



STONE & WEBSTER MICHIGAN, INC.

P.O. Box 2325, BOSTON, MASSACHUSETTS 02107

PRINCIPAL STAFF			
RA	<i>m</i>	OPRP	
D/RA		DE	
A/RA		DRMSF	
RC		DRMA	
PAO		SCS	<i>orig</i>
SGA		WL	
ENF		File	<i>file</i>

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

November 1, 1983

J. O. No. 14358
Ref. MPF 58

Attention: Mr. R. Cook

DOCKET NO. 50-339/330
MIDLAND PLANT UNITS 1 & 2
INDEPENDENT ASSESSMENT OF UNDERPINNING
REPORT NO. 58

A copy of the Independent Assessment of Underpinning Weekly Report No. 58 for the period of October 23, 1983 through October 29, 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. In addition, the notes of the first Monthly Meeting of Stone & Webster and Consumers Power with the Nuclear Regulatory Commission are attached.

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

AJ Mijoch for

A. Stanley Lucks
Project Manager

Enclosures
ASL/pd

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MINUTES OF THE MEETING ON OCTOBER 13, 1983

STATUS OF INDEPENDENT ASSESSMENT OF UNDERPINNING AND REMEDIAL SOILS WORK

Purpose

To discuss Third Party Overview activities of Stone & Webster (S&W) and problems encountered regarding underpinning and remedial soils work.

Summary

Mr. A. S. Lucks, Project Manager for the Independent Assessment of Underpinning and Remedial Soils Work, presented a summary of the assessment program for the past year. Highlights follow:

- Assessment Team has been on site for over twelve months.
- The scope of work for the Assessment Team includes overseeing the construction of the underpinning and all remedial soils activities, the Quality Assurance activities associated with the underpinning and remedial soils activities, and reviewing the Work Activity Packages for completeness.
- The Assessment Team includes staff with expertise in Geotechnical Engineering, structural engineering, Quality Assurance, construction, and underpinning.
- The underpinning activities are proceeding on a 24 hour day, 7 days per week schedule and the Assessment Team operates as two units to provide 7 day coverage. One unit is headed up by W. E. Kilker, the second unit is headed up by P. J. Majeski.
- The Assessment Team submits weekly reports, Nonconformance Identification Reports (NCRs) and periodic summary reports directly to the NRC with copies to Consumers Power Company (CPCo).

- To-date 16 underpinning piers have been installed for the Auxiliary Building underpinning and the first set of grillages have been installed.
- Work at the Service Water Pump Structure (SWPS) has included installation of the soldier piles and dewatering systems in preparation for underpinning.
- Preparations are in progress for the extension of the Borated Water Storage Tank foundations.
- The Assessment Team has had the opportunity to see most of the operations necessary for the underpinning work.
- A total of 55 weekly reports, 15 NCRs and a 90-Day Summary report have been issued.

Based on activities during the past twelve months, the Assessment Team has the following observations:

- The underpinning that has been installed is of a very high quality.
- The Quality Assurance staff are performing as an effective quality organization.
- All of the organizations involved in the underpinning have demonstrated a positive attitude and concern towards quality.
- The instrumentation system installed to monitor building movements adds to the confidence in the success of the underpinning work.
- Both CPCo and Bechtel have been responsive to the requests and needs of the Assessment Team.
- Currently 14 of the 15 NIRs have been closed out. Seven of the NIRs were related to Specifications or Construction Procedures, six were related to QA Procedures, and two were hardware related.

- From time-to-time the Assessment Team has stated that the completions of underpinning piers, from excavation to load transfer, should be accomplished in a more timely manner. This item is still of concern to the Assessment Team, although some improvement has taken place and Quality has not been impacted.

Mr. W. E. Kilker presented a description of the major underpinning activities during the previous month. Highlights follow:

- The installation of the Pier 8 grillage beams on the east and west ends of the Auxiliary Building was the major underpinning activity during the month. They were installed in accordance with project procedures, and the Assessment Team was particularly impressed with the teamwork demonstrated during the load transfer to the beams.
- Progress was made in obtaining access for underpinning activities through the Utility Access Tunnels. The soil stabilization by grouting is being effectively accomplished. Grout takes are high.
- Outstanding NCRs on the reinforcing steel for the BWST foundations have been resolved and installation of the reinforcing steel has begun.
- At the SWPS the installation of the soldier piles is almost complete and initial tests of the dewatering systems suggest that it may be more effective than anticipated.
- Miscellaneous activities have included installation of cathodic protection systems, removal of two 36 inch casings, piezometer installation and soil investigation work.
- During the installation of a piezometer there was an incident of drilling into a beam that extends from the Auxiliary Building. A stop work order was issued on drilling and the occurrence was investigated. In the future, structural drawings will be reviewed, in addition to utility

drawings, before a drilling permit is issued.

- One NCR was issued during this period. It concerned certification of QC supervisors. This NCR has been closed.
- Five Work Activity Packages were reviewed and Assessment Team questions were satisfactorily resolved.

Questions and Answers

- Mr. J. J. Harrison (NRC) asked if Stone & Webster tracked commitments made by CPCo in closing open items from the daily meetings, for example, Item 52-14. A check by the NRC had shown that some six weeks after the commitment had been made the drawing had not been changed. Mr. W. E. Kilker (S&W) replied that Stone & Webster does not track an item after closing, but the item would be brought to CPCo attention if the drawing were to be used for construction without the change being made. R. A. Wells (CPCo) stated that if it is flagged on a formal quality document it would be tracked. J. A. Mooney (CPCo) stated that he will check on the CPCo tracking process.

Mr. R. Landsman (NRC) commented that a drawing with a detail noted as Non-Q had been identified and this also had not been corrected.

- Mr. J. J. Harrison (NRC) remarked that daily meeting notes indicated that an item on a drawing was only a suggested method and not a requirement and asked why it was shown on the drawing, if it is only a suggestion. Mr. W. E. Kilker (S&W) stated that the procedure associated with this item points out that it is a suggested method. Mr. J. A. Mooney (CPCo) stated that he will check on this item.
- Mr. J. J. Harrison (NRC) commented that in weekly report No. 49, the Assessment Team suggested a solution to possibly avoid problems with welding. This suggestion had also been made in weekly report No. 30.

He asked why had CPCo not acted sooner. J. A. Mooney (CPCo) stated that they had reviewed the situation and had thought that the existing procedure was adequate but that this was subsequently not the case and the suggested change had been implemented. Mr. W. E. Kilker (S&W) confirmed that the change was being made.

- Mr. R. B. Landsman (NRC) asked if the lagging spacing problems had been solved. He noted that it had appeared again in recent weekly reports. Mr. W. E. Kilker (S&W) stated that at the Auxiliary Building, the Contractor had opened up the lagging spacing as requested by the Assessment Team. The latest occurrence was at the SWPS and the problem has now been addressed.

- Mr. R. B. Landsman (NRC) asked what is being done to resolve the venting problems associated with the grouting of bearing plates.

Mr. W. E. Kilker (S&W) stated that the Assessment Team was tracking this problem. It occurs when the foundation surface is very irregular, and the Assessment Team is aware that the Contractor is expending considerable effort to solve the problem. The inspection of the cured grout is being performed very carefully.

- Mrs. Sinclair, member of public, asked Mr. J. J. Harrison (NRC), if he was satisfied with the answer to the question on tracking commitments used in closing items from daily meetings. Mr. Harrison stated that CPCo had committed to tracking those items; however, the subject would have to be discussed further at the next monthly meeting.

Action Items

- CPCo will review the implementation of commitments made to close out daily meeting items.
- Stone & Webster Will refine the tracking system for open items.

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

Weekly Report No. 58

October 23, 1983 through October 29, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

W. Kilker	10/23 - 10/25
B. Holsinger	10/26 - 10/29
P. Majeski	10/25 - 10/29
J. Springer	10/23 - 10/27

Parsons Brinckerhoff Michigan, Inc.

P. Parish	10/25 - 10/28
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
10/24-10/28	Stone & Webster Bechtel Consumers Power Parsons (10/26 & 10/27)	Daily Assessment Team Meeting
10/26	MPQAD Stone & Webster Parsons	Assessment Team Meeting with MPQAD
10/28	MPQAD Stone & Webster	Soils MPQAD FCR Stop Work Order Summary
10/28	MPQAD Bechtel Consumers Power Stone & Webster	FCR Stop Work Order Steering Committee Meeting

Underpinning and Remedial Soils Activities - Construction

Because of the site Stop Work Order issued on October 21 by MPQAD, regarding the misapplication of FCR's/FCN's, no work, other than maintenance activities, has been accomplished in the past week.

Assessment Team Observations - Construction

Because of cessation of work at the site, the Assessment Team's activities have been limited to reviewing construction documents in preparation for upcoming work.

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

Assessment Team Observation - QA/QC

The effort to resolve the problem of misapplication of FCR's/FCN's to affected documents is continuing. It is too early to determine the impact of this problem on completed construction. The effort to date has been directed towards identifying those FCR's/FCN's that are a problem; determining the issues which must be addressed; and , developing a procedure to resolve the issues before lifting the Stop Work Order. The Assessment Team observed that this effort is being undertaken with diligence.

During an Assessment Team review of the BWST drawings it was observed that one FCR was not posted on the correct drawing. The correct drawing had been referenced on the second page of the FCR. However, this drawing number was not inserted in the appropriate block on the first page of the FCR. An additional fifty-three drawings were reviewed without finding a similar condition. MPQAD was notified of this one condition. This condition is related to the Stop Work Order and the resulting investigation regarding the misapplication of FCR's/FCN's to drawings. Therefore, an NIR was not issued.

Work Activity Packages

The comments and questions on WAP 64, which were previously submitted, were satisfactorily resolved. Therefore, this package is considered complete. Comments and questions regarding WAP 68 and 70 were submitted to FSO. WAP 59 remains open awaiting FSO response to an action item.

Nonconformance Identification Reports

<u>NIR No.</u>	<u>Description</u>	<u>Date</u>
		(Opened) (Closed)
14	Nut Procurement	8/11/83

Open Items

Items discussed during meetings are categorized as follows:

OPEN ITEM - An item for which an action is required. The item will remain open until the required action has been taken. Tracking is required.

CLOSED ITEM - An item, usually brought forward by the Assessment Team, that is discussed and adequately responded to. No tracking is required.

INFORMATION ITEM - An item, brought forward to provide general background information regarding the work, such as work status or an upcoming design change. No tracking is required.

OPINION ITEM - An opinion or suggestion, given by the Assessment Team, expressing an alternate construction or quality assurance technique. The opinion or suggestion is given as a possible alternate that may facilitate an operation. No response or implementation is required as a result of an Opinion Item.

CLOSES ITEM XX-XX - This notation identifies an action that closes a previously identified open item. Tracking of the open item stops.

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

The following is a listing of all Open Items from the Daily Meeting Notes with Bechtel and the Weekly Meeting with MPQAD. Carry-over items from past weeks which have been Closed this week are also listed.

<u>Item No.</u>	<u>Description</u>	<u>Closure</u>
45-8Q	Discussion on Mechanism of Identifying Quality Concerns	Open
48-8Q	Structural Backfill PQCI Adequacy	Open
52-4Q	MPQAD Independent Welding Inspection Review	Open
55-2	Plasticized Concrete Mix Tests	Open
56-12	Lean Flyash Placement	Open
57-17	Wall Ties	Open
57-18	Tubular Steel Sheeting	58-3
57-6Q	MPQAD Supervisory Personnel	Open
57-7Q	Welding Inspection	Open
58-3	Tubular Steel Lagging	Open
58-4	FSC Evaluation of FCR's/FCN's Status	Open
58-11	Winterization of SWPS Dewatering System	Open

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

<u>Item No.</u>	<u>Description</u>	<u>Closure</u>
58-12	Number of FCR's on Drawings	Open
58-13	Slurry for Removal of 36 Inch Diameter Casing	Open

Barry L. Hines FOR U.E. MITCHELL
Project Engineer

DJ Mays for AS Lucks
Project Manager

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

Held at Midland Site Location
Midland, MI.
October 24, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	E. Cvikl J. Gaydos J. Kelleher	R. Sevo	W. Kilker J. Springer <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 58-1 - Stop Work Order.

E. Cvikl reported that as of late on October 21, an MPQAD Soils issued SWO had resulted in a halt to virtually all of the soils remedial work. A CPCo audit revealed the referencing of Bechtel drawings and specifications had rendered the FCR/FCN process indeterminate.

E. Cvikl provided a copy of the SWO and the exceptions FSO had taken to maintain, for example, such items as instrumentation, monitoring, training, testing, surveying and dewatering.

W. Kilker replied that the Assessment Team was aware of the SWO. However, the Team is also interested in the methodology of resolution of the SWO.

J. Kelleher replied that FSO had identified and retrieved from Document Control the FCR/FCNs applicable to the soils remedial work. As of this morning (10/24/83) the FSO evaluation was nearing completion. Up to this point the evaluation had revealed some misapplication of the document control of the forms but no cases of inadequate document control. Once the evaluation is completed, the review will be forwarded to MPQAD for verification. (OPEN ITEM)

Item 58-2 - Use of Visual Reminder (VR) Form.

W. Kilker requested information of a yellow tagging system (VR) that has recently appeared in the auxiliary building underpinning work areas. J. Gaydos replied that the tags are generated by Mergentime to convey information to the crafts on such items as limits of work, state of the work at the end of a work shift or requirements to proceed to the next work stage. W. Kilker said the concept appeared good as long as the number of tags in a given area was kept to a reasonable number. Too many tags could lead to either confusion or disregarding the tags. (CLOSED AND OPINION ITEM)

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

Held at Midland Site Location
Midland, MI.
October 24 , 1983

Item 58-3 - Tubular Steel Lagging.

In response to Item 57-18, E. Cvikl stated that the Subcontractor will be given an option to fill the void space on permanently installed tubular sheeting with either ethafoam or grout. The options will be reflected on Bechtel drawing C-2025 and C-2025 - 13. (OPEN ITEM. CLOSES ITEM 57-18)

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

Held at Midland Site Location
Midland, Michigan
October 25, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	E. Cvikl	R. Sevo	W. Kilker
	J. Gaydos		J. Springer
	J. Fisher		
	N. Swanberg		<u>Parsons</u>
	J. Kelleher		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 58-4 - FSO Evaluation of FCRs/FCNs Status.

J. Kelleher updated the FSO evaluation effort. All FSO Civil FCRs have been reviewed. (A total of approximately 500). Questions arose on nearly 30 percent of these but only 6 percent required any form of corrective action- mainly increasing FCR distributions to additional drawings.

FSO must continue to interact with the Balance of Plant on a number of specifications that are common to both areas. FCRs drawn on these documents will require evaluation to determine the extent of impact on FSO installations.

The evaluation of FCNs will commence today. The methodology will be the same as that used for the FCR evaluation. (Refer to Item 58-1) (OPEN ITEM.
CLOSES ITEM 58-1)

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

Held at Midland Site Location
Midland, Michigan
October 26, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	J. Fisher	R. Sevo	J. Springer
J. Schaub	E. Cvikl		P. Majeski
	J. Gaydos		
			<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 58-5 - FSO Evaluation of FCR's/FCN's Status.

J. Fisher indicated that before work may restart, two procedures concerning document control must be revised to prevent reoccurrence. In addition, the balance of plant lags behind FSO in evaluating the FCR's/FCN's. Before any work may restart, the impact of balance of plant FCR's/FCN's on the soils work must be evaluated. R. Sevo indicated that MPQAD is doing a 100 percent independent evaluation of the FCR's/FCN's. After this evaluation, they will be working with FSO in resolving any problems. MPQAD will also verify and close out any required actions. (INFORMATION ITEM)

Item 58-6 - Evaluation of Change and Nonconformance Documents.

J. Fisher acknowledged receipt of the report entitled "Evaluation of Change and Nonconformance Documents" prepared by W. Craig of Stone & Webster. (INFORMATION ITEM)

Item 58-7 - Field Engineering Review of US Testing.

J. Gaydos provided the Assessment Team with the final draft of the field engineer's review findings against US Testing. (INFORMATION ITEM)

Item 58-8 - Tracking of Assessment Team Concerns.

J. Schaub suggested that any concerns contained in the text portion of the Assessment Team's weekly report should be subsequently discussed in the meeting with Bechtel to provide for tracking and response on the part of Bechtel. P. Majeski to review and revise. (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
October 27, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	J. Fisher	R. Sevo	P. Majeski
	E. Cvikl		J. Springer
	J. Gaydos		
			<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 58-9 - Oil Residue at Stand-by Jacks.

In response to an opinion given by J. Ratner (Item 57-22), J. Fisher indicated that the oil leaks have been evaluated by Mergentime and no jack repair or replacement is considered necessary, at present. He further indicated that jacks, when not under load will occasionally leak. The leaking oil will be periodically cleaned up and extra care will be taken in monitoring the performance of these items in the future. (INFORMATION ITEM)

Item 58-10 - Concrete Backfill Behind SWPS Lagging.

P. Parish asked how the possible loss of ground will be monitored if concrete backfill is placed behind the lagging at the ground surface? J. Fisher responded that the loss of ground will be monitored from within the excavation by checking behind the lagging. If loss of ground begins to be a problem, soil stabilization grouting will be accomplished from the ground surface. (CLOSED ITEM)

Item 58-11 - Winterization of SWPS Dewatering System (OPEN ITEM)

P. Parish asked what provisions are anticipated for winterization of the SWPS dewatering system? (OPEN ITEM)

Item 58-12 - Number of FCR's on Drawings.

P. Parish indicated that he had considerable difficulty in using Drawing No. C-1425-2 which had 16 FCR's totaling 55 pages attached. This type of situation can lead to errors. J. Fisher to look into and respond. (OPEN ITEM)

Item 58-13 - Slurry for Removal of 36 Inch Diameter Casing.

J. Fisher asked for an elaboration on the Assessment Team's concern about the control and mixing of the slurry which was included in Weekly Report No. 56. P. Majeski indicated that the bentonite was slowly poured in the drum through a spray of water. This procedure probably would result in "balls" of bentonite in a thin slurry rather than a uniform slurry. There was no mixing or checking of the slurry to assure adequate breaking down of the bentonite. (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
October 27 , 1983

Item 58-14 - Time Lag Between Completion of Reaming and Concreting.

J. Fisher asked for an elaboration on the Assessment Team's concerns about the time lag between reaming and concrete placement at the 36 inch diameter casing. P. Majeski indicated that during this time period, collapse of the wall could have occurred. J. Fisher responded that this was considered and that the drill rig checked the hole for collapse by dropping the tool into the hole immediately before placement of concrete. (CLOSED ITEM)

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

Held at Midland Site Location
Midland, MI. 48640
October 28, 1983

Present For:

Consumers Power

None

Bechtel

J. Fisher
E. Cvikl

MPQAD

R. Sevo

Stone & Webster

P. Majeski

Parsons

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 58-15 - Tracking of Assessment Team Concerns.

P. Majeski suggested that to assure that all Assessment Team concerns are entered into the Bechtel's action item list, the contents of each Weekly Report will be discussed in the next Daily Meeting. Similarly, action items from other Assessment Team Reports and the Notes of Meetings with MPQAD will also be identified for tracking. (CLOSES ITEM 58-8)

Item 58-16 - Slurry for Removal of 36 Inch Diameter Casing.

J. Fisher asked if the Assessment Team had any concern about the adequacy of the completed work involved with the 36 inch diameter casing. P. Majeski responded that the Team is satisfied with the completed work but believes that the procedure requires change if similar operations are performed in the future. (CLOSED ITEM . item 58-13 remains open)

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

Held at Midland Site Location
Midland, Michigan
October 26, 1983

Present For:

Stone & Webster

P. Majeski
J. Springer

Parsons

P. Parish

MPQAD

R. Field
M. DeWitt
J. Meisenheimer
R. Oliver

Purpose

This meeting is held to obtain and discuss information relative to Q.A. activities for soils underpinning work at the Midland Plant Units 1 & 2.

Discussion

Item 58-1Q - Status of NIR # 14.

The response to NIR # 14 is nearly complete. The remaining action item is a QC inspection to verify that the material was scrapped. This will be accomplished as soon as the SWO has been lifted. (INFORMATION ITEM)

Item 58-2Q - Status of Mechanism For Identifying Quality Concerns.

The final draft is in the approval cycle. (INFORMATION ITEM)

Item 58-3Q - Status of MPQAD Welding Inspection Review.

The final report will be issued this week. (INFORMATION ITEM)

Item 58-4Q - Status of Comments on PQCI for Backfill.

A copy of the final draft, which is in the approval cycle, was given to the Assessment Team, who will review to determine if all the Team's concerns were adequately addressed. (INFORMATION ITEM. ITEM 48-8Q remains open)

Item 58-5Q - MPQAD Involvement in FCR/FCN Review.

MPQAD will be making a 100% review of the FCR/FCN's to identify which will require action before lifting of the SWO. They will also participate with FSO in determining the appropriate action required for each identified FCR/FCN. As a result of this review NCR's may be required if any work is left indeterminant. Procedural changes are required to prevent reoccurrence of the present situation. Construction work will be allowed on discrete items of work when the total problem has been defined and sufficient actions have been taken on any related identified FCR/FCN's. (INFORMATION ITEM)