



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 20, 1983

J. O. No. 14358
Ref. MPF 43

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANTS-UNITS 1 & 2
INDEPENDENT ASSESSMENT OF UNDERPINNING
REPORT NO. 43

A copy of the Independent Assessment of Underpinning, Weekly Report No. 43 for the period of July 10, 1983 through July 16, 1983 is enclosed with this letter. Included as attachments, are the minutes of the daily meeting 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

A. Stanley Lucks
Project Manager

Enclosures

ASL/pd

PRINCIPAL STAFF	
✓ RA	EXF
D/RA	SCS/10/23
A/RA	PAO
OPRP	SLO
DRMA	RC
DRMSP	
DE	
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Midland Plant
Units 1 & 2
Independent Assessment of Underpinning

Weekly Report No. 43

July 10, 1983 through July 16, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

W. Kilker 7/10 - 7/16

B. Holsinger 7/10 - 7/14

Parsons, Brinckerhoff Michigan, Inc.

J. Ratner 7/13 - 7/16

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
7/11-7/13, 7/15	Stone & Webster Bechtel Consumers Power Parsons (7/15)	Daily Meetings
7/14	Nuclear Regulatory Commission Bechtel Consumers Power Stone & Webster	Discussion of Two Recent MPQAD Stop Work Orders And Assessment Team Report # 41.
7/12	Stone & Webster Consumers Power (MPQAD)	Weekly MPQAD Meeting

Activities

Construction:

Pier E8: The mapping of the cut reinforcing bars in the turbine building mat was completed and the nonconformance dispositioned. Installation of the upper leveling Hilti-bolts began and the lower leveling plate installation was completed.

Pier E8 N-S Bulkhead: The bulkhead installation was completed including the drift excavation and the bulkhead steel set and lagging supports.

Pier E10: The pier remained on active jacking throughout the week.

East Side Zone Excavation: The access shaft was excavated from E1. 609 to approximately E1.600. Installation of wood lagging and backpacking was done as the excavation progressed. The mass excavation material consisted of from 1 to 2 ft. of unreinforced concrete and a combination of granular and clay fill. There was a much higher percentage of sand fill in this area than in the excavation under the turbine building where clay made up the higher portion of the fill. The mass excavation also included a portion of the FIVP structure.

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Pier W8: Installation of the upper leveling plate was curtailed by a combination of problems; grouting of an abandoned dewatering well within the area, the need to relocate a drift set raker plate, and dispositioning of a cut reinforcing bar nonconformance. The installation of the lower leveling plate was completed.

Pier W8 N-S Bulkhead: The bulkhead drift excavation, drift sets, and lagging installation were completed.

Pier W10: The pier remained on active jacking status throughout the week.

West Side Zone Excavations: The progress on the access shaft excavation and support and the excavation under the EPA and FIVP area West of the N-3 bulkhead was similar to the progress described for the East side.

SWPS: All drilling activity was halted on July 11, by a MPQAD Stop Work Order after 2 well holes were mislocated in a three day period. The installation of sheeted pits for probing continued and the excavation for the Train A service water pipe replacement began. Installation has been completed and base line data is being recorded for all of the extensometers and four of the six benchmarks. The installation of the remaining two benchmarks is scheduled to be completed next week.

BWST: Sandblasting of the foundation surfaces continued as did off-site fabrication of reinforcing steel. Installation of shallow anchor bolts for construction forms was halted on July 11, by a MPQAD Stop Work Order due to lack of inspection attributes for non-Q anchor bolt installation in Q concrete.

Quality Control, Documentation, and Records

1. Reviewed the specifications and QA procedures for procurement of grillage beams and other fabricated items from NPS.
2. Initiated a review of receipt inspection packages from NPS supplied fabricated materials.
3. Reviewed the Contractor's field procedure that contains directions on Field Change Request (FCR) implementation.
4. Evaluated the existing MPQAD PQCI for anchor bolt installation in light of the two reinspections and the issuance of NCRs each time on the N-S bulkhead raker bearing plates.
5. Reviewed the circumstances surrounding the issue of two MPQAD Stop Work Orders.

Observations

Construction:

The satisfactory completion of the E/W8 N-S bulkheads allowed the mass excavation of soils in the access shaft, under the FIVPs, and portions of the auxiliary building. To date the removal of the unreinforced concrete and existing fill has proceeded efficiently and in accordance with the project documents. Meanwhile, preparation for load transfer at piers E/W8 proceeded slowly. Minor problems

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continue to delay the completion of this activity. The Assessment Team, believes that the Contractor, with the ample resources at-hand, should have been able to complete this load transfer within a much shorter time period.

The Assessment Team reviewed the proposed procedural modifications intended to eliminate the well location and drilling problems in the area of the SWPS. In the opinion of the Assessment Team, these modifications combined with close attention to the activities by the field personnel should eliminate any problems.

Quality Control, Documentation and Records

1. As referenced in the Notes of MPQAD meeting of July 12, a number of questions/comments were submitted concerning the PQCI associated with NPS activities. The resolution of these items and the impact if any, on the PQCI will be reported upon completion of the MPQAD response.
2. The receipt inspection package review is still in progress. The Assessment Team observations will be noted in a later report.
3. The Assessment Team review of the Contractor's field procedure on the implementation and use of FCRs did not reveal any concerns. The procedure allows the use of the FCR as a means of resolving "in-process" change conditions that affect the design intent. In the opinion of the Assessment Team the field implementation of the FCR procedure has been restricted to situations conforming to the procedural limits.
4. As a result of the Assessment Team review of the QC inspection and reinspections of the bulkhead raker plate bearing washers, NIR #13 was issued which questioned the adequacy of the PQCI to inspect this attribute.
5. The initial MPQAD Stop Work Order was issued in response to a lack of an inspection attribute for anchor bolt installations performed by Bechtel "direct-hire" personnel in Q concrete. Since the work performed by Bechtel can encompass much more than the Soils Remedial the Stop Work Order was an effective way to control the situation while the attribute is clarified and the requirements for inspection on installed bolts are established. The Assessment Team anticipates the resolution to be straight-forward and work on the BWSTs should resume shortly.

The other Stop Work Order was issued as a result of drilling problems and two wells mislocations in 3 days on SWPS work. CPCo reacted quickly and notified the NRC of the problems and took immediate steps to initiate a Stop Work Order, even though MPQAD had not completed their evaluation of the problems. The Assessment Team believes that the MPQAD organization has demonstrated a strict quality attitude in the past and would have arrived at the appropriate decision on completion of their evaluation.

Nonconformance Identification Report

<u>NIR No.</u>	<u>Description</u>	<u>Date</u>
12	NRC Reviewed for Reportability under 10 CFR 50.55 (e), part 21.	(Opened) (Closed) 6/16/83
13	PQCI Attribute for Plate Bearing Verification	7/14/83

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Open Items Requiring Resolution

Commencing with this weekly report, a list will be maintained that reflects those items discussed between the Assessment Team and various site personnel that were not resolved during the week. The items will remain on the list until resolved at which time the closure reference will be noted. Weekly Report Nos. 1 through 42 are in the process of being reviewed for open items. The result of this review will be included in future reports.

<u>Item No.</u>	<u>Description</u>	<u>Closure Reference</u>
43-20	Discussions of E/W8 Grillage Schedule	
43-24	Close-out of Assessment Team open items of Weekly Reports 1-42	
43-29	Discussion of Modification of No. of inspection sign-offs	
43-32	E/W Grillage Layout	
43-10	NIR # 12 Response	
43-40	Receipt Package Request	
43-50	Grillage Installation Questions	
43-70	MPQAD Policy on Implementing 10CFR50 Appendix B, Criteria VIII.	

Paul Parry for W.F.K.
Project Engineer

A. Stanley Lovell
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
July 11, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	J. Fisher E. Cvikl D. Lavelle D. Himmelberger J. Gaydos	R. Sevo	W. Kilker <u>Parsons</u>

Purpose

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

Discussion

Item 43-1: SWPS Well Mislocation.

D. Himmelberger presented the facts surrounding the mislocating of well No. 521 on 7-9-83. In summary, the well location was properly surveyed but the drill rig was set up over a stake indicating a buried obstruction. Not until reaching the depth of the obstruction was the location error realized. However, once the Engineer noted changed drilling conditions work was halted immediately.
(CLOSED ITEM)

Item 43-2: Status of BWST work.

D. Himmelberger stated that all connector holes have been cored and shear pins should arrive on-site today. Sandblasting the existing exposed surfaces is partially complete and rebar should be ready within two weeks. (CLOSED ITEM)

Item 43-3: Status of NCR on Turbine Mat Cut Rebar.

E. Cvikl reported that Engineering determined that the number of actual bar cuts was only 3 and that a rework was not required. (CLOSED ITEM)

Item 43-4: SCN for Plasticized Concrete.

J. Gaydos said there are on-going discussions with CPCo concerning the wording of the SCN. (OPEN ITEM)

Item 43-5: Elimination of Selected Drift Sets and Lagging.

D. Lavelle reported that no FCR is required. The existing drawings delineate which sets can be removed prior to the zone excavations. (CLOSED ITEM)

Item 43-6: Redhead Anchor Removal.

E. Cvikl reported that in the Turbine Building mat there is no need to drill out these protrusions. Project Engineering will address the requirements for the Auxiliary Building mat. (OPEN ITEM)

Item 43-7: BWST Foundation Cracks.

J. Fisher said J. Darby will present an update on the recent crack mapping done on the sandblasted portions of the BWSTs. (OPEN ITEM)

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

Held at Midland Site Location
Midland, Michigan
July 11, 1983

Item 43-8: QC Hold Tag Removal.

In response to a question by W. Kilker on July 8, J. Fisher provided a memo sequencing the events of the NCR resolution and Hold Tag removal on the W8 bulkhead Hilti bolt thread engagement. (CLOSED ITEM)

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

Held at Midland Site Location
Midland, Michigan
July 12, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	J. Fisher E. Cvikl J. Gaydos M. Lewis	R. Sevo	W. Kilker B. Holsinger

Purpose

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

Discussion

Item 43-9: Active Jacking of Pier E/W 10.

M. Lewis reported that the intent of maintaining a constant active jacking load on these piers is to determine the onset of secondary compression of the till soils. There is no clear indication yet as to when the active jacking will be terminated. (CLOSED ITEM)

Item 43-10: E/W8 N-S Bulkhead Status.

J. Fisher reported the NCRs on anchor bolt installation have been dispositioned and the required re-works accomplished. The E8 N-S bulkhead installation is continuing while the W8 N-S bulkhead is complete and mass excavation has started. (CLOSED ITEM)

Item 43-11: Stop Work Actions.

J. Fisher stated that MPQAD had issued two separate work stop orders on 7-11-83. One deals with the inspection criteria for shallow anchor holes on the BWSTs. The other stoppage concerns the well drilling activities on the SWPS. The latter order arose due to the recent mislocation of two well holes. G. Murray said the NRC was notified of these stoppages and that a meeting with the NRC is scheduled for 7-13. (CLOSED ITEM)

Item 43-12: Concrete Mix Designs.

J. Gaydos said the discussions between the field and CPCo had resolved the issues over the proposed plasticized concrete mix design. One comment on slump margins on an existing mix design remains to be resolved before the SCN is issued. (OPEN ITEM)

Item 43-13: Carlson Meter Installation Procedures.

E. Cvikl stated that the SCN and DCN on the revised installation procedures has been issued by Project Engineering. (CLOSED ITEM)

Item 43-14: Redhead Anchor Protrusions.

E. Cvikl reported that Project Engineering sees no need to drill-out this type of mat protrusion in the auxiliary building. (CLOSES OUT ITEM 43-6)

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

Held at Midland Site Location
Midland, Michigan
July 12, 1983

Item 43-15: BWST Crack Mapping.

E. Cvikl reported that in the course of sandblasting the BWST foundation walls for joint preparation, the Engineers will note any crack size or pattern change as reflected on the cleaned surface. However, no re-mapping program is anticipated. (CLOSES OUT ITEM 43-7)

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

Held at Midland Site Location
Midland, Michigan
July 13, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	J. Fisher E. Cvikl J. Gaydos	R. Sevo	W. Kilker B. Holsinger

Purpose

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

Discussion

Item 43-16: W8 N-S Bulkhead NCRs.

B. Holsinger asked for an explanation of the inspection sequence that led to the issuance of an NCR on 7-12 on a loose drift set washer after completion of the initial inspection. This instance is, in fact, the second occurrence since the initial inspection completion. FSO will respond. (OPEN ITEM)

Item 43-17: Raker Plate Relocation.

J. Fisher reported that the raker plate near the end of the pier 8 drifts must be relocated to allow installation of the upper leveling plates for pier E/W8. (CLOSED ITEM)

Item 43-18: Proposed Concrete Mix Design.

There was a discussion of separating the two portions of the SCN on approval of a superplasticized concrete mix design and the change in slump criteria inadvertency margin on the existing mix design. Approval of the plasticized mix design would allow its use on the initial tieback installation. (CLOSED ITEM)

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

Held at Midland Site Location
Midland, Michigan
July 14, 1983

No meeting was held on this date.

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

Held at Midland Site Location
Midland, Michigan
July 15, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	J. Fisher E. Cvikl J. Gaydos	W. Lytle	W. Kilker <u>Parsons</u> J. Ratner

Purpose

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

Discussion

Item 43-19: Piers E/W10 Jacking Operation.

J. Fisher reported that the manifolds will be temporarily disconnected today and relocated to facilitate the mass excavation activities. Engineering has determined this momentary "disconnect" will have no significant impact on the on-going load-settlement monitoring. (CLOSED ITEM)

Item 43-20: Grillage Installation Schedule.

J. Fisher said he would briefly discuss the Mergentime schedule at the Assessment Team meeting on 7-18-83. A copy of the schedule was provided to the Team. (OPEN ITEM)

Item 43-21: Mass Excavation Status.

J. Fisher reported the mass excavation work is proceeding more rapidly than planned. (CLOSED ITEM)

Item 43-22: Service Water Train A Work Status.

J. Fisher said the excavation of the existing pipe will commence on 7-18. The excavating & backfilling portions should take about a total of 20 days and actual pipe replacement about 25 days. (CLOSED ITEM)

Item 43-23: CPCo Response to NRC Request.

G. Murray reported that CPCo had prepared the letter to the NRC in response to requests for explanations on the two Stop Work Orders (SWPS drilling and Bechtel Direct-Hire anchor bolt installations) and on certain items in the Assessment Team Weekly Report No. 41. The intent is to present this letter to the NRC today. (CLOSED ITEM)

Item 43-24: Assessment Team Response to NRC Request.

W. Kilker stated that commencing with Weekly Report No. 43 a definite open item tracking system will be incorporated into the weekly reports. In addition, the previous 42 weekly reports will be reviewed for any open items and any required resolution obtained. The review should be complete and outstanding items resolved by the week of July 25-29. (OPEN ITEM)

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

Held at Midland Site Location
 Midland, Michigan
 July 15, 1983

Item 43-25: Clarification of Notes of Daily Meeting June 29, Item 3 (Reference Assessment Team Weekly Report No. 41).

W. Kilker stated the NRC had concerns over the following statement from the referenced notes: " 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." According to W. Kilker, the concern was that the field personnel completed an installation then, when necessary, prepared a Field Change Request (FCR) rather than allowing a nonconformance to be written. W. Kilker explained that he had talked to P. Barry (the author of that day's notes) and that the "as-built" conditions he referred to was the condition encountered by the field personnel not the "as built" condition created by the underpinning contractor. The FCR usage was, in fact, confined to an "in-process" conditions and not implemented after completion of an installation to avoid a nonconformance. (CLOSED ITEM)

Item 43-26: On-site Distribution of Assessment Team NIRs.

W. Kilker confirmed that when the Assessment Team issues an NIR a copy will be brought to the next day's daily meeting. (CLOSED ITEM)

Item 43-27: Issue of NIR # 13.

W. Kilker reported that the Assessment Team NIR # 13 was issued today. The concern was the lack of an adequate inspection attribute in the PQCI covering the specification acceptance criteria for clearance between base plates and concrete surfaces. W. Kilker said a copy of the NIR # 13 will be furnished to the various group representatives at the end of the meeting. (CLOSED ITEM)

Item 43-28: Update on W8 N-S Bulkhead Washer NCRs.

J. Fisher explained that FSO field personnel attributed the QC encountering of a loose washer on a plate that had been torqued and previously inspected by QC to the fact that the washer was not "loose" but required some effort to move. In any case the NCR was dispositioned to rework and the washer is now tight. W. Kilker stated the explanation was satisfactory and referenced the group to the issuance of NIR # 13 (see Item 43-27). (CLOSES OUT ITEM 43-16)

Item 43-29: MPQAD Commentary on FSO Proposal to Initiate Discussions on Inspection Sign-offs.

W. Lytle stated that MPQAD is willing to discuss proposals to change requirements but that the quality organization would not permit any reduction in attributes without a re-evaluation of the design document requirements. Reductions in the number of sign-off would not be considered just to reduce inspection time or the number of NCRs issued. J. Fisher replied that he was aware that the proposal had been presented in the weekly Engineering Coordination Meeting. (OPEN ITEM)

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

Held at Midland Site Location
Midland, Michigan
July 15, 1983

Item 43-30: FSO Tagging Mechanism to Define Extent of Work Impacted by QC Hold Tags.

J. Fisher reported that there are existing forms that FSO can install adjacent to the QC Hold Tag to define the extent of the work impacted by the tag. However, a revised form is being prepared for permanent use. (CLOSED ITEM)

Item 43-31: E/W8 Grillage Beam Materials Status.

J. Ratner questioned the status of materials for the grillages. J. Fisher said that all material had been shipped from NPS. J. Ratner was referred to the appropriate FSO Engineer for details of the status. (CLOSED ITEM)

Item 43-32: E/W Grillage Layout.

J. Ratner questioned if the Subcontractor was planning on a "lay-out" of the grillage materials to assure that the system is complete. J. Fisher replied that there had been discussions concerning such an activity but that no decision had been made. (OPEN ITEM)

Item 43-33: Status of New Load Transfer Driving Wedges.

J. Ratner asked if the new load transfer driving wedges had arrived on-site. J. Fisher said the first shipment was in. He referred J. Ratner to the appropriate FSO Engineer for details. (CLOSED ITEM)

Item 43-34: Concrete Mix Design SCNs.

J. Gaydos reported the SCN for the superplasticized concrete was separated from that for the resolution of the inadvertency margin for slump. (CLOSES OUT ITEMS 43-4 AND 43-12)

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

Held at Midland Site Location
Midland, Michigan
July 12, 1983

Present For:

Stone & Webster

W. Kilker
B. Holsinger

MPQAD

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

Purpose

This meeting is held each week to obtain information from MPQAD regarding the Soils Underpinning work at the Midland Plants Units 1 & 2.

Discussion

Item 43-1Q: Status of NIR # 12.

MPQAD stated the new NCR procedure has been finalized but will not be utilized until training has been completed. Response to NIR # 12 will be submitted today. (OPEN ITEM)

Item 43-2Q: Status of BWST Reinforcing Steel.

R. Oliver stated the QA concerns at the Fabrication Shop have been resolved. M. DeWitt stated that two Q.C. Inspectors will remain assigned to the Lansing facility. (CLOSED ITEM)

Item 43-3Q: Status of Materials From N.P.S.

MPQAD stated that there are continuing minor problems with welds on the grillage beam items received from N.P.S. MPQAD has scheduled a meeting with the appropriate supervision in order to reduce even further any inconsistencies between shop and receipt inspection standards. (CLOSED ITEM)

Item 43-4Q: Grillage Beam Receipt Inspection Package.

For review purposes the Assessment Team requested two receiving packages for the grillage beams including receipt Inspection Reports, SQR reports, and the shop drawings. (OPEN ITEM)

Item 43-5Q: Status of Questions on Grillage Beam PQCI.

The Assessment Team submitted a list of questions/comments on the Grillage Beam Installation PQCI. MPQAD's response is expected next week. (OPEN ITEM)

Item 43-6Q: Stop Work Orders.

J. Meisenheimer stated that two Stop Work Orders were issued yesterday by MPQAD. One was for the SWPS well drilling as a result of the two NCRs issued recently for hole mislocations and the other for inadequate inspection of Hilti Bolt installations for the BWST, in particular, and Bechtel direct-hire work in general. (CLOSED ITEM)

Item 43-7Q: Criteria VIII.

The Assessment Team asked for the MPQAD policy and implementing procedures for 10CFR50 Appedix B, Criteria VIII. MPQAD will respond. (OPEN ITEM)