

## STONE & WEBSTER MICHIGAN, INC.

P.O. Box 2325, Boston, Massachusetts 02107

RA IN	COPRP		
D/RA	DE		
A/RA	DRMSP		
RC	DRMA .		
PAO	SCS 4	(2)	do
SGA	ML		0
ENF	File	Vinc	

United States Nuclear Regulatory Commission Midland Site Resident Office Poute 7, Midland, Michigan

March 29, 1984

J.O. No. 14358 Ref. MPF 79

Attention: Mr. R. Cook

DOCKET NO. 50-339/330
MIDLAND PLANT UNITS 1 & 2
INDEPENDENT ASSESSMENT OF UNDERPINNING
REPORT NO. 79

A copy of the Independent Assessment of Underpinning Weekly Report No. 79 for the period of March 18, 1984 through March 24, 1984 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.

A. Stanley Lucks
Project Manager

Enclosures ASL/pd

## WEEKLY REPORT DISTRIBUTION LIST

Mr. R. Cook (enc)

Grace Dow Memorial Library (enc)

Mr. D. Quamme (enc)
Mr. J. Mooney (enc)
Mr. G. Murray (enc)
Mr. J. Meisenheimer (enc)

Mr. D. Lavelle (enc) Mr. E. Cvikl (enc)

# Weekly Report No. 79 March 18, 1984 through March 24, 1984

#### Personnel on Site

Stone & Webster Michigan, Inc.

P.	Majeski	3/18	_	3/20
D.	Benvie	3/19	-	3/24
R.	Lykens	3/18	-	3/20
D.	Zito	3/18	-	3/24
L.	Rouen	3/20	-	3/24
P.	Barry	3/19	-	3/23

#### Parsons Brinckerhoff Michigan, Inc.

J.	Oliveira	3/18 -	3/20
В.	Metros	3/20 -	3/24

#### Meetings Attended

Date	Represented	Purpose
3/19 -3/23	Stone & Webster Bechtel Consumers Power Parsons	Daily Assessment Team Meeting
3/19	Consumers Power Bechtel MPQAD Stone & Webster	Inter-organizational Meeting
3/21	Consumers Power Bechtel MPQAD Stone & Webster	Engineering/Construction Co-ordination Meeting
3/23	Consumers Power Bechtel MPQAD Stone & Webster	Project Soils Meeting

## Underpinning and Remedial Soils - Construction

Pier Kc4: Installation of the upper and lower leveling and bearing plates is in progress.

Pier W16: Placement of pier concrete was completed.

Pier W13: Placement of concrete was completed.

Pier CT1/12: Placement of concrete in the pier shafts was completed.

Pier Kc9: Load transfer for the pier was completed. Pier W16: Placement of pier concrete was completed.

E/W8 Grillages: Jacking to increase the reserve capacity load at each grillage continued. The amount of loading on the east and west grillages is at 140% and 150% of the specified load, respectively.

Access Shaft Level "C" Wales: Fabrication of the anchor plate templates continued. SWPS: Installation of the first level wales is in progress.

#### Assessment Team Observations - Construction

Concrete placement for piers E/W16, the remainder of pier W13 from El. 592 to 597.5 and the shafts for pier CT1/12 was observed by the Assessment Team. During placement of the concrete for pier W13, a blockage in the pimp occurred delaying the placement activities. The contractor took c. e to vibrate the placed concrete in order to maintain it in a workable condition until the placement activities resumed. Key items noted during concrete placement at piers E/W16 included placement technique, concrete consolidation and availability of stand by equipment. Method of placement and consolidation of concrete were satisfactory. Availability of backup equipment was satisfactory. When electric power was lost while placing concrete for pier E16, emergency lighting and vibrators were immediately placed into service. Interruption to the concrete placement activities was minimal.

Batch tickets for piers CT1/12 concrete were checked for conformance to the required mix proportions. Both tickets indicated that the batching for concrete constituents was in accordance with specifications.

The Assessment Team believes that the Contractor used proper techniques for all concrete placement activities and exhibited satisfactory planning and co-ordination in minimizing the impact of delays to the concrete placement activities. In addition, the control of batching and transporting of concrete was in accordance with applicable standards.

Load transfer and the initial required rejacking was performed for pier Kc9. Load increments and the rate of loading for the initial load and rejacking conformed with applicable procedures. Jacking loads were maintained at the specified values until the acceptance criteria was met. Absolute movement measured at the pier base was 0.05in. Procedural requirements were effectively implemented during the initial load transfer and rejacking of pier Kc9.

The Assessment Team inspected backpacking of lagging completed to date for the SWPS soldier pile wall. The evaluation considered the type of material and method of backpacking. The clean sand being used for backpacking is adequate although the use of spiling has been required to maintain the backpacking in place. In one area where no spiling had been used, the backpacking had fallen out from behind the lagging. After being made aware of this situation, the Contractor immediately backpacked the resulting void. The Assessment Team has discussed the use of a more suitable material with the Contractor. The Contractor has agreed to evaluate alternatives for future use. This evaluation should be completed expeditiously because as the excavation proceeds, the need to

prevent loss of ground will become more important. The method of backpacking is adequate for the existing depth of excavation. However, a more concerted effort is needed to ensure that backpacking is placed in a uniform dense condition as an additional measure to prevent loss of ground from occurring as the excavation is deepened.

#### Assessment Team Observations QA/QC

The Assessment Team completed a review of Quality Engineering monitoring activities performed during 1983 in the area of Resident Engineering Document Control. The Team found that significant progress has been made in upgrading the Resident Engineer document control process in response to deficiencies noted during the monitoring activities. The Assessment Team believes that the Quality Engineering effort related to Resident Engineering has been effective in identifying problems and initiating corrective action. The recurring deficiencies indicate that Resident Engineering needs to ensure that corrective measures are fully implemented to complete the upgrading of the document control process.

The Assessment Team attended three FCR task force meetings this week. The purpose of the FCR task force is to evaluate the FCR process and recommend actions to improve the FCR response times. Organizations involved with the task force include, FSO, Resident Engineering, Project Engineering and Consumers Power Co. The meetings were well organized and the objectives of the task force are well defined. The various organizations demonstrate an active interest in shortening the response time for processing FCRs. The FCR task force meetings will continue through the remainder of the month. The Assessment Team will continue to overview this effort.

The Assessment Team observed MPQAD preplacement inspection activities of reinforcing steel and embedments for concrete placement at pier CT1. Attributes checked by MPQAD include reinforcing steel clear cover and spacing, mechanical splice staggering and proper placement of embedments. The Assessment Team believes that preplacement inspection activities were adequate to ensure compliance with the requirements of the design documents.

A review of workprints and an evaluation of weld rod and material control and storage was conducted at the Standish Fabrication Shop by the Assessment Team. A sample of work prints was reviewed to confirm that they were the latest issue and to verify proper posting of attachments. The Team noted one of the documents reviewed was an incorrect revision, however, the Contractor was at that time in the process of issuing the new revision to this workprint station. The remaining workprints were found to be adequate and required attachments were properly posted. An overview of material control and storage confirmed that all materials were properly stored, identified and segregated. Weld rods were stored in ovens maintained at appropriate temperatures and access to rod storage was properly controlled. The Assessment Team believes that document control procedures at the Standish Fabrication Shop are being implemented properly. Additionally, weld rod and material control and storage is adequate to ensure that only approved material is used in the fabrication process.

The Assessment Team reviewed the qualifications and certifications of 12 inspectors performing activities for 33 Project Inspection Plans and Reports (PIPR's) closed during the period 2/12/84 to 2/21/84. The inspectors' records were reviewed to determine that education, experience, physical abilities and certifications for the specific activities are in accordance with the requirements. The review determined that the qualifications and certifications of all 12 inspectors were satisfactory.

#### Work Activity Packages

The following Work Activaty Package (WAP) overviews are in the open response stage or have been completed during the past week.

WAP No.

Title

Status

(Opened)(Closed)

Piers E/W5 and 3/21/84 3/21/84

Grillage, Drifts
and Support Columns
at Reactor Building

## Nonconformance Identification Reports

The following Nonconformance Reports (NIRs) remain open or have been closed during the past week.

NIR No.	Description	Status	
22	Resident Engineering Document Control Stations	(Opened)(Closed) 2/21/84	
23	Subcontractor Work Print Stations	3/13/84	

## Open Items

Items discussed during meetings are categorized as follows:

OPEN ITEMS - 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 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.

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

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

Item No.	Description	Closure
64-7	QAP Review Program	Open
64-10	Trend Analysis	Open
71-17	Computerized Civil Drawing Register	Open
71-29	Use of "Retired" FCRs	Open
74-21	US Testing Corrective Action	Open
74-25	Expansion Anchors	Open
75-9	RE Document Control	Open
77-12	FCR Processing Task Force	Open
77-13	Drawing Attachment Stamp	Open
77-29	Qu Monitoring Activities	79-22
78-22	Concrete Truck Inspection	79-8
79-5	Bearing Plate at Kc9	Open
79-26	Upper Leveling Plate	Open
79-28	SWPS Backpacking Material	Open
79-34	SWPS Backpacking Placement	Open

Project Engineer

Myselu for ASLYCKS

Held at Midland Site Midland, Michigan March 19, 1984

#### Present For:

Consumers Power		Bec	Bechtel		MPQAD		Stone & Webster	
	Murray Wheeler	J.	Fisher Gaydos Cvikl		Sevo McMaster	P. D. D.	Majeski Benvie Zito	

Parsons Brinckerhoff

J. Oliveira

#### PURPOSE

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

#### DISCUSSION

#### Status Items

Item 79-1 - Auxiliary Building Underpinning Activities.

Installation of rebar for piers CT1/12 shafts is in progress.

Load transfer for the Kc9 pier is scheduled for today.

Installation of rebar in pier E16 is complete. Placement of concrete is scheduled for today.

Placement of rebar in W16 is in progress.

(INFORMATION ITEM)

## Item 79-2 - Dewatering Control Tower Area.

J. Fisher reported that all 4 lateral wellpoints have been placed into service. Initially, cumulative flow for the four well points was approximately 6 gpm but as of today had decreased to about 1 gpm. The water level at piezometer BB-2 is at El. 584± indicating a drop in perched groundwater elevation of about 1.5 feet. (INFORMATION ITEM)

#### New Items

## Item 79-3 - FSO Controlled Document Review.

J. Fisher reported that the monthly review of FSO controlled documents for March was completed this weekend and preparation of a report summarizing the results is in process. P. Majeski requested that the Assessment Team receive a copy of this report when it is issued. (CTEN ITEM)

Held at Midland Site Midland, Michigan March 19, 1984

Item 79-4 - MPQAD Welding Audit.

J. Fisher reported that MPCAD began an audit today of FSO welding activities. (INFORMATION ITEM)

Item 79-5 - Bearing Plate at Kc9.

J. Oliveira questioned why the bottom bearing plate brought to the work area for installation at pier Kc9 was rejected and replaced with another plate. J. Fisher will respond. (OPEN ITEM)

Item 79-6 - US Testing Work Teams.

P. Majeski noted that the US Testing weekday team is primarily used for concrete placement. He asked, if in special situations, could adjustments in manpower be made to provide an extra team to preclude excessively long shifts. J. Fisher indicated that most concrete placement will be made during the weekday period. The remaining US Testing teams are structured to perform other routine testing. J. Fisher indicated that he would respond to whether these teams could be supplemented by other personnel to allow for special situations. (OPEN ITEM)

Item 79-7 - FCR Processing.

E. Cvikl reported that the recent concerted effort to process outstanding FCRs reduced the backlog from 43 to 19 over a 4 day period. This effort was undertaken to provide added assurance against delays during construction of piers CT1 and 12. (INFORMATION ITEM)

## Response Items

tem 79-8 - Concrete Truck Inspection.

In response to the Assessment Teams question, R. Sevo provided a description of the procedures used to inspect the concrete trucks and batch plant for accumulation of concrete on the mixing blades. The trucks are inspected and the batch plant is cleaned on a weekly basis by the supplier. MPQAD inspects both the trucks and the batch plant monthly. Based upon this informat. A, the lumps of hardened concrete noted on the screen of the pump truck on 3/15/84 are considered an anomalous situation by the Assessment Team. No adjustments to the program are considered necessary. (CLOSES ITEM 78-22)

Held at Midland Site Midland, Michigan March 20, 1984

#### New Items

Item 79-12 - Administrative and Engineering Management for US Testing.

J. Fisher reported that FSO has assumed the administrative and engineering management responsibilities for the US Testing Contract. from Balance of Plant as of today. (INFORMATION ITEM)

Item 79-13 - SWPS Backpacking Material.

D. Benvie noted that spiling was being used to support the sand backpacking placed between the soldier pile wall lagging and the in-situ soil. He asked if consideration has been given to the use of an alternate type of backpacking material which did not require the use of spiling for support. J. Fisher will respond. (OPEN ITEM)

Item 79-14 - MPQAD Controlled Document Station Review.

J. McMaster stated that the MPQAD March monthly review of their controlled document station is in process. (INFORMATION ITEM)

Item 79-15 - Load Transfer of Piers CT1/12.

J. Oliveira asked when load transfer of the CT1/12 piers will be performed.
J. Fisher responded that jacking of the piers is scheduled for mid-April.
(CLOSED ITEM)

#### Response Item

Item 79-16 - US Testing Work Teams.

J. Fisher responded to the Assessment Teams question concerning availability of US Testing manpower to support concrete placement activities on the weekend or evening shifts. US Testing personnel assigned to the weekend and evening shifts are qualified to perform inspection activities related to concrete placement. If the type of concrete placement activity is such that additional manpower is required, US Testing inspectors on the regular weekday shift are available to supplement the weekend and evening teams. The Assessment Team believes that adequate US Testing manpower is available to cover concrete placement activities on all shifts. (CLOSES ITEM 79-6)

Held at Midland Site Midland, Michigan March 20, 1984

#### Present For:

Cor	sumers Power	Bec	htel	MPC	AD	Stone & Webster
G. R. J.	Murray Wheeler Schaub Mooney	J. J. E.	Fisher Gaydos Cvikl	R. J.	Sevo McMaster	D. Zito D. Benvie P. Barry
	rooney					Parsons Brinckerhoff J. Oliveira

#### PURPOSE

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

#### DISCUSSION

#### Status Items

Item 79-9 - Auxiliary Building Underpinning Activities.

Load transfer for pier Kc9 has been initiated.

The remaining concrete for pier W13 was placed from El. 592 (top of previous pour) to the top of the pier.

Installation of upper leveling plate Hilti bolts for pier Kc-4 is in progress.

(INFORMATION ITEM)

## Item 79-10 - QAP Review Program.

J. McMaster stated that the QAP task force committee was currently reviewing the subcommittee recommendations concerning their review of construction procedures, PQCIs and specifications associated with expansion anchor installation, fabrication and erection of structural steel, and welding. Based on this review, the committee will present recommendations for modifying these PQCIs, procedures and specifications to Consumers Power Company in the near future. (Item 64-7 remains OPEN) (INFORMATION ITEM)

Item 79-11 - Dewatering Control Tower Area.

J. Fisher reported that the volume of water pumped to date from the lateral wellpoints installed in the east and west UATs was 920 gallons and 3890 gallors.respectively. Water level readings taken at piezometer BB-2 show the perched groundwater level remained unchanged at El. 584. (INFORMATION ITEM)

Held at Midland Site Midland, Michigan March 21, 1984

Present For:

Con	sumers Power	Bed	htel	MPC	DAD	Sto	one & Webster
G. R.	Murray Wheeler	J.	Fisher Gaydos Cvikl	J.	Moran	D. P. D. L.	Zito Barry Benvie Rouen

Parsons Brinckerhoff

B. Metros

#### PURPOSE

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

#### DISCUSSION

#### Status Items

Item 79-17 - Auxiliary Building Underpinning Activities.

Placement of the first lift of concrete for the piers CT 1/12 shafts is scheduled for 3/22/84.

Placement of concrete for pier E16 is scheduled for today. (INFORMATION ITEM)

## Item 79-18 - SWPS Underpinning Activities.

J. Fisher reported that the wale section removed because of a laminor tear from the east side of the SWPS will not be used in any other location as part of the lateral support system. It was previously reported in Item 77-25 that this section would be reused. Instead, a new wale section will be used in place of the defective section. D. Benvie questioned the status of the embedded plate installation needed for fastening of struts to the SWPS north wall. J. Fisher reported that an NCR is being written to address inadequate concrete cover on the existing SWPS north wall at the specific plate locations. Once the NCR has been closed out, an FCR will be initiated to allow cutting of rebar to facilitate embedded plate installation. (CLOSED ITEM)

Item 79-19 - NIR # 22-Resident Engineering Document Control Review.

E. Cvikl stated that Resident Engineering response to the QAR concerning NIR #22 is scheduled for issuance on 3/23/84. Incorporation of corrective action into document control procedures to address the findings of NIR #22 is scheduled for 4/12/84. (NIR #22 remains OPEN) (INFORMATION ITEM)

Held at Midland Site Midland, Michigan March 21, 1984

## New Items

Item 79-20 - Weekly Report # 78.

The text of Weekly Report # 78 was reviewed. It was determined that all open items had been previously identified. (CLOSED ITEM)

Item 79-21 - Senior Management Review Team.

D. Benvie stated that members of the Stone & Webster Senior Management Review Team for the Midland Project will be on site 4/2/84 to 4/3/84. (INFORMATION ITEM)

## Response Items

Item 79-22 - QE Monitoring Activities.

D. Benvie stated that the Assessment Team has all of the necessary information requested to complete its evaluation of the Quality Engineering Activities in 1983 which pertain to proper posting of attachments to design documents. Therefore, item 77-29 may be closed. (CLOSES ITEM 77-29)

Held at Midland Site Midland, Michigan March 22, 1984

#### Present For:

Consumers Power		Bechtel	MPQAD	Stone & Webster	
G. R. J.	Murray Wheeler Schaub	J. Fisher J. Gaydos E. Cvikl W. Brandes	R. Sevo	D. Zito P. Barry D. Benvie L. Rouen	

Parsons Brinckerhoff

B. Metros

#### PURPOSE

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

#### DISCUSSION

## Status Items

Item 79-23 - Auxiliary Building Underpinning Activities.

Placement of concrete for pier 816 has been completed.

Installation of rebar has been completed for pier W16 . Placement of concrete is scheduled for today.

The load transfer for the Ko9 pier has been completed. (INFORMATION ITEM)

Item 79-24 - US Testing Corrective Action.

J. Fisher stated that issuance of US Testing work instructions has been rescheduled for completion on or about 5/1/84. The additional time is to allow US Testing to make format changes to the work instructions. (Item 74-21 remains OPEN) (INFORMATION ITEM)

Item 79-25 - Expansion Anchors.

E. Cvikl provided an update on methods that will be implemented to improve the installation of Hilti bolts associated with the underpinning work. A DCN has been issued to allow loosening of Hilti bolts to a specified load after initial tensioning until construction activities in the vicinity of the bolt have progressed away from the installation area. After the work has progressed far enough such that vibrations due to the work in progress do not impact the Hilti bolts, these bolts will then be retensioned to design load. An FCR will be written to allow the use of a rapid set grout to provide a uniform surface beneath the bearing plate. (Item 74-25 remains OPEN) (INFORMATION ITEM)

Held at Midland Site Midland, Michigan March 22, 1984

#### New Items

Item 79-26 - Upper Leveling Plates.

D. Benvie noted that welding required to fasten the upper leveling and bearing plates together for piers Kc4 and Kc9 had caused warping of the upper leveling plate. The plates were rejected when the warping was identified while attempting to install the plates. The rejected plates were then replaced with properly aligned plates. The Assessment Team requested FSO to evaluate possible changes to the installation process and/or welding requirements in order to prevent warpage from occurring on future plate installations. .'. Fisher will respond. (OPEN ITEM)

## Item 79-27 - Action Plan for Engineering Document Control.

J. Schaub discussed planned revisions to improve the existing Resident Engineering document control system. One aspect of the plan includes upgrading and implementation of the design document register as a means for controlling the issue of design changes. Implementation of a uniform program for posting attachments to controlled documents is also included to upgrade the system. A presentation will be given in the near future detailing specific revisions to the document control program. (INFORMATION ITEM)

#### Response Items

Item 79-28 - SWPS Backpacking Material.

J. Fisher responded to the Assessment Team question concerning backpacking for the SWPS soldier pile wall. Other types of backpacking which can be maintained in place without the use of spiling will be evaluated for use as the excavation is advanced further. Spiling will still be used as required to support the in-situ soil. The Assessment Team concurs with this response. The item will remain open until the Team's evaluation is complete. (CLOSES ITEM 79-13) (OPEN ITEM)

Item 79-29 - FSO Controlled Document Review.

J. Fisher provided the Assessment Team with a copy of the report summarizing the results for the March monthly review of the FSO controlled document station. (CLOSES ITEM 79-3)

Held at Midland Site Midland, Michigan March 23, 1984

Present For:

Consumers Power Bechtel MPQAD Stone & Webster

G. Murray J. Fisher R. Sevo P. Barry
S. Dentz J. McMaster D. Benvie
L. Rouen

Parsons Brinckerhoff

B. Metros

#### PURPOSE

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

#### DISCUSSION

#### Status Items

Item 79-30 - Auxiliary Building Underpinning Activities.

Concrete placement for pier W16 has been completed.

Placement of concrete for the piers CT1/12 shafts is scheduled for today.

Jacking for reserve capacity loading of the W8 grillage is in progress.

Routine jacking of pier Kc9 required for the first 3 days after initial load lock off is in progress.

(INFORMATION ITEM)

## Item 79-31 - Upper Leveling Plates.

J. Fisher stated that FSO plans to process an FCR to address warpage concerns associated with the pier upper leveling plates. The planned FCR will be written to either specify the use of a smaller weld or decrease the length of the weld presently being used to prevent warpage from occurring on future plate installations. (Item 79-26 remains OPEN) (INFORMATION ITEM)

## Item 79-32 - NIR 22 - Resident Engineering Document Control.

P. Barry discussed the resolution of NIR 22. The Assessment Team will close NIR 22 based on a satisfactory response to that portion of the QAR which addresses Resident Engineering Document Control related to the remedial soils work. The Assessment Team will continue to evaluate as part of their overall assessment, modifications to Resident Engineering document control that are being undertaken to improve the document control process.(NIR 22 remains OPEN) (INFORMATION ITEM)

Held at Midland Site Midland, Michigan March 23, 1984

Item 79-33 - NIR 23 - Subcontractor Work Print Stations.

R. Sevo stated that closure of the QAR initiated in response to NIR 23. identifying work station document deficiencies, is scheduled for today. (NIR23 remains OPEN) (INFORMATION ITEM)

#### New Items

Item 79-34 - SWPS Backpacking Placement.

B. Metros discussed backpacking for the SWPS soldier pile wall. It was pointed out that backpacking performed to date is adequate for the existing shallow depth of excavation. However, as the excavation is deepened below the present depth of 5 feet, the method of backpacking should be altered to prevent possible loss of ground from behind the lagging. This item remains open while the Assessment Team evaluates modifications to the method of backpacking. (OPEN ITEM)

#### Response Items

No response items were addressed.