



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

July 7, 1983

J. O. No. 14358  
Ref. MPF 41

Attention Mr. R. Cook

RE: DOCKET NO. 50- 329/330  
MIDLAND PLANT-UNITS 1 & 2  
INDEPENDENT ASSESSMENT OF UNDERPINNING  
REPORT NO. 41

A copy of the Independent Assessment of Underpinning, Weekly Report No. 41 for the period of June 26, 1983 through July 2, 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,

*W. E. Killen for A. S. Lucks*

A. Stanley Lucks  
Project Manager

Enclosures

ASL/pd

J. O. No. 14358  
Midland Plant  
Units 1 & 2  
Independent Assessment of Underpinning

Weekly Report No 41

June 26, 1983 through July 2, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

|            |             |
|------------|-------------|
| W. Kilker  | 6/27 - 6/29 |
| P. Barry   | 6/26 - 6/30 |
| L. Rouen   | 6/27 - 7/ 1 |
| P. Majeski | 6/27 - 7/ 2 |
| A. Lucks   | 6/30        |

Parsons, Brinckerhoff Michigan, Inc.

|           |             |
|-----------|-------------|
| W. Parish | 6/28 - 7/ 1 |
|-----------|-------------|

Meetings Attended

| <u>Date</u> | <u>Represented</u>   | <u>Purpose</u>   |
|-------------|--|--|
| 6/27 - 7/1  | Stone & Webster<br>Bechtel<br>Consumers Power<br>Parsons ( 6/29 - 7/1) | Daily Meeting  |
| 6/27        | Bechtel<br>Consumers Power<br>Mergentime<br>Stone & Webster            | Road Map Meeting<br>for Mass<br>Excavation                     |
| 6/30        | Bechtel<br>Consumers Power<br>Stone & Webster                          | Weekly Engineering<br>and Construction<br>Coordination Meeting |

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Activities:

Construction :

Pier KC11: The load transfer was initiated and the proof load criteria met.

Pier E8: The installation of rebar in the hammerhead was completed and concrete was placed.

Pier E10: The acceptance criteria for load transfer was met. However, the pier remains on active jacks to obtain engineering data for evaluation of secondary settlement.

Pier E8 N-S Bulkhead: Excavation of the drift and installation of lateral bracing continued to approximately 15 % completion.

Pier KC2: Bearing plates and jacks were installed and load transfer commenced.

Pier W8: Installation of rebar in the hammerhead was completed and the concrete was placed.

Pier W10: Load transfer was initiated and the acceptance criteria met. As with pier E10, active jacking will continue to obtain data for evaluation of secondary settlement.

W8 N-S Bulkhead: Excavation of the drift and installation of bracing continued to approximately 25 % completion.

SWPS: Phase II shallow probing was completed and deep probing and sheeted pits for probing continued. Interior well installation began while work on benchmarks and extensometer continued.

BWST: The drilling of anchor holes and fabrication of reinforcing steel continued. Sandblasting existing concrete surfaces and mapping of cracks was continued.

Quality Control, Documentation and Records:

1. The implementation of nonconformance trending analysis as applicable to underpinning activities was reviewed.
2. Reviewed CPCo Audit reports of Dudgeon and of U. S. Testing .
3. Lead Auditor qualifications were reviewed for the U. S. Testing and the Dudgeon audits.
4. Completed inspection reports were examined for the following activities: installation of anchor bolts, grouting, welding of jack stands, concrete drilling and rebar splicing.
5. QC field inspections were witnessed.

Observations

Construction - Load transfer at pier W10 caused slight movement of adjacent piers, particularly W9 which remained on active jacks until late in the week as a result of the building movement noted previously. A review of the data being prepared and evaluated by resident engineering does not indicate any unusual pier or structure movement in this area.

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Resident Engineering continues to evaluate all pier load-settlement and structural movement data to assure that no unexpected problems are developing.

The Assessment Team observed the results of the installation of several flowable grout test panels and two dry-pack test panels. A visual evaluation of the panels indicated no significant defects. Two small void areas were observed in one of the dry-pack panels. Based on these results the Assessment Team believes the Sub-contractor is capable of satisfactorily installing either the dry-pack or flowable grout materials.

Quality Control, Documentation and Records:

1. The trending analysis system implementation has been somewhat modified from its normal usage for application to the remedial soils work. To insure that maximum benefits are obtained the evaluation of data must be accomplished in a more timely manner.
2. All audit findings resulting from the Dudgeon and U S Testing Audits were answered in an acceptable manner. Implementation of a few items has yet to be verified by the audit team.
3. Qualifications and certifications of the lead auditors involved in the audits of Dudgeon and U S Testing were in accordance with ANSI N 45.2.23 in all instances.
4. No discrepancies were found in any of the inspection reports which were reviewed.
5. The QC inspections of Hiltibolt installation and torquing were in accordance with the inspection procedures.

The weekly Engineering and Construction Coordination meetings are becoming an effective forum for discussion of problem areas. However, timely resolution of outstanding NCR's continues to be a nagging problem. The organization involved must strive to significantly reduce the time required for resolution.

During the week an NCR was written on weld rod filler material which was inadvertently used up to 12 hours after withdrawal from the supply station. The specification was recently altered to limit the use time to 10 hours maximum. Of particular significance was the fact that MPQAD discovered alterations to the weld rod filler withdrawal records associated with this nonconformance. FSO reacted quickly to the situation by terminating the employment of the responsible welding engineer.

Nonconformance Identification Report

| <u>NIR No.</u> | <u>Description</u>  | <u>Date</u>                  |
|----------------|---|------------------------------|
| 12             | NCR Reviewed for Reportability<br>under 10 CFR 50.55 (e) part 21. | (Opened) (Closed)<br>6/16/83 |

*Wayne E. Miller*  
Project Engineer

*AS Runkle*  
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 27, 1983

Present For:

|                        |                |              |                            |
|------------------------|----------------|--------------|----------------------------|
| <u>Consumers Power</u> | <u>Bechtel</u> | <u>MPQAD</u> | <u>Stone &amp; Webster</u> |
| G. Murray              | M. Blendy      | R. Sevo      | W. Kilker                  |
|                        | D. Lavelle     |              | P. Barry                   |
|                        | N. Swanberg    |              |                            |
|                        | J. Gaydos      |              |                            |

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 - SWPS Soldier Pile Installation.

D. Lavelle reported the procedure for drilling and supporting the pre-drilled 2 ft. diameter hole is being revised based on the experience on the first pile installation attempt. J. Gaydos said a change request was processed to use grout as the pile backfill rather than concrete.

Item 2 - E/W8 Reinforcing Steel Welding.

D. Lavelle said that the two qualified welders have nearly completed this type of welding for pier E8 hammerhead.

Item 3 - Pier KC2 Dry-Pack.

J. Gaydos reported that at pier KC2 the upper leveling plate dry-pack had been removed after the initial cube break strength did not quite meet the specification requirements. Rather than waiting or attempting an engineering resolution, the material was removed and new dry-pack installed.

\* Item 4 - Concrete Mix Design.

N. Swanberg stated that the SCN approving new concrete mix designs, including superplasticized concrete, is scheduled for release this week. P. Barry said K. Razden ( C P Co ) had discussed the proposed designs with him and the Team concerns were stated. K. Razden must approve any new mix design prior to release as a project concrete mix.

Item 5 - MPQAD Inspections and Sign-offs.

R. Sevo will verify that MPQAD has "signature-authorized " personnel on-site on weekpeds to assure timely sign-off on NCRs, FCRs, etc.

\* Item 6 - Auxiliary Building Benchmark Movement.

W. Kilker reported J. Darby and P. Barry discussed the measures taken last week to reduce the structural settlement shown on Unit 1 Auxiliary building as shown by the benchmark in the vicinity of pier W8. Apparently care taken in working around the benchmark combined with some pier re-jacking has reduced the settlement rate to that in effect over the past few months.

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 27, 1983

Item 7 - Grouting Of Void Between Existing Fill And West Auxiliary Building Foundation:

There was a discussion of the grouting of the gap encountered between the soil and auxiliary building foundation during fill excavation. The grout take was nearly 30 cubic feet.

Item 8 - EPA Excavation.

W. Kilker reported that the Assessment Team considered the recent slope lay-back extending under the Unit 1 EPA area to be questionable in terms of the intent of the drawings. N. Swanberg said Project Engineering agreed with this viewpoint but from a structural support viewpoint there was no reason for concern.

Item 9 - Assessment Team Scope of Work.

W. Kilker reported that, as per conversations last week with the NRC and CPGCo, the Team will in the future assess all soils remedial work done on safety related structures or installations.

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 28, 1983

Present For:

| <u>Consumers Power</u> | <u>Bechtel</u> | <u>MPQAD</u> | <u>Stone &amp; Webster</u> |
|------------------------|----------------|--------------|----------------------------|
| G. Murray              | M. Blendy      | R. Sevo      | P. Barry                   |
| J. Schaub              | D. Lavelle     |              | W. Kilker                  |
| R. Wheeler             | N. Swanberg    |              | P. Majeski                 |
|                        | J. Gaydos      |              | L. Rouen                   |
|                        | E. Cvikl       |              |                            |

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 - Plate Tolerances.

There was a discussion of tolerance on the fluorocloc plate flatness based on an NCR that has been issued on pier W10 plates. N. Swanberg reported that tolerances will be provided to better define for QC the acceptable limits.

Item 2 - Pier E/W8 Status.

M. Blendy reported that rebar welding for E8 is virtually complete and that the similar activity for W8 is now underway.

Item 3 - Pier W10 Status.

M. Blendy presented an outline of the chronology of events that have led to the delays associated with the load transfer at pier W10.

Item 4 - MPQAD Re-inspection of Auxiliary Building Instrumentation Installations.

R. Sevo reported that MPQAD will re-inspect the open IPIN items and also inspect the remainder of the system. NCRs will be issued for all open items and new nonconforming conditions that will then require disposition.

Item 5 - Engineering/Construction Coordination Meeting.

M. Blendy stated that in an attempt to improve the productivity of the meeting an action item list has been developed and that the goal is to resolve at least 70 percent of all FCRs and NCRs under discussion (at a particular meeting) prior to adjournment.

Item 6 - NCR on Furnishing Pressure Grout.

J. Gaydos reported that an NCR was issued on the grout used to fill the gap between the fill and EPA foundation. The basis for issuance was on interpretation of the specification requirement for furnishing the grout. N. Swanberg said Engineering will disposition by clarifying the specification wording or discussing the interpretation with MPQAD.

Items Requiring Resolution.

Items requiring resolution-none.

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

Held at Midland Site Location  
Midland, Michigan  
June 29, 1983

Present For:

|                        |                |              |                            |
|------------------------|----------------|--------------|----------------------------|
| <u>Consumers Power</u> | <u>Bechtel</u> | <u>MPQAD</u> | <u>Stone &amp; Webster</u> |
| G. Murray              | M. Blendy      | R. Sevo      | P. Barry                   |
|                        | J. Gaydos      |              | P. Majeski                 |
|                        | E. Cvikl       |              |                            |
|                        |                |              | <u>Parsons</u>             |
|                        |                |              | P. Parish                  |

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 - Documentation Concerning Pier Load Transfer.

R. Sevo requested a copy of the load transfer field data sheets from QC prior to Mergentime issuing the final copy."

\* Item 2 - QA Reinspection.

R. Sevo and M. Blendy stated that a number of NCR's will be issued concerning reinspection of electrical conduit originally installed as non-Q but now re-inspected as Q. P. Majeski stated that it would be important to review these NCR's to determine if the nonconforming items were an indication of construction quality on nonQ items, the result of as-built conditions or the result of differing inspection criteria. G. Murray stated that none of the NCR's to date concerns the integrity of the system.

\* Item 3 - Use of FCR's For Drawing Revisions.

P. Parish stated that often drawings were difficult to review because of the number of attached changes and the physical problem of looking on the back of the drawing. In the past, these documents were kept in a binder but CPCo requested that they be attached to the drawings. E. Cvikl will look up the current requirements for reissuing drawings based upon the number of outstanding changes. It was also mentioned that an FCR, etc. is usually written to approve a field as-built condition prior to QC inspection to prevent an NCR from being written. M. Blendy stated that from three to six FCR's are usually issued a day.

Item 4 - Building Settlement.

E. Cvikl stated that the differential settlement from DSB 2W had leveled off in the last few days but still was being monitored.

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 30, 1983

Present For:

| <u>Consumers Power</u> | <u>Bechtel</u>    | <u>MPQAD</u> | <u>Stone &amp; Webster</u> |
|------------------------|-------------------|--------------|----------------------------|
| G. Murray              | M. Blendy         | R. Sevo      | P. Barry                   |
| K. Razden              | J. Gaydos *       |              | P. Majeski                 |
|                        | E. Cvikl          |              |                            |
|                        | D. Lavelle *      |              | <u>Parsons</u>             |
|                        | J. Kelleher       |              | P. Parish                  |
|                        | D. Himmelberger * |              |                            |

Part time. \*

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 - Rebar Welding For E8.

An NCR was written against the welding of rebar because a portion of the welding was done with weld rod which was in use for more than the specified 10 hour period. This situation inadvertently occurred because of two factors. The first being that the weekend shifts on which much of the work was performed were 12 hours, rather than 10 hours. The second factor is that there has been a recent specification change cutting the allowable time from 12 hours to 10 hours. D. Lavelle advised the Assessment Team that the FSO Lead Field Welding Engineer was terminated for altering the weld rod withdrawal records associated with the E8 welding nonconformance described above.

\* Item 2 - Carlson Meters.

P. Barry questioned if the WJE procedure on Carlson Meters may need changing as a result of an upcoming specification change.

\* Item 3 - Pumped Grout Test Program.

The results of the testing of grouting procedures of the first four test plates showed satisfactory results. Three additional plates were grouted and one dry packed on June 29. During this test series, plate bulge as high as 3/8 inch was noted. R. Sevo indicated that the MPQAD inspector noted pressures of up to 125 psi during grout placement. There was some discussion as FSO had noted maximum pressures of 12-14 psi. R. Sevo is to confirm his understanding of MPQAD's observation.

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

Held at Midland Site Location  
Midland, Michigan  
June 30, 1983

Item 4 - EPA Excavation.

No NCR is to be written for overexcavation under the Unit 1 EPA as the drawings give the RGE authority to layback the slope as required. No specific dimensions are provided on drawings and engineering has no additional concerns.

\* Item 5 - Load Transfer Acceptance Determination.

Paul Barry asked how rebound would be taken into consideration in determining acceptance of a pier after load transfer. E. Cvikl is to determine method of acceptance.

Item 6 - Carlson Meter Readings at Pier W11.

P. Barry asked if Carlson meter information would be used to determine a need to rejack W11 or any other pier. K. Razden indicated that the intent is to maintain constant elevation of the structures.

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  
July 1, 1983

Present For:

Consumers Power

G. Murray

Bechtel

M. Blendy

E. Cvikl

D. Himmelberger\*

MPQAD

R. Sevo

Stone & Webster

P. Majeski

Parsons

P. Parish

Part time. \*

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 - Carlson Meters.

E. Cvikl indicated that the WJE procedure will require changes as a result of the upcoming specification change. Forecast dates for completion are being developed.

Item 2 - Use of FCR's For Drawing Revisions.

E. Cvikl provided copies of the pertinent pages defining the criteria to be used for reissuing a drawing based upon the number of outstanding changes. In summary these are: 45 days since approval of first FCR/FCN against the drawing; 10 days have elapsed since the 10th FCN; and, 30 days since the 15th FCR, FCN and DCN, taken in total.

Item 3 - Pumped Grout Test Program.

R. Sevo indicated that the high pressures noted by MPQAD inspector during the pumping operation were only instantaneous "spikes" during the hand pumping operation. M. Blendy indicated that the test panel for the dry pack did not go as well as for the pumped grout. It was his understanding that the crew was not as experienced as the crews actually performing the work at the piers. An additional test panel is to be constructed using dry pack. P. Parish said that it was his understanding that the dry pack used for the test was not as moist as that used at the piers. He further stated that all of the panels including the dry packed panel appeared acceptable to him.

Items Requiring Resolution.

Items Requiring Resolution-None.

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

Held at Midland Site Location  
Midland, Michigan  
June 28, 1983

Present For:

Stone & Webster

P. Barry  
P. Majeski  
L. Rouen  
W. Kilker

MPQAD

R. Oliver  
D. Horn  
M. DeWitt  
J. Meisenheimer

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 NIR # 12.

J. Meisenheimer reported that the QAR has been dispositioned and a revised NCR form will be forthcoming to include the "reportability" consideration.

Item 2 - Instrumentation IPINs.

J. Meisenheimer explained that MPQAD will re-inspect the open IPIN items and issue NCRs as required. In addition, MPQAD will re-inspect the remainder of the instrumentation system installation. The majority of these open items are electrically related.

Item 3 - MPQAD Signature Authority.

M. DeWitt and J. Meisenheimer explained that signature authority has been designated for all work shifts. However, in the case of sensitive issues or disputes over interpretation, department supervisory signature shall be obtained.

Item 4 - Revised Instruction on Issuing QC Hold-Tags.

J. Meisenheimer reported the instruction on issuing QC Hold Tags is being revised. Once implemented, there should be less delay in actually placing the tag and thereby a reduction in confusion with the field personnel as to the "limits" of the hold area.

Item 5 - MPQAD Activities Status.

R. Oliver reported that presently his group is concentrating on reviewing drawings for Control Tower piers. Few Work Activity Package submittals are coming through from the FSO Constructability group.

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

Held at Midland Site Location  
Midland, Michigan  
June 28, 1983

Item 6 - MPQAD Receipt Inspections.

W. Kilker inquired if there are any significant problems in receiving materials from Q vendors or in MPQAD-Soils inspectors encountering problems with materials originally Q-Received. J. Meisenheimer said the receiving inspection process is very thorough and in general has identified any problem materials and resulted in the proper corrective action.

Item 7 - Future Meeting.

W. Kilker requested that the next Assessment Team/MPQAD meeting to be on 7-6-83 at 7:30 a. m.

Items Requiring Resolution

None