	A. Scott
J. Schaub	J. Gaydos	G. Johnson	W. Kilker
R. Wieland	N. Swanberg		
K. Razden	D. Lavelle		
	J. Darby		

Purpose

This meeting is held each day to discuss items regarding the Independent Soils Assessment at the Midland Plant, Units 1 & 2.

Discussion

Item 1 - Wedge Availability.

M. Blendy indicated that there are sufficient driving wedges on-site to load transfer the KC2, KC11, W10 and E/W8 piers. Modifications have been made to the existing wedges to put them in compliance with a change request that tightened the roughness tolerance.

Item 2 - Mass Excavation Road Map Meeting.

D. Lavelle announced there will be a "road-map" meeting on 6-24 on the proposed mass excavation technique.

Item 3 - QC Inspection of Auxiliary Building Beam Fix.

M. Blendy reported that the inspection has been finalized and the fix is now considered complete. The action-alert level of allowable differential settlements can now be increased to reflect this fix.

Item 4 - Pier W9 Rejacking.

J. Darby discussed the recent settlements detected at the benchmarks near pier W8. During recent concrete removal activities adjacent to the benchmark the settlement rate monitored by this device suddenly increased. As a result pier W9 was rejaacked on 6-22 and piers W9, 11 and 12 will be rejaacked on 6-23.

Item 5 - Reinforcing Steel Welding on Piers E/W8 .

D. Lavelle reported that welding of reinforcing steel bars to the angle steel has been delayed due to difficulty in qualifying welders for this activity. To date only one welder has qualified.

Notes of Daily Meeting
Independent Assessment of Underpinning 2
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
June 23, 1983

Item 6 - MPQAD Hold Tag Issuance.

R. Sevo reported that MPQAD is preparing to modify the methodology in placing NCR Hold Tags. The proposed change is to immediately place the tag at the time of noting the non-conformance rather than waiting for a definition of the limits of and sign-out of the NCR. Under this approach the field personnel will have immediate knowledge of the pending NCR and thereby can take action to avoid "working-through" the hold item area.

Item 7 - Weekly Coordination Meeting.

M. Blendy reported that the recent coordination meeting was not particularly successful in terms of resolving outstanding issues. Efforts will be made to improve the success in obtaining resolutions.

Item 8 - Pressure Gouting Test Set-ups.

M. Blendy stated that Mergentine is preparing various mock-ups for pressure grouting testing. A mock-up using dry-pack will also be done.

Item 9 - Lagging Supports.

N. Swanberg reported that Engineering has re-evaluated the need for certain of the existing lagging that are no longer supporting the soil. Instructions to the field will be issued as needed.

Notes of Daily Meeting
Independent Assessment of Underpinning
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
June 24, 1983

No meeting was held on this date.

Notes of MPQAD Weekly Meeting
Independent Assessment of Underpinning
Midland Plant Units 1 & 2

Held at Midland Site Location
Midland, Michigan
June 21, 1983

Present For:

Stone & Webster

B. Holsinger
A. Scott
W. Kilker

MPQAD

J. Meisenheimer
D. Horn
M. DeWitt

Purpose

This meeting is held each week to obtain information from MPQAD regarding the soils underpinning work at the Midland Plant Units 1 & 2.

Discussion

Item 1 - Status of PQCI Revisions Concerning Concrete Vibrators.
(refer to 6-14-83 notes of meeting Item #5) The two referenced QCIs are expected to be issued today.

Item 2 - U. S. Testing.

J. Meisenheimer announced that as of last week MPQAD Soils has assumed the responsibility for QA/QC coverage of U. S. Testing, who will continue working under their own Q. A. Program.

Item 3 - Status of QAR Concerning Specification Requirements.

The review of the PQCI to determine that specification required sampling inspections are included in the appropriate PQCI's is complete. The QAR will be closed 6-21-83 with no additional findings.

Item 4 - PQCI's Applicable To Soils Underpinning.

MPQAD provided the current list of PQCI's applicable to soils underpinning. It was noted that a few balance of plant (BOP) PQCI's are generic to the site. However, most PQCI's were developed specifically for the soils underpinning work.