



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 13, 1983

J. O. 14358
Ref. MPF 42

Attention: Mr. R. Cook

RE: DOCKET NO. 50 - 329/330
MIDLAND PLANT - Units 1 & 2
INDEPENDENT ASSESSMENT OF UNDERPINNING
REPORT NO. 42

A copy of the Independent Assessment of Underpinning, Weekly Report No. 42 for the period of July 3, 1983 through July 9, 1983 is enclosed with this letter. Included as attachments, are the minutes of the daily meetings held during the week between members of the Assessment Team and Site Engineering, Construction, and Quality Assurance personnel.

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

Very truly yours,

A. Stanley Lucks
Project Manager

Enclosures

ASL/pd

8406130060 840517
PDR FOIA
RICE84-96 PDR

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

Weekly Report No. 42
July 3, 1983 through July 9, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

W. Kilker 7/5 - 7/9
B. Holsinger 7/5 - 7/9
A. Scott 7/4 - 7/8

Parsons, Brinckerhoff Michigan, Inc.

V. Madill 7/5 - 7/8

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
7/5 -7/8	Stone & Webster Bechtel Consumers Power Parsons (7/6 -7/8)	Daily Meeting
7/7	Bechtel Consumers Power Stone & Webster	Weekly Engineering and Construction Coordination Work Session
7/7	Stone & Webster Consumers Power (MPQAD)	Weekly MPQAD Meeting

Activities

Construction:

Pier E8: The installation of the upper leveling plates began. However, several turbine mat reinforcing bars were cut during the removal of Hilti bolts that were no longer required. Work was halted pending the resolution of the re-bar nonconformance.

Pier E8 N-S Bulkhead: The excavation of the drift and installation of drift supports continued to approximately 60 percent of completion. Progress was slowed by Hilti-bolt installation problems.

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

Pier KC11: Load transfer was completed and the pier was wedged-off. Routine re-jacking was performed as required.

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Pier W8: The progress and status was similar to that described above for pier E8.

Pier W8 N-S Bulkhead: The excavation of the drift and installation of drift supports continued to approximately 90 percent completion. Early in the week the need to resolve a nonconformance on drift support plate Hilti-bolts resulted in a 1 1/2 day delay.

SWPS: The installation of interior wells and the brackets, instrumentation and protective covers for the benchmarks continued as did the excavation and support of sheeted pits for probing. Three soldier piles were installed and grouted in-place. Work on the exterior wells along the east side of the structure was halted pending resolution of the installation methodology. Based on the experience at two of the wells a modification to the existing procedure may be required to eliminate problems with hole caving.

In addition, the drilling of another well was inadvertently started at the location of a survey stake installed to designate a buried obstacle. At a depth of approximately 13 ft. the Engineer noted a loss of drilling fluid and change of wash material to a gravel. The work was quickly halted and the location error discovered.

BSWT: The drilling of the connector holes was completed. Sandblasting and fabrication of reinforcement continued.

Quality Control, Documentation and Records:

1. Reviewed the J.A. actions and prior Inspection Reports following the issuance of a nonconformance report on the control weld rods.
2. Reviewed the circumstances surrounding the issuance of an NCR on the thread engagement length for certain Hilti-bolts on the W8 N-S bulkhead.
3. Reviewed the project specification, procedures and PQCI relative to the installation of the grillage beams.
4. Reviewed the concrete placement Inspection Reports for E/W8 piers.
5. Witnessed the QC verification of Hilti-bolt torque testing, thread engagement and bolt perpendicularity.

Observations

Construction : Activity on the auxiliary building was hampered by the nonconformance problems associated with Hilti-bolts. ~~These problems delayed both the completion of the N-S bulkheads and the installation of the upper bearing plates at the~~ ~~the upper locations.~~ ~~The resolution of the nonconformance on the N-S bulkhead took nearly 40 hours while the cut rebar resolution took 4 days.~~ The Assessment Team feels it is imperative that the construction and engineering groups take the actions appropriate to substantially reduce the delay times resulting from these anchor bolt nonconformances. The bulkhead installation completion and load transfers at pier E/W8 are significant activities in terms of structural support and advancement of the underpinning project.

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The Assessment Team also believes that the Contractor should have been more cognizant of the turbine mat reinforcing bar cutting during the bolt removal operation particularly in the E8 pier area. In addition, a greater awareness by the field personnel of the procedural requirements for Hilti-bolt engagement lengths could have helped prevent the occurrence of the nonconforming conditions.

On the SWPS exterior well installations, the Assessment Team feels the Contractor took a prudent and conservative approach in halting the drilling of the wells along the east side of the structure, pending a review of the installation methods. With respect to the incorrect drilling location for one of the other wells, it is obvious the Contractor's field engineers must improve their awareness of the markings of the different location stakes in the area. However, the Engineer assigned to monitor the advancement of the hole demonstrated good judgment in stopping the work when changed drilling conditions were noted.

Quality Control, Documentation and Records:

1. MPQAD has a total of thirty inspection reports on weld rod control. These inspections contain an attribute which can be used to detect any situations similar to the referenced weld rod control nonconformance. The thirty inspections cover a period from 12-82 thru the week of 7-5-83. The inspection reports cover almost all weld areas randomly throughout the period. The Assessment Team believes that these reports can provide sufficient confidence that the weld rod control situation is not a recurring problem and support MPQAD's justification not increasing the inspection frequency.
2. The NCR on Hilti-bolt engagement length was issued because the specified conditions for thread run-out had not been satisfied. The project specification and Subcontractor installation procedure specified the use of manufacturer's published thread length. Contrary to the specification requirement, the actual thread lengths of the bolts were used. The Field Engineers had measured the actual lengths in the presence of the QC inspector. However, this action is no justification for not having a nonconforming condition to the project procedures. Therefore, the Assessment Team agrees with the issuance of the NCR against the project documents.
3. As a result of the review of project requirements for the grillage beam installation, the Assessment Team submitted twelve question/comments to MPQAD for resolution. Further evaluation may be necessary pending MPQAD's response.
4. The Inspection Reports (IRs) for the E/W8 pier concrete placements were incomplete in that the IRs are held open until all test data (i.e., 28 day compressive strengths) is submitted by U.S. Testing. It was noted that several of the IRs did not have the curing attribute sign-off. However, the completed curing record was attached. In addition, several IRs did not have the surface defect attribute signed-off but these were for placements below the hammerhead which would not require this inspection. MPQAD/QC was cautioned about the need to complete applicable portions of the IRs in a more timely manner.
5. The inspection of Hilti Bolts in the west side N/S bulkhead for one of the drift sets was conducted correctly using the proper inspection tools.

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Midland Plant
Units 1 & 2
Independent Assessment of Underpinning
Weekly Report No. 42

Nonconformance Identification Report

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

W E Feller
Project Engineer

AS Goolsby WSK
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 4, 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 5, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	D. Lavelle M. Blendy J. Gaydos J. Kelleher P. Himmelberger	R. Sevo	A. B. Scott <u>Parsons</u> None

Purpose

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

Discussion

Item 1 - Carlson Meters.

D. Lavelle is going to provide the Assessment Team with a status of the testing of the Carlson Meters already encased in concrete. Approval of the changes to the WJE Procedure OP-4M is scheduled for July 15, 1983.

Item 2 - Grout Test.

M. Blendy will have a report prepared by July 8, 1983 concerning the grout test made at the Poseyville yard and will address the results of the pressure grouted plates and the two plates drypacked.

Items Requiring Resolution.

None

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

Held at Midland Site Location
Midland, Michigan
July 6, 1983

Present For:

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

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 Hole Pre-drilling.

D. Lavelle reported that bentonite will be used to stabilize the drill holes with casing on-hand in case it is required.

* Item 2 - NCR on Hilti-Bolt Thread Engagement.

D. Himmelberger reported that on the W8 N-S bulkhead soldier beams an NCR was written by the second shift QC inspector after an initial acceptance by the first shift inspector. The point of contention was the initial inspection used the actual measurement of the thread length to assure engagement. The follow-up inspection referenced the project documents which stipulate manufacturer's published length to assure engagement. Engineering must resolve before the bulkhead work can continue.

* Item 3 - Coring of Abandoned Hilti-Bolts.

There was a discussion of the need to core-out abandoned anchor bolts for the underpinning work. To date the requirement has been established through a balance-of-plant specification directed mainly at pipe hangers. A. Scott questioned if the "red-head" bolts that have been encountered upon removal of the concrete mud-mats under the structural mat will also require removal.

Item 4 - QC re-inspection of Instrumentation System.

R. Sevo reported the re-inspection is virtually complete and that the plan is to issue 2 or 3 multifaceted NCR's.

* Item 5 - Wedging of Lagging on N-S Bulkhead Excavation.

V. Madill questioned if the driving of 4 inch wide wedges between the steel soldier columns and the 12 inch wide wood lagging boards reduced the effectiveness

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

Held at Midland Site Location
Midland, Michigan
July 6, 1983

of the lagging since the bearing area was in effect reduced. E. Cviki will respond.

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 7, 1983

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	J. Fisher D. Lavelle E. Cviki J. Gaydos D. Himmelberger*	R. Sevp	A. Scott B. Holsinger <u>Parsons</u> V. Madill

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 - Concrete Mixer Uniformity Test.

J. Gaydos advised the Assessment Team that the Concrete Mixer Uniformity Test will be performed at the vendor's batch plant on July 8, 1983.

Item 2 - Receipt Inspections of NPS fabricated items.

R. Sevo advised that QC did not relinquish their requirement to inspect all incoming materials for damage during shipment or for workmanship on the material even though source inspection has been performed.

* Item 3 - Interpretation of Note on Drawing.

A. B. Scott requested an interpretation of Note No. 3 on Drawing 7220-C-1434-1 Rev. 3 which reads in part " Once started, work shall proceed continuously ". Due to field problems there has been no work performed on the west side N/S bulkhead in the past forty four hours. D. Lavelle will have an interpretation on July 8, 1983.

Items Requiring Resolution.

Items requiring resolution indicated by an *.

Notes of Daily Meeting
Independent Assessment of Underpinning
Midland Power Company
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
July 8, 1983

* Item 7 - Removal of QC Hold Tags.

W. Kilker asked for a clarification on the steps taken to resolve the NCR on the W8 N-S bulkhead Hiltibolt engagement lengths. FSO will provide an explanation .

Item 8 - Use of Wedges on N-S Bulkheads.

In response to an earlier question by V. Madill, E. Cvikl reported that a drawing note will be added to clarify the responsibility of the RGE in designating the need for lagging wedges.

Item 9 - Lagging Requirements in Full-face Concrete Areas on N-S Bulkheads.

E. Cvikl reported that in these areas an FCR is being considered to eliminate the need for lagging in these areas.

Item 10 - Need for Removal of Redhead-Type Anchor Supports.

In response to an earlier question by A. Scott, J. Fisher reported that it has been determined there is no need to remove this type of mat protrusion.

Item 11 - Definition of Continuous Work on N-S Bulkheads.

G. Murray reported there is a drawing FCR that defines what is meant by "continuous " work on the N-S bulkheads.

Items Requiring Resolution.

Items requiring resolution indicated by an *.

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

Held at Midland Site Location
Midland, Michigan
July 7, 1983

Present For:

Stone & Webster

A. Scott
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 Plant Units 1 & 2.

Discussion

Item 1 - Status of NIR # 12.

J. Meisenheimer stated there is essentially no change. The proposed NCR procedure is being reviewed and the QAR Procedure needs to be revised in conjunction with the new NCR procedure to allow for Q. A. generated non-conformances.

Item 2 - Status of PQCI Revisions Concerning Concrete Vibrators.

PQCI has been issued and verified by the Assessment Team. This closes Item # 5 from week of June 14, 1983.

Item 3 - Receipt Inspection of Materials From N.P.S.

J. Meisenheimer clearly stated, in response to comments made by FSO in the Daily Assessment Meeting of 7-6-83, that normal receipt inspections will be performed. During the course of a normal receipt inspection when conditions adverse to quality are detected outside of the scope of the normal inspection it is site practice to resolve the status of the noted condition(s) prior to accepting the shipment.

This situation occurred for shop inspected items from N.P.S. when the Q.C. receiving requested assistance from MPQAD Soils which resulted in rejecting some welds on the grillage beams.

B. Holsinger commented that the Assessment Team would have a concern only if this stated practice was not being followed.

Item 4 - Status of BWST Reinforcing Steel.

R. Oliver stated that fabricated rebar for Unit # 2 is approximately 50-60% complete with no nonconforming conditions noted. There are some Q. A. concerns with the Unit # 1 rebar such as heat numbers on paper tags rather than nondestructible tags to avoid loss of identification from shop to installation and on unsatisfactory storage conditions. Until the Q. A. concerns are alleviated no estimate can be made for Unit # 1 rebar completion.

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

Held at Midland Site Location
Midland, Michigan
July 7, 1983

M. DeWitt stated there are now three inspectors assigned to this rebar shop in Lansing.

Item 5 - Status of Instrumentation Reinspection.

J. Meisenheimer clarified a statement reported in Item 2 of Assessment Team/MPQAD weekly meeting dated June 28, 1983. The MPQAD re-inspection of open IPIN items is essentially complete. MPQAD will reinspect the remainder of the Instrumentation System Conduit Installation which had not been previously been over-inspected by MPQAD/QA.

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

Held at Midland Site Location
Midland, Michigan
July 8, 1983

Present For:

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

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 - Update on N-S Bulkhead Excavation.

J. Fisher reported that the W8 N-S bulkhead is nearing completion. Excavation of zone areas under the structure and lowering of the access shaft will commence once the bulkhead is in-place.

Item 2 - SWPS Soldier Pile Installation.

J. Fisher reported the second soldier pile installation was completed in 1 day.

Item 3 - SWPS Dewatering Well Status.

J. Fisher said problems were encountered in maintaining the holes in certain of the exterior well drill holes. SWP has been asked to address the problem.

Item 4 - Proposed Concrete Mix Design.

E. Cvikl reported that all field comments have not yet been resolved.

Item 5 - Extent of Inspection. Sign-offs for Pier Installations.

There was a discussion of the extensive sign-off requirements (reportedly several hundred signatures required to allow the installation of a single pier). FSO intends to initiate an effort to see if this number can be substantially reduced while still satisfying quality requirements.

Item 6 - Elimination of "Inactive" Drift Set Lagging.

A. Scott observed that 2 or 3 weeks ago there was a field inspection by engineering to determine if certain in-place lagging could be removed where it no longer required to support soil. To date there has been no apparent action. J. Fisher and E. Cvikl will address .

STONE & WEBSTER MICHIGAN, INC.

MIDLAND NONCONFORMANCE IDENTIFICATION REPORT

DATE OF NONCONFORMANCE: 7-13-83 NIR Number 13

IDENTIFICATION/LOCATION OF ITEMS: Drift Sets, Spec C305, PQCI UP-C-1.016,
AAPD/PSP G-6.1

DESCRIPTION OF NONCONFORMANCE: Contrary to Project Procedures the PQCI
for Hilti Bolt installation does not contain an attribute to inspect
the specification required acceptance criteria for clearance between
base plates and concrete surfaces.

INITIATOR: <i>B. L. Holsinger</i>	DATE: <u>7-14-83</u>	PROJECT MANAGEMENT CONCURRENCE: <i>W E Keller for AS Suchs</i>
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CORRECTIVE ACTION BY: MPQAD
(IDENTIFY ORGANIZATION TAKING CORRECTIVE ACTION)

INITIATOR CONCURRENCE:	PROJECT MANAGEMENT CONCURRENCE:	DATE:
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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 Killon for A S Lucks

A. Stanley Lucks
Project Manager

Enclosures

ASL/pd

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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 Bechtel Consumers Power Parsons (6/29 - 7/1)	Daily Meeting
6/27	Bechtel Consumers Power Mergentime Stone & Webster	Road Map Meeting for Mass Excavation
6/30	Bechtel Consumers Power Stone & Webster	Weekly Engineering and Construction Coordination Meeting

J. O. No. 14358
 Midland Plant
 Units 1 & 2
 Independent Assessment of Underpinning
 Weekly Report No. 41

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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 Midland Plant
 Units 1 & 2
 Independent Assessment of Underpinning
 Weekly Report No. 41

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 under 10 CFR 50.55 (e) part 21.	(Opened) (Closed) 6/16/83

Wayne E. Keller
 Project Engineer

A S Bonds by W E Keller
 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 & Webster</u>
G. Murray	M. Blendy D. Lavelle N. Swanberg J. Gaydos	R. Sevo	W. Kilker P. Barry

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 weekends 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 CPCo, 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 & 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 fluoroloc 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 & Webster</u>
G. Murray	M. Blendy J. Gaydos E. Cvikl	R. Sevo	P. Barry P. Majeski
			<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 & 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:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPQAD</u>	<u>Stone & Webster</u>
G. Murray	M. Blendy E. Cvikl D. Himmelberger*	R. Sevo	P. Majeski <u>Parsons</u> 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:

<u>Stone & Webster</u>	<u>MPQAD</u>
P. Barry	R. Oliver
P. Majeski	D. Horn
L. Rouen	M. DeWitt
W. Kilker	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.



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

May 18, 1983

J.O. No. 14358
Ref. MPF 34

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF UNDERPINNING
REPORT NO. 34

A copy of the Independent Assessment of the Underpinning Weekly Report No. 34 for the period May 8, 1983 through May 14, 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 the Meetings attended portion of Weekly Report No. 32 the reference to a meeting with an NRC consultant is in error. The reference should have been to a meeting with the Contractor's Consultant.

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

Very truly yours,

A. Stanley Lucks
Project Manager

Enclosures

ASL/ka

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

Weekly Report No. 34

May 8, 1983 through May 14, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

S. Lucks	5/11 - 5/13
W. Kilker	5/9 - 5/14
P. Barry	5/12 - 5/14
A. Scott	5/9 - 5/14
B. Holsinger	5/12 - 5/14

Parsons, Brinckerhoff Michigan, Inc.

W. Parish	5/10 - 5/13
L. Silano	5/11

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
5/9 through 5/13	Stone & Webster Bechtel Consumers Power Parsons 5/11 - 5/12	Daily Meetings
5/10	Stone & Webster Bechtel Consumers Power	Discuss Method Of Determining The Extent Of Work Impacted by Issuance Of A Non- Conformance Report
5/11 & 5/12	Stone & Webster Bechtel Consumers Power Parsons NRC	Discussions Of Pier Load Test Data
5/13	Stone & Webster Consumers Power NRC	Discuss Work Package Review Of Grillage Beam Installation And General Concept Of Work Package Overview

Activities

Construction -

Pier E11: Non-routine re-jacking was performed in order to replace a driven wedge.
KC11 Drift: There was limited progress on the advancement or completion of this drift. The Contractor is considering eliminating or modifying drift sets and a reshore member since the entire face excavation is in concrete. Work is halted pending the processing of the change request.

Pier E8: The work was limited to the installation of 3 ring lagging sets between approximate El. 570 & 574. Further work was delayed pending the fabrication of the bell support steel.

Pier E10: The pier excavation and lagging was completed to approximate El. 575. The excavated material was mainly clay fill to approximate El. 586 underlain by the natural clay till. Seepage into the excavation was very minor except during a temporary shut down of the pier E12 access pit sump pump on May 13. Once corrected, the pier seepage was quickly reduced.

KC2 Drift: The finger drift to the pier was excavated approximately 3 ft. The excavated face consisted of unreinforced concrete with an interbedded layer of soil fill. The advance of the drift was halted pending the resolution of the proposed slope layback change.

Pier W8: The pier excavation and lagging advanced from near El. 587 to El. 576 in the natural clay till. Minor groundwater seepage continued to enter the excavation from near the fill clay interface. Work on this pier was halted pending the fabrication of the ring sets and bell bracing steel.

Pier W10: The pier was excavated and lagged to approximate El. 580. During the excavation of the fill material near El. 590 a void developed behind the pier W10 lagging between piers W10 and W11. The distance between piers W10 & W11 is 20 inches. Apparently a local zone of perched groundwater transported some of the granular soil fill into the pier excavation resulting in a void of approximately one cubic yard. The work was halted and the void zone was prepared and grouted. Since the grouting of a substantial number of the lagging spaces, groundwater seepage has been minor.

West Access Pit: A small area of the layback west of pier W10 sloughed probably due to rain water draining from the FIVP temporary shelter slough zone.

SWPS: Two (2) piezometer wells (LS6 & LS12) and two (2) dewatering wells (567 & 576) were completed and two (2) dewatering wells (555 & 561) were started.

Quality Control, Documentation and Records:

1. Reviewed Non-Conformance Reports issued against drift sets in place.
2. Started a review of Non-Conformance Reports for potential trends and what action has been taken by the Contractor to solve any generic problems.

Observations

Construction - Construction activities were limited by a number of factors that affected various segments of the work. At the start of the week the work was halted for nearly one day in order to resolve concerns over Non-Conformance Reports issued on temporary drift supports. Later in the week progress on the KC2 and KC11 drifts was stopped pending resolution of change requests and the slope laybacks. Advancement on piers E/W8 was curtail by the lack of sufficient approved bell bracing to complete the piers. The Contractor demonstrated proper regard that the work be done in a procedurally correct manner. Bell excavations were not started awaiting the release of all bell bracing. This approach limits the exposure of the structure to risks associated with excavating the bell area. However, the Assessment Team's on-going concern over the lack of availability of approved materials and the timely resolution of Non-Conformance Reports and change requests continues. These concerns are currently being addressed by the Owner and the Contractor.

Quality Control, Documentation and Records - In Weekly Report No. 33 the Assessment Team expressed concerns over the issuance of QC hold-tags on parts of the underpinning temporary support system that had already been put in-service. Meetings have been held between the Contractor and MPQAD to resolve this issue. It is imperative that (1) the programmatic requirements for dispositioning any such NCR's be fully understood and agreed upon by all of the groups within the Organization and (2) the NCR disposition cycle be streamlined to minimize delays in the underpinning work.

Design Work Packages - The Assessment Team performed an overview of the design work packages relating to (1) the replacement of an existing fireline near the SWPS, (2) the installation of piers E/W 13/14 and the excavation of soil zones beneath the existing structures and the access shaft to El. 600, (3) the SWPS soldier beam installation and (4) a duct bank exposure near the auxiliary building. Questions raised by the Assessment Team are in the process of being resolved. The Assessment Team discussed the design package overview methodology with the NRC representative. It was agreed the present overview approach fulfills the intent of the NRC request on work package overview.

Non-Conformance Identification Reports

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

<u>NIR No.</u>	<u>Description</u>	(Opened) <u>Date</u> (Closed)
5	Concrete Mix Qualification	2/10/83
6	Lagging Spacers	3/21/83
7	Backpacking Material in Wet areas-Pier W11	4/5/83
8	Load Transfer Methodology - Pier E12	4/5/83
9	Release of Pier W9 for Load Transfer	4/13/83
10	Verification of Vibrator Frequency	4/21/83

W.E. Kilker
Project Engineer

G.S. Lucka
Project Manager

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date May 9, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	W. Kilker	-----	G. Murray
	J. Gaydos			
	J. Fisher			
	D. Lavelle			
	M. Blendy			

1. J. Fisher explained that the field work will likely be terminated until there is a clarification or understanding on the status of the effect of issuing NCRs on a particular item and the impact on subsequent work. At the present time, there are numerous hold-tags in the drift and pier excavations that have not been dispositioned. MPQAD, Field Engineering and Resident Engineering will convene to resolve the issue.
2. J. Fisher reported the approval for the drawing restraining the fabrication of piers E/W8 ring beams and bell bracing has been obtained and fabrication began on May 8.
3. W. Kilker stated the Assessment Team continues to have concerns over the time required to disposition of NCRs - particularly those associated the temporary support system details. The various project organizations must streamline the NCR issuance/disposition cycle in order to avoid the repeated delays that continue to plague the work. In addition, the Team feels there are areas, again relating in particular to the temporary support system, where Engineering clarification or definition of allowable tolerances could provide an improved framework within which MPQAD can perform their inspections.
4. W. Kilker reported that to-date the backpacking quality on pier W8 lagging is good and that the inspection has been facilitated by the increased lagging spacer size.
5. J. Gaydos said that FSO is withdrawing the proposed concrete vibrator frequency verification procedure. QC will perform this verification by incorporating the requirement in the proper procedure.
6. E. Cvikl reported that in order to evaluate the Team question on the thickness of the lower bearing plate unit, during the reworking of pier W11 special attention was given to the jack #4 and lower bearing installation. Engineering concluded that the greater thickness is the result of the original condition and not related to the application of the load.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: May 10, 1983

Attendees: Bechtel Stone/Webster MPQAD CPCo
 J. Gaydos A. Scott R. Sevo G. Murray

1. J. Gaydos and R. Sevo stated that resolution of QAR on vibrator frequency verification will be closed.
2. J. Gaydos advised that J. Fisher is addressing problem of time required to process NCRs.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

May 11, 1983

Attendees:

Bechtel

J. Gaydos

Stone/Weber

A. Scott

A. Lucks

MPQAD

R. Sevo

CPCo

Parsons

P. Parish

1. The Administrative Guideline on Construction Aid Procedure is in the process of final sign-off.
2. The QAR on the concrete vibrator frequency verification has been completed.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: May 12, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Gaydos	A. Scott	R. Sevo	-----
	M. Blendy	S. Lucks		
	J. Fisher	W. Kilker		
	D. Lavelle			
	E. Cvikl			

Parsons
P. Parish

1. D. Lavelle reported that the guideline on Construction Aids was signed out by FSO.
2. J. Fisher reported that FSO and Engineering have assigned individuals to process NCRs to expedite the disposition process.
3. A. Scott questioned why the work was stopped on pier E10 near the end of the night shift when concrete was encountered near El. 590. J. Fisher explained that the issue should have been resolved by contacting FSO to investigate the nature of the concrete and then issue a drill permit.
4. W. Kilker questioned if the elimination of drift sets has been considered in areas where the drift sets are entirely in concrete. J. Fisher replied that on KC11 the final sets will likely be eliminated after a change request is processed.
5. J. Gaydos reported that the concrete testing on the mud-mat pours will be streamlined once a change request is approved.
6. J. Fisher reported that on pier W10 a void had developed overnight behind the lagging between 6 ft. and 12 ft. below the surface. Granular fill moved into the excavation along with perched groundwater. The size of the void was limited by the relatively small extent of granular fill. The Subcontractor is in the process of pumping the water out and preparing the pier for grouting the void space.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date May 13, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Gaydos	A. Scott	R. Sevo	G. Murray
	J. Fisher	W. Kilker		
	D. Lavelle			
	E. Cvikl			

1. J. Fisher and D. Lavelle said the organization is continuing the effects to expedite the conditional release process where applicable.
2. J. Fisher advised that the void that developed at pier W10 has been grouted.
3. There was a general discussion of how the implementation of the proposed change to eliminate the slope lay-backs will be initiated.
4. J. Fisher reported that the pier KC2 drift has been shut down pending the resolution of the slope lay-back issue. KC drift is awaiting the resolution of an FCR on re-shoring.
5. Pier W8 will not advance until ring sets are ready. Projected date is May 16.



STONE & WEBSTER MICHIGAN, INC.

P.O. Box 2325, BOSTON, MASSACHUSETTS 02107

PRINCIPAL STAFF	
RA	ENF
D/RA	SCS
A/RA	PAO
DRPP	PLO
DRMA	
DRMS	
DE	
ML	
OL	

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

May 10, 1983

J.O. No. 14358
 Ref. MPF 33

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
 MIDLAND PLANT - UNITS 1 and 2
 INDEPENDENT ASSESSMENT OF UNDERPINNING
 REPORT NO. 33

A copy of the Independent Assessment of the Underpinning Weekly Report No. 33 for the period May 1, 1983 through May 7, 1983, is enclosed with this letter. Included as attachments, are the minutes of the daily meetings held during the week between members of the Assessment Team and Site Engineering, Construction, and Quality Assurance personnel.

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

Very truly yours,

A. Stanley Lucks

A. Stanley Lucks
 Project Manager

Enclosures

ASL/ka

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Weekly Report No. 33

May 1, 1983 through May 7, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

W. Kilker 5/2 - 5/7
P. Barry 5/2 - 5/3
L. Rouen 5/2 - 5/6

Parsons, Brinckerhoff Michigan, Inc.

J. Ratner 5/2 - 5/6

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
5/2 through 5/5	Stone & Webster Bechtel Consumers Power Parsons 5/3 - 5/5	Daily Meetings

Activities

Construction -

Piers E/W 12: These piers have been completed and loaded for nearly 2 months. Unless non-routine rejackung or other unusual activity is performed at these piers no activity description will be included in this or future reports.

Piers E/W9: These piers have been completed and loaded for approximately 5 weeks. As in the case of E/W12 piers, activity descriptions on these piers will be generally omitted from future weekly reports.

Pier E11: No activity.

KC11 Drift: The excavation and lagging is virtually complete with only one drift set remaining to be installed. A sizable portion of the excavation was through unreinforced concrete - particularly in the northeast segment of the drift nearest pier E12. Along the southwestern side of the drift the thickness of concrete decreased to approximately 1½ ft. with clay fill making-up the remainder of the excavated section.

Pier E8: No further work (beyond the previously reported depth of 24 ft.) was performed on this pier. Drawing changes to the bell support system delayed the release for fabrication of not only the bell support steel but the lagging ring beam sets above the bell.

Pier E10 Drift: The excavation and lagging support has been complete. The excavated material consisted of approximately 1 ft. of unreinforced concrete underlain by clay fill.

East Access Shaft (Zone between access pits to E12 and E11): A cut slope in this area slumped on May 7 after a period of heavy rainfall. The Contractor cleared the area and installed wood lagging to prevent further slippage.

Pier W11: The pier load time deflection criteria was satisfied and the load transfer to wedges and the required routine re-jacking of the pier was performed.

KC2 Drift: The excavation was completed to 8 ft. south of a line formed by the south side of piers W11 and W12. The excavated material consisted of unreinforced concrete and sand/clay fill with a horizontal layer of fill sandwiched between concrete in certain areas.

Pier W8: The pier excavation and lagging was installed to El. 587 - a depth of approximately 13 ft. The excavated material was generally a clay fill. Minor groundwater seepage entered the excavation at El. 587.

Pier W10 Drift: The excavation and lagging support was completed. The excavated material consisted 1 ft. of unreinforced concrete underlain by a mixture of clay and sand fill. The pier template was located in preparation for the pier excavation.

Slope lay-backs north of piers E/W10: The Contractor excavated the slope lay-back on approximately a 1:1 slope in the existing fill materials.

SWPS: The Contractor began the installation of dewatering wells within the pumphouse. To-date the activity has consisted of the completion of 2 SPT borings.

Quality Control, Documentation and Records:

1. Assessed the proposed procedure for verifying the concrete vibrator frequency.
2. Observed the identification procedures used to control fabricated materials in the on-site fabrication shop.
3. Reviewed the qualifications and certifications of several QC inspectors that performed inspections on piers E/W9, 11 and 12. The inspection activities included excavation and lagging, mechanical splicing, reinforcing steel placement, concrete placement, bearing plate installation and load transfer.
4. Reviewed the issuance and use of the QA/QC Inspection Reports on the inspection activities tabulated under Item 3 above.
5. Observed the Engineering and QC inspection of the SPT borings performed in the SWPS.

Observations

Construction - The advancement of the drifts to KC2 and KC11 piers was hampered by the presence of unreinforced concrete - in the case of KC11 by the sheer quantity and at KC2 by the delay caused in determining the nature of a segment of "formed" concrete.

The Contractor responded to the slippage of the soil mass extending into the access shaft north of the KC11 drift by quickly installing lagging to prevent further slope deterioration.

The lagging set spacing at pier W8 is generally on the order of 1½ inches. A random verification of the backpacking quality indicated the granular backpacking material is generally filling any void space between the excavated soil and lagging sets. However, the inspection process is still hampered somewhat by the presence of the backpacking material extending well into the louvered area between lagging sets.

The pier W11 load transfer was completed by locking-off the load to the jackstand wedges. The Owner/Contractor will discuss with the NRC the engineering data obtained from this pier and others loaded to date.

The delay of more than one week in field activities on partially completed pier E8 due to design changes in the construction support system, in the Assessment Team's opinion, does not represent an endorsable planning/construction methodology. The Assessment Team feels the Contractor should be better prepared to complete a pier prior to initiating the excavation.

Quality Control, Documentation and Records - The fabrication shop was properly and clearly identifying and segregating QC "accepted" and "on-hold" materials.

The review of the inspector's certifications to perform inspections on numerous critical activities at 6 of the piers installed to-date indicated that the qualification and certification requirements were met by these individuals and that the issuance and use of the QC Inspection Reports was correct.

The Assessment Team requested a clarification on the assignment of the responsibility for verification of the concrete vibrator frequency. The Contractor agreed to address this concern.

The Assessment Team raised a concern about the practice of allowing field work to proceed beyond a stage in the construction where a NCR "hold-tag" has been installed on a certain item(s). If this practice is to continue there should be a means of documenting Engineering approval for the continuation of the field work.

The Assessment Team has an on-going concern over the lack of timely disposition of numerous outstanding QC hold-tags that have appeared on installed material. The majority of the NCRs written that have appeared as "hold-tags" in the work area have dealt with the temporary support system - drift sets, anchor bolts, drift set plates and pier lagging. If the work is going to proceed on a reasonable schedule the Organization (Engineering, Quality Assurance and Construction) must address and eliminate the numerous delays associated with non-conformances relating to these temporary support system details. As an example, at the present time in the pier W8 drift and pier excavation these are approximately 30 NCR "hold-tags". While some of the tags are a matter of only a few days old others have been in place nearly two weeks. It is our opinion that the nature of the majority of these non-conformance is such that complete disposition should be accomplished easily within a few days

Design Work Packages and Procedures - The Assessment Team performed an overview of the design work package relating to the installation and load transfer to piers E/W 10, KC2, KC3, KC10 and KC11. In general, the package was complete. However, the Team discussed with the Owner the degree to which drawings and procedures should be actually included in the "package" or referenced as existing.

Non-Conformance Identification Reports

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

<u>NIR NO.</u>	<u>Description</u>	<u>Date</u>	
		(Opened)	(Closed)
5	Concrete Mix Qualification	2/10/83	
6	Lagging Spacers	3/21/83	
7	Backpacking Material in Wet Areas-Pier W11	4/5/83	
8	Load Transfer Methodology - Pier E12	4/5/83	
9	Release of Pier W9 for Load Transfer	4/13/83	
10	Verification of Vibrator Frequency	4/21/83	

WE Killeen
Project Engineer

A. S. Sanchez
Project Manager

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: May 2, 1983

Attendees:

Bechtel

D. Lavelle
J. Fisher
J. Gaydos

Stone/Webster

P. Barry

MPQAD

R. Sevo

CPCo

G. Murray

Parsons

J. Ratner

1. D. Lavelle provided a copy of the latest data for the load test of pier W11. The pier is maintained on jacks at 110 per cent of specified load. Bechtel and CPCo intend to have a conference call with the NRC to discuss the test results.
2. J. Fisher stated that the "Administrative Guideline" for Construction Aid Procedure had been distributed for final comment. The Assessment Team has been provided with a copy.
3. D. Lavelle will provide a copy of the NCRs written on weld fabrication last week.
4. J. Fisher read E. Cvikl's response to the April 28th question concerning unreinforced KC piers. These piers are designed as pedestals in accordance with ACI 318. Soil support allows these piers to be constructed with plain concrete.
5. P. Barry questioned why expansion anchors in the east drift, that have hold tags, were put "in service" by the fact that the drift excavation was allowed to proceed beyond the point of infraction. These NCRs were written when after a reinspection the excavation had progressed past the affected drift sets. In the West drift the excavation waited until the drift sets including expansion anchors were properly installed. Bechtel is aware of the situation and will provide an explanation.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: May 3, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	J. Shah	-----
	J. Gaydos	L. Rouen		
		<u>Parsons</u>		
		J. Ratner		

1. J. Fisher explained that the delay in completing the shaft portion of pier E8 is due to lack of approval for the shopdrawing showing changes in the lagging sets just above the bell elevation. Approval is expected shortly so fabrication can proceed.
2. J. Fisher and J. Shah explained the basis for determination of whether or not work proceeds in a particular area after an NCR has been issued by MPQAD. After issuing a particular NCR, MPQAD discusses the matter with Resident Engineering in terms of impact on proceeding with construction. At that time the NCR is worded in terms of prohibiting or allowing work to proceed "around" the subject of the NCR. L. Rouen agreed that this type of action or discussion on an NCR would be appropriate providing there was a method of documenting the Engineering concurrence. In the case of the E8 drift Hilti-bolt related NCRs, it was determined that the nature of the non-conformances was such that work could proceed. J. Fisher said FSO had dispositioned these particular NCRs to Engineering and were awaiting resolution.
3. General discussion of the up-date on pier W11 load test.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: May 4, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Gaydos	L. Rouen	J. Shah	G. Murray
	E. Cvikl	W. Kilker		A. Blocher
		<u>Parsons</u>		
		J. Ratner		

1. W. Kilker said the Assessment Team observed the NCR on pier W9 concrete placement has not been removed. FSO will investigate.
2. There was a discussion of backpacking of lagging sets on pier E8. The Assessment Team observed that the lagging spacers were on the average 1-1/8 inches thick and that the backpacking material was still being placed to the inside face of the lagging. In the opinion of the Team both of these conditions continue to hamper somewhat the backpacking operation and in particular the inspection process. FSO will take action.
3. E. Cvikl advised that the shop drawings for E8 ring beam lagging sets should be signed out today allowing fabrication to commence. However, field work will not begin until all fabrication is completed.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: May 5, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	W. Kilker	R. Sevo	-----
	J. Gaydos	L. Rouen		
	J. Fisher			
	D. Lavelle			
		<u>Parsons</u>		
		J. Ratner		

1. D. Lavelle and W. Kilker discussed the potential impact on construction with the use of the proposed Construction Aid Procedure. D. Lavelle said defining certain of the construction operation and installation as Construction Aids should have a positive impact on the underpinning activity.
2. J. Fisher provided a Mergentime schedule for the installation of pier E8 and E8 grillage.
3. W. Kilker reported the Team's observation of the QC hold tag on pier W9 concrete pour. FSO will investigate to determine state of disposition.
4. J. Fisher reported that FSO concurred with lagging spacer sizes on pier E8. In order to expedite the inspection process spacers in the future will be on the order of 1-3/8 - 1-1/2 inches thickness.
5. L. Rouen questioned the assigning of responsibility for checking the concrete vibrators - would it go to Field Engineers or QC. FSO will take action to discuss the responsibility.
6. J. Gaydos provided a copy of all NCRs related to tolerances to the Assessment Team.
7. J. Ratner questioned why the lower level plates at jack #4 on pier W11 do not level up with adjacent plates. FSO will take action to determine that load application is appropriate.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

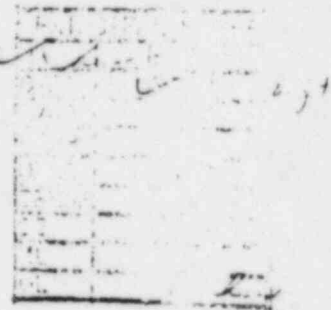
Date: May 6, 1983

No meeting was held on this date.



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

May 5, 1983

J.O. No. 14358
Ref. MPF 32

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF UNDERPINNING
REPORT NO. 32

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 32 for the period April 24, 1983 through April 30, 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 his report, please contact me at (617) 589-2067).

Very truly yours,

A. Stanley Lucks
ASL

A. Stanley Lucks
Project Manager

Enclosures

ASL/ka

~~8307140370~~ BPP

MAY 9 1983

Weekly Report No. 32

April 24, 1983 through April 30, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

A. Scott 4/25 - 4/30
P. Barry 4/25 - 4/30
P. Majeski 4/25 - 4/30

Parsons, Brinckerhoff Michigan, Inc.

J. Ratner 4/25 - 4/28

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
4/25 through 4/29	Stone & Webster Bechtel Consumers Power Parsons (4/26 - 4/28)	Daily Meetings
4/26	Stone & Webster (Part-time) Bechtel Consumers Power (Part-time)	Meeting To Analyze Load Test Results With NRC Consultant
4/26 & 4/27	Stone & Webster Bechtel Consumers Power Mergentime Parsons	Up-Date on Status Of Pier W11 Load Test
4/29	Stone & Webster Bechtel Consumers Power	Weekly Soils Review

Activities

Construction -

Pier E12: The load transfer remained in the active jack mode until April 26 at which time the deflection criteria was satisfied and the load was locked-off.

Pier E9: The load transfer remained in the active jack mode until April 27 at which time the deflection criteria was satisfied and the load was locked-off.

Pier E11: The initial load transfer was completed on April 26 and re-jacked per specifications for the succeeding 3 days.

Drift to KC11: The excavation, between piers E11 and E12, was started on April 27 and progressed approximately 10 ft. The excavated material consisted of clay fill and lean concrete. The thickness of concrete decreased from nearly the full cut face at the start of the drift to approximately 2 ft. at the 10 ft. point.

Pier E8: The drift was completed and pier excavation and lagging advanced to a depth of 24 ft. The excavated material consisted of zones of clay and granular fill to El. 586 underlain by the natural clay till. No groundwater entered the excavation.

Pier W8: Progress on the drift was hampered by Hilti-bolt installation problems. The drift was near completion by week's end.

Pier W11: The load test started on April 25. Reduction of the early test data indicated the pier load as measured by the upper Carlson meters was not the same as the load jacked into the pier and the lower Carlson meters recorded considerably less load than the upper Carlson meters. Also, the measured elastic shortening of the pier is significantly less than theoretical and the anti-friction liner moved down with the pier.

Additional information was obtained to aid in the analysis of these results by increasing the load to the maximum allowable and by cycling the load. However, neither of these procedures resulted in resolving the disparity in the Carlson meter readings. Further discussions with the NRC are required before additional steps are taken.

Service Water Pump Structure: An FCR was issued to permit cutting of selected reinforcing bars in the existing mat for installation of dewatering wells and/or piezometers. On the exterior of the structure the contractor placed numerous pipecasings through which the soldier piles will be installed.

Quality Control, Documentation and Records:

1. Witnessed QC inspection of pressure grout fix for Hilti-bolts in the W8 drift.
2. Witnessed QC/QA inspection of reworking of pier E11.
3. Witnessed QC inspection of load transfer at pier W11.

Observations

Construction - The reworking of piers E9, E12 and E11 was according to the approved procedures.

The continued problems encountered during installation of the Hilti-bolts in the drift to pier W8 indicate a need for additional flexibility in the installation requirements or the consideration of alternate support system details. However, to-date the Contractor has remained resolute in adhering to pre-established procedures despite significant schedule impacts.

The Contractor responded promptly to the initial test results obtained at pier W11. Consultants were contacted and advised of the situation within 24 hours. An alternate procedure was formulated and discussions with the NRC continued until April 29 at which time permission was granted to cycle the load to test the responsiveness of the Carlson meter.

Quality Control Documentation and Records - The QC inspections witnessed by the Assessment Team were thorough and in compliance with the MPQAD documents.

Design Work Packages and Procedures - The Assessment Team performed an overview of the technical procedures relating to the installation and load transfer to the grillage beams.

Non-Conformance Identification Reports

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

<u>NIR NO.</u>	<u>Description</u>	<u>Date</u>	
		(Opened)	(Closed)
5	Concrete Mix Qualification	2/10/83	
6	Lagging Spacers	3/21/83	
7	Backpacking Material in Wet areas-Pier W11	4/5/83	
8	Load Transfer Methodology -Pier E12	4/5/83	
9	Release of Pier W9 for Load Transfer	4/13/83	
10	Verification of Vibrator Frequency	4/21/83	

W E Keller
Project Engineer

R. S. Lewis
Project Manager

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date April 25, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher J. Gaydos	A. Scott	-----	G. Murray R. Wieland

1. J. Fisher stated that the Administrative Guideline, FIU - 1.100 would be revised and ready to be issued on April 27, 1983.
2. Bechtel stated that an FCR has been written on the checking of vibrators in concrete.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 26, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPCAD</u>	<u>CPCo</u>
	J. Fisher	A. Scott	G. Carpenter	G. Murray
	J. Gaydos	P. Barry		
	D. Lavelle	P. Majeski		
	M. Blendy			
		<u>Parsons</u>		
		J. Ratner		

1. The issue date for Administrative Guideline FIU-1.100 (Construction Aid Procedure) has been changed from April 27 to April 29.
2. There was further discussion regarding frequency of checking of concrete vibrators. The consensus was that the vibrators would be checked in concrete often. Bechtel will be working out the details in the next few days.
3. J. Fisher requested that in order to expedite responses to future NIR's a copy should be brought to the next scheduled Daily Meeting rather than waiting for the NIR to be issued through normal channels. P. Barry will respond.
4. The load test at W11 was started on April 25 at about 3:45 PM. Presently, based upon a comparison of the measured elastic shortening versus the theoretical elastic shortening and the information from the Carlson meters, the load at the tip of the piers is only a fraction of the applied load at the top. It therefore, appears that the anti-friction liner is not functioning. The RGE and RSE are investigating the situation. In addition, Bechtel's consultants have been notified and will be on-site on April 27.
5. M. Blendy indicated that a FCR has been issued which allows cutting of selected rebar in the SWPS to allow installation of wells and/or piezometers.
6. M. Blendy indicated that an FCR has been issued to allow completion of the work on the connections of the six beams in the Auxiliary Building.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 27, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cviki	A. Scott	R. Sevo	G. Murray
	D. Lavelle	P. Barry		
	M. Blendy	P. Majeski		
	J. Kelleher			

Parsons

J. Ratner

1. A plan for checking of concrete vibrators will be prepared by April 29. Following development of this plan a FCR will be prepared.
2. Following the regular daily meeting, a meeting will be held to up-date interested persons on the progress of the test at W11.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 26, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MP&AD</u>	<u>CFCo</u>
	D. Lavelle	P. Barry	R. Sevo	G. Murray
	J. Fisher	A. Scott		
	E. Cvikl	P. Majeski		
	M. Blendy			
	J. Gaydos			
		<u>Parsons</u>		
		J. Ratner		

1. Bechtel performed a test of six concrete vibrators as part of the development of a procedure for checking the frequency of the vibrators. The frequency of the vibrators checked met the requirements of ACI 309.
2. The test at W11 remains at the 600 kip load, awaiting review with the NRC of the changes in the test procedures. Contact with the appropriate NRC personnel could not be made on April 27 but it is believed contact would be made today. A copy of Bechtel's preliminary conclusions and recommendations regarding the load test was given to the Team.
3. P. Barry asked if pier KC11 (which is currently shown as unreinforced on the drawings) must be designed in accordance with ACI 318 which would require that reinforcing steel be placed in the pier.
4. P. Barry indicated that he wanted to clarify the purpose of the Assessment Team's participation at the Bechtel meetings in light of a general statement made yesterday at the up-date meeting regarding the test at pier W11. At this meeting a general question was asked whether there was any reason why the proposed test procedure changes could not be made and if all were in agreement with this course of action. P. Barry stated that the Assessment Team's attendance was primarily to obtain information regarding on-going activities and not to approve any particular action. D. Lavelle responded that he understood this and his wording of the previous day was not the best. However, he welcomes any participation by the Team at the meetings.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 29, 1983

No Meeting held on this date.



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

May 18, 1983

J.O. No. 14358
Ref. MPF 34

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF UNDERPINNING
REPORT NO. 34

A copy of the Independent Assessment of the Underpinning Weekly Report No. 34 for the period May 8, 1983 through May 14, 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 the Meetings attended portion of Weekly Report No. 32 the reference to a meeting with an NRC consultant is in error. The reference should have been to a meeting with the Contractor's Consultant.

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

Very truly yours,

A. Stanley Lucks
Project Manager

Enclosures

ASL/ka

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

Weekly Report No. 34

May 8, 1983 through May 14, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

S. Lucks	5/11 - 5/13
W. Kilker	5/9 - 5/14
P. Barry	5/12 - 5/14
A. Scott	5/9 - 5/14
B. Holsinger	5/12 - 5/14

Parsons, Brinckerhoff Michigan, Inc.

W. Parish	5/10 - 5/13
L. Silano	5/11

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
5/9 through 5/13	Stone & Webster Bechtel Consumers Power Parsons 5/11 - 5/12	Daily Meetings
5/10	Stone & Webster Bechtel Consumers Power	Discuss Method Of Determining The Exten Of Work Impacted by Issuance Of A Non- Conformance Report
5/11 & 5/12	Stone & Webster Bechtel Consumers Power Parsons NRC	Discussions Of Pier Load Test Data
5/13	Stone & Webster Consumers Power NRC	Discuss Work Package Review Of Grillage Beam Installation And General Concept Of Work Package Overview

Activities

Construction -

Pier E11: Non-routine rejackng was performed in order to replace a driven wedge.
KC11 Drift: There was limited progress on the advancement or completion of this drift. The Contractor is considering eliminating or modifying drift sets and a reshore member since the entire face excavation is in concrete. Work is halted pending the processing of the change request.

Pier E8: The work was limited to the installation of 3 ring lagging sets between approximate El. 570 & 574. Further work was delayed pending the fabrication of the bell support steel.

Pier E10: The pier excavation and lagging was completed to approximate El. 575. The excavated material was mainly clay fill to approximate El. 586 underlain by the natural clay till. Seepage into the excavation was very minor except during a temporary shut down of the pier E12 access pit sump pump on May 13. Once corrected, the pier seepage was quickly reduced.

KC2 Drift: The finger drift to the pier was excavated approximately 3 ft. The excavated face consisted of unreinforced concrete with an interbedded layer of soil fill. The advance of the drift was halted pending the resolution of the proposed slope layback change.

Pier W8: The pier excavation and lagging advanced from near El. 587 to El. 576 in the natural clay till. Minor groundwater seepage continued to enter the excavation from near the fill clay interface. Work on this pier was halted pending the fabrication of the ring sets and bell bracing steel.

Pier W10: The pier was excavated and lagged to approximate El. 580. During the excavation of the fill material near El. 590 a void developed behind the pier W10 lagging between piers W10 and W11. The distance between piers W10 & W11 is 20 inches. Apparently a local zone of perched groundwater transported some of the granular soil fill into the pier excavation resulting in a void of approximately one cubic yard. The work was halted and the void zone was prepared and grouted. Since the grouting of a substantial number of the lagging spaces, groundwater seepage has been minor.

West Access Pit: A small area of the layback west of pier W10 sloughed probably due to rain water draining from the FIVP temporary shelter slough zone.

SWPS: Two (2) piezometer wells (LS6 & LS12) and two (2) dewatering wells (567 & 576) were completed and two (2) dewatering wells (555 & 561) were started.

Quality Control, Documentation and Records:

1. Reviewed Non-Conformance Reports issued against drift sets in place.
2. Started a review of Non-Conformance Reports for potential trends and what action has been taken by the Contractor to solve any generic problems.

Observations

Construction - Construction activities were limited by a number of factors that affected various segments of the work. At the start of the week the work was halted for nearly one day in order to resolve concerns over Non-Conformance Reports issued on temporary drift supports. Later in the week progress on the KC2 and KC11 drifts was stopped pending resolution of change requests and the slope laybacks. Advancement on piers E/W8 was curtailed by the lack of sufficient approved bell bracing to complete the piers. The Contractor demonstrated proper regard that the work be done in a procedurally correct manner. Bell excavations were not started awaiting the release of all bell bracing. This approach limits the exposure of the structure to risks associated with excavating the bell area. However, the Assessment Team's on-going concern over the lack of availability of approved materials and the timely resolution of Non-Conformance Reports and change requests continues. These concerns are currently being addressed by the Owner and the Contractor.

Quality Control, Documentation and Records - In Weekly Report No. 33 the Assessment Team expressed concerns over the issuance of QC hold-tags on parts of the underpinning temporary support system that had already been put in-service. Meetings have been held between the Contractor and MPQAD to resolve this issue. It is imperative that (1) the programmatic requirements for dispositioning any such NCR's be fully understood and agreed upon by all of the groups within the Organization and (2) the NCR disposition cycle be streamlined to minimize delays in the underpinning work.

Design Work Packages - The Assessment Team performed an overview of the design work packages relating to (1) the replacement of an existing fireline near the SWPS, (2) the installation of piers E/W 13/14 and the excavation of soil zones beneath the existing structures and the access shaft to El. 600, (3) the SWPS soldier beam installation and (4) a duct bank exposure near the auxiliary building. Questions raised by the Assessment Team are in the process of being resolved. The Assessment Team discussed the design package overview methodology with the NRC representative. It was agreed the present overview approach fulfills the intent of the NRC request on work package overview.

Non-Conformance Identification Reports

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

<u>NIR No.</u>	<u>Description</u>	(Opened) <u>Date</u> (Closed)
5	Concrete Mix Qualification	2/10/83
6	Lagging Spacers	3/21/83
7	Backpacking Material in Wet areas-Pier W11	4/5/83
8	Load Transfer Methodology - Pier E12	4/5/83
9	Release of Pier W9 for Load Transfer	4/13/83
10	Verification of Vibrator Frequency	4/21/83

W.E. Kilker
Project Engineer

G.D. Lucka
Project Manager

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date May 9, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	W. Kilker	-----	G. Murray
	J. Gaydos			
	J. Fisher			
	D. Lrvelle			
	M. Blendy			

1. J. Fisher explained that the field work will likely be terminated until there is a clarification or understanding on the status of the effect of issuing NCRs on a particular item and the impact on subsequent work. At the present time, there are numerous hold-tags in the drift and pier excavations that have not been dispositioned. MPQAD, Field Engineering and Resident Engineering will convene to resolve the issue.
2. J. Fisher reported the approval for the drawing restraining the fabrication of piers E/W8 ring beams and bell bracing has been obtained and fabrication began on May 8.
3. W. Kilker stated the Assessment Team continues to have concerns over the time required to disposition of NCRs - particularly those associated the temporary support system details. The various project organizations must streamline the NCR issuance/disposition cycle in order to avoid the repeated delays that continue to plague the work. In addition, the Team feels there are areas, again relating in particular to the temporary support system, where Engineering clarification or definition of allowable tolerances could provide an improved framework within which MPQAD can perform their inspections.
4. W. Kilker reported that to-date the backpacking quality on pier W8 lagging is good and that the inspection has been facilitated by the increased lagging spacer size.
5. J. Gaydos said that FSO is withdrawing the proposed concrete vibrator frequency verification procedure. QC will perform this verification by incorporating the requirement in the proper procedure.
6. E. Cvikl reported that in order to evaluate the Team question on the thickness of the lower bearing plate unit, during the re-jacking of pier W11 special attention was given to the jack #4 and lower bearing installation. Engineering concluded that the greater thickness is the result of the original condition and not related to the application of the load.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: May 10, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Gaydos	A. Scott	R. Sevo	G. Murray

1. J. Gaydos and R. Sevo stated that resolution of QAR on vibrator frequency verification will be closed.
2. J. Gaydos advised that J. Fisher is addressing problem of time required to process NCRs.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

May 11, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Gaydos	A. Scott A. Lucks	R. Sevo	-----
		<u>Parsons</u>		
		P. Parish		

1. The Administrative Guideline on Construction Aid Procedure is in the process of final sign-out.
2. The QAR on the concrete vibrator frequency verification has been completed.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: May 12, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Gaydos	A. Scott	R. Sevo	-----
	M. Blendy	S. Lucks		
	J. Fisher	W. Kilker		
	D. Lavelle			
	E. Cvikl			
		<u>Parsons</u>		
		P. Parish		

1. D. Lavelle reported that the guideline on Construction Aids was signed out by FSO.
2. J. Fisher reported that FSO and Engineering have assigned individuals to process NCRs to expedite the disposition process.
3. A. Scott questioned why the work was stopped on pier E10 near the end of the night shift when concrete was encountered near El. 590. J. Fisher explained that the issue should have been resolved by contacting FSO to investigate the nature of the concrete and then issue a drill permit.
4. W. Kilker questioned if the elimination of drift sets has been considered in areas where the drift sets are entirely in concrete. J. Fisher replied that on KC11 the final sets will likely be eliminated after a change request is processed.
5. J. Gaydos reported that the concrete testing on the mud-mat pours will be streamlined once a change request is approved.
6. J. Fisher reported that on pier W10 a void had developed overnight behind the lagging between 6 ft. and 12 ft. below the surface. Granular fill moved into the excavation along with perched groundwater. The size of the void was limited by the relatively small extent of granular fill. The Subcontractor is in the process of pumping the water out and preparing the pier for grouting the void space.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date May 13, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Gaydos	A. Scott	R. Sevo	G. Murray
	J. Fisher	W. Kilker		
	D. Lavelle			
	E. Cvikl			

1. J. Fisher and D. Lavelle said the organization is continuing the effects to expedite the conditional release process where applicable.
2. J. Fisher advised that the void that developed at pier W10 has been grouted.
3. There was a general discussion of how the implementation of the proposed change to eliminate the slope lay-backs will be initiated.
4. J. Fisher reported that the pier KC2 drift has been shut down pending the resolution of the slope lay-back issue. KC drift is awaiting the resolution of an FCR on re-shoring.
5. Pier W8 will not advance until ring sets are ready. Projected date is May 16.



STONE & WEBSTER MICHIGAN, INC.

P.O. Box 2325, BOSTON, MASSACHUSETTS 02107

PRINCIPAL STAFF	
RA	W. J. ENF
O/RA	SCS.
A/RA	PAO
DPRP	SLO
DRMA	RC
DRMSP	
DE	
ML	
OL	FILE

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

April 27, 1983

J.O. No. 14358
 Ref. MPF 31

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
 MIDLAND PLANT - UNITS 1 and 2
 INDEPENDENT ASSESSMENT OF UNDERPINNING
 REPORT NO. 31

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 31 for the period April 17, 1983 through April 23, 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 his report, please contact me at (617) 589-2067).

Very truly yours,

A. Stanley Lucks
 Project Manager

Enclosures

ASL/ka

~~8307140365~~ 10PP

APR 29 1983

J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment of Underpinning

Weekly Report No. 31

April 17, 1983 through April 23, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

W. Kilker	4/18 - 4/23
A. Scott	4/21 - 4/23
P. Barry	4/18 - 4/20
A. Lucks	4/19 - 4/21

Parsons, Brinckerhoff Michigan, Inc.

P. Parish	4/18 - 4/22
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
4/18 through 4/22	Stone & Webster Bechtel Consumers Power Parsons (4/19 - 4/22)	Daily Meetings
4/21	Stone & Webster Bechtel Consumers Power Mergentime	"Dry-Run" Pre- sentation of Load/ Settlement Data

Activities

Construction -

Pier W12: No activity.

Pier W9: No activity.

Pier W11: The upper and lower leveling plates were installed and grouted. Bearing plates, jackstand, and jacks were placed and the Carlson meter electrical connections and telltale plates, box and dial gauge installations were completed. The pier is essentially ready for load transfer.

Pier W8 drift: Excavation and support of the drift advanced to within 6 ft. of completion. The excavated material consisted of approximately 2 ft. of unreinforced concrete underlain by clay fill with some zones of sand fill.

Pier E12: Routine re-jacking based on structure movement was initiated on April 22. The 110 percent of specified load was re-established by active jacking at which time a loosening of the driving wedges required that the 0.01 inch per 48 hour deflection criteria be satisfied by maintaining active jacking.

Pier E9: Routine rejackung based on structure movement was initiated on April 22. The procedure followed and results obtained were similar to those at pier E12.

Pier E11: The lower leveling plate bearing plates, telltale bearing plate, box and dial gauges, jackstands and jacks were installed. Load transfer was initiated on April 23.

Pier E8 drift: The drift excavation was completed. Installation of the final drift set was completed on April 23. The excavated material consisted of 2 ft. of unreinforced concrete underlain by clay fill. An abandoned well screen and a deep seated benchmark casing were encountered near the west limit of the drift excavation.

Service Water Pump Structure: Granular backfill was placed and compacted to permit equipment access. Two exterior probe holes were then completed and grouted. The completion of coring the concrete floor slab for dewatering wells is delayed pending Engineering resolution of reinforcement bar interferences.

Auxiliary Building Beam Fix: The major portion of the beam connection modifications at El. 646, 659 and 704 were completed.

Quality Control, Documentation and Records:

1. Witnessed QC inspection of dry-pack grouting the upper level bearing plate at pier W11.
2. Witnessed the QC inspection of Hilti bolt holes along a portion of pier E8 drift.
3. Observed the verification survey of centerline of pier W11.
4. Witnessed QA/QC sign-off inspection at pier E11 prior to load transfer.

Observations

Construction - The installation of bearing plates, jackstands and jacks at piers E/W11 was done in a satisfactory manner. The E/W8 drift excavations were properly advanced and supported. Progress was frequently slowed by the curing time required for grout placed in abandoned Hilti bolt holes.

The rejackung operations at piers E9 and E12 and the initial load transfer at pier E11 were properly executed. The response of the load level at pier E12 during the rejackung of E9 and of load levels at both piers E9 and E12 during the loading of pier E11 demonstrated the sensitivity and interaction of the pier system to the application of loads up to 35 ft. distance.

Quality Control, Documentation and Records - The Team observations of the QC activities indicated the inspections were being properly done. The response of the field organization to the turbine building settlement near pier E8 was in accordance with procedural requirements.

The Assessment Team received a response to NIR #6 concerning the spacing requirements for pier lagging sets. In summary, the response stated that the Contractor has agreed with the Subcontractor to use the wider spacers conditions permitting. However, no change would be made to the procedure. The Assessment Team appreciated the concern of the Contractor to changing the procedure. Nevertheless, it is our opinion that wording could be incorporated into the procedure that would assure the use of wider spacers unless certain dimensional or ground conditions dictate otherwise.

The Assessment Team issued NIR #10 concerning the testing of the frequency of concrete vibrators. ACI 309 requires that concrete vibrators should be checked in concrete. The Contractor has been testing vibrators in air.

Design Work Packages - The Assessment Team performed an overview of the design work packages for the auxiliary building beam fix, the UAT modification and the E/W8 grillage beam installation. The auxiliary building beam fix and UAT packages were judged to be complete. With respect to the grillage beam installation, it was recommended that an additional existing construction procedure and instrumentation procedure be referenced in the work package summary, and one signature block had not been signed on the installation procedure.

Non-Conformance Identification Reports

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

<u>NIR NO.</u>	<u>Description</u>	<u>Date</u>	
		(Opened)	(Closed)
5	Concrete Mix Qualification	2/10/83	
6	Lagging Spacers	3/21/83	
7	Backpacking Material in Wet areas-Pier W11	4/5/83	
8	Load Transfer Methodology-Pier E12	4/5/83	
9	Release of Pier W9 for Load Transfer	4/13/83	
10	Verification of Vibrator Frequency	4/21/83	

W.E. Kilker
Project Engineer *ass*

A.L. Lucks
Project Manager *ass*

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 18, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	W. Kilker	R. Sevo	G. Murray
	J. Fisher	P. Barry		
	J. Gaydos			

1. J. Fisher reported the auxiliary building beam fix has been started.
2. A general discussion was held on the drift set Hilti bolt installation impact on time needed to advance the drifts to the respective piers. At most drift set plate locations, the Subcontractor has been required to drill numerous additional holes due to encountering steel before full penetration was achieved. The abandoned holes require grouting and cure time before torquing the successful holes.
3. In response to an earlier inquiry (see notes of April 14) by P. Barry on the NCR on a drift set in pier E12, J. Fisher stated that FSO has dis-positioned it.
4. W. Kilker presented written inquiry on the load transfer interaction effects on adjacent piers. See attached sheet. J. Fisher will arrange for a separate discussion session with the Subcontractor.
5. J. Fisher stated he will measure wedges on E/W9 piers and report on use of various sizes.
6. In response to an earlier observation (see notes of April 15) by P. Barry, J. Fisher said that routine re-jacking in the future will not necessarily result in a jack load reduction as was done on the April 14 re-jacking of pier W9.
7. P. Barry discussed the Assessment Team observations on the UAT work package. A question arose if any grouting of the soil outside the pipe is anticipated prior to opening the pipe wall. If so, the work package submittal may need revision.

ASSESSMENT TEAM QUESTIONS CONCERNING AFFECT OF
PIER INTERACTION

As per specifications it appears that inadvertent unloading of piers due to the loading of an adjacent pier is prevented by the criteria that requires re-jacking at piers when the settlement exceeds .01 inch in a continuous 48 hour period. This could mean however, that while a pier is being loaded adjacent piers may require re-jacking at the same time and possibly affect the acceptance criteria of load transfer for the pier being installed. This would be critical where adjacent piers are close and/or have areas of overlapping pressures.

Will the load on piers adjacent to a pier undergoing initial load transfer be maintained by active jacking or will the application of a re-jacking load to these piers be determined by the deflection criteria?

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DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 19, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	W. Kilker	W. Lytle	G. Murray
	J. Fisher	P. Barry		
	J. Gaydos			
		<u>Parsons</u>		
		P. Parish		

1. J. Fisher stated the meeting with Mergentime on the effect of jacking on adjacent piers will be scheduled for the week of April 25.
2. J. Gaydos reported that on piers E/W9 all driven wedges were originally 4 ft. long. However, interferences with drift sets required cutting of the ends after they were driven.
3. J. Fisher stated that Resident Engineering had informed him that the UAT work package would not require a change since no grouting will be done prior to opening the pipe wall.
4. W. Kilker stated he met informally with J. Northrup. J. Northrup reported making progress in both clarifying inspection requirements and changing the welding requirements particularly on lagging and telltale boxes.
5. W. Kilker reported the Assessment Team had received a response from FS() on NIR #6. G. Murray requested a copy for CPCo in order to facilitate the close-out of the item. W. Kilker will report on the response within a day or so.
6. E. Cvikl said that to his knowledge no QARs had been issued on the Assessment Team NIRs 6, 7 or 8. W. Lytle will investigate.
7. P. Parish questioned if the design considerations had taken into account the extent of "open-area" under the turbine building that now exists. J. Fisher said Mergentime had verified with Project Engineering last month that the situation had been anticipated and analyzed.
8. E. Cvikl reported that a roof crack in the northwest portion of the SWPS had reached a width of 33 mils and that as an action the investigative agency was being alerted to perform an evaluation.
9. J. Fisher questioned if the Assessment Team had any concerns about the sampling of concrete at the end of the pumpline. W. Kilker and P. Barry replied that the sampling location does not concern the Team from a quality standpoint. Any opinions expressed by the Team to date on concrete sampling locations were from the standpoint of logistics and expediency of the operation.
10. E. Cvikl reported that Project Engineering is responding to the question of checking the vibrator frequency in air versus in concrete.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 20, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	R. Sevo	-----
	J. Gaydos	P. Barry		
		S. Lucks		
		<u>Parsons</u>		
		P. Parish		

1. J. Fisher stated that with respect to the UAT work package it has been determined that Mergentime will cut the pipe access later. The present work package will not include that activity.
2. R. Sevo requested a clarification on recently expressed Assessment Team concerns about concrete sampling. P. Barry and W. Kilker indicated that end of the pumpline sampling is of no quality concern to the Assessment Team.
3. P. Barry said he had discussed his comments on the constructability package for grillages at piers E/W8 with FSO.
4. J. Gaydos responded to an earlier concern over the driving wedge length used at piers E/W9. All wedges conformed to the drawing requirements when driven but were later cut-off as required to avoid interferences with drift sets.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 21, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Gaydos	W. Kilker	R. Sevo	G. Murray
	E. Cvikl	S. Lucks		
		<u>Parsons</u>		
		P. Parish		

1. W. Kilker advised that the FSO response to NIR #6 on lagging spacers had been received. The response stated that in general the Subcontractor had been advised, in general, to use the wider allowable spacing. The Team is in agreement with this recommendation but feels the procedure should be changed to reflect the recommendation. NIR #6 will remain open.
2. G. Murray related that based on a recent discussion with the NRC the pier load test at W11 maybe delayed. The work permit for performing the load test has not been signed off by the NRC.
3. E. Cvikl reported that since last evening (April 20) the turbinebuilding, as monitored by the deep-seated benchmark nearest to pier E8, has undergone a few mills settlement and that further settlement will necessitate rejackng a pier E9.
4. E. Cvikl said the Resident Engineering group will meet to discuss presentation of data proposed for the NRC during their site visit next week.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 22, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	W. Kilker	R. Sevo	-----
	J. Fisher	A. Scott		
	J. Gaydos			
		<u>Parsons</u>		
		P. Parish		

1. E. Cvikl reported E9 and E12 piers will be rejaacked today because a turbine building benchmark indicated the deflection criteria had reached the action level.
2. J. Fisher said the benchmark pipes will be protected in the excavation from the construction operations.
3. E. Cvikl said Engineering will establish the criteria for testing the concrete vibrator and forward this to QC.
4. There was a general discussion of the work released at the UAT.



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

April 21, 1983

J.O. No. 14358
Ref. MPF 30

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 AND 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 30

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 30 for the period April 10, 1983 through April 16, 1983, is enclosed with this letter. Included as attachments, are the minutes of the daily meetings held during the week between members of the Assessment Team and Site Engineering, Construction, and Quality Assurance personnel.

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

Very truly yours,

A. Stanley Lucks
Project Manager

Enclosures

ASL/ka

APR 27 1983

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J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning

Weekly Report No. 30

April 10, 1983 through April 16, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

W. Kilker	4/14 - 4/16
B. Holsinger	4/11 - 4/16
A. Scott	4/11 - 4/14
P. Majeski	4/11 - 4/13
P. Barry	4/11 - 4/16

Parsons, Brinckerhoff Michigan, Inc.

V. Madill	4/12 - 4/15
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
4/11 through 4/15	Stone & Webster Bechtel Consumers Power Parsons (4/12 - 4/15)	Daily Meetings
4/15	Stone & Webster Bechtel Consumers Power Mergentime	Weekly Project Soils Meeting

Activities

Construction -

Pier W12: Routine rejackings of the pier was not required during this week. Total pier settlement to date is on the order of 0.25 inches.

Pier W9: The wedge lock-off was accomplished on April 13. Total pier deflection to date is approximately 0.4 inches. Routine rejackings was done on April 14.

Pier W11: Reinforcing steel, telltale rods, and the lower level Carlson meters were installed and concrete was placed to El. 597 on April 14. The remaining reinforcing steel and upper level Carlson meters were then installed and the pier concreting was completed on April 16.

Pier W8 Drift: The 9 ft. long section of N-S drift adjacent to pier W9 and 10 ft. of the E-W segment of the drift to the south of pier W9 were completed. The excavated material consisted of a 1-2 ft. thickness on unreinforced concrete underlain by clay backfill.

Pier E12: Routine re-jacking of the pier was not required during this week. Total pier settlement to date is approximately 0.25 inches.

Pier E9: Initial lock-off of the load to the wedges was done on April 11. Routine re-jacking of the pier was performed on April 12.

Pier E11: Reinforcing steel and telltale instrumentation were installed and the pier shaft concreting was completed on April 13. The upper leveling plate was installed and dry-pack grouted and the upper bearing plate was installed. Moist curing of the pier surface continued throughout the week.

Pier E8 Drift: The drift excavation proceeded to approximately the same point as the pier W8 drift. The excavated material consisted of a 2 ft. thickness of unreinforced concrete underlain by clay backfill.

Quality Control, Documentation and Records:

1. Reviewed selected MPQAD NCR's for procedural compliance.
2. Witnessed concrete testing for pier E11 shaft concrete placement.
3. Witnessed placement, vibrating and testing of pier W11 concrete (initial placement to El. 597).
4. Reviewed data used as a basis for development of the dry-pack grout testing procedure.

Observations

Construction - The routine re-jacking of piers E/W9 was carried out satisfactorily. The field personnel put considerable effort into driving the wedges to insure full load transfer to the pier prior to jack load release. The Assessment Team expressed a concern over irregularities in the shape of some of the driving wedges that have been used to-date. The wedge shape should be such that full bearing is achieved along the wedge once it is driven. The Contractor has taken steps to insure that the bearing surfaces of the wedges will be flat by specifying a tighter tolerance.

Piers E/W11 were completed in accordance with the procedures and good industry practice.

Quality Control, Documentation and Records - With two exceptions MPQAD had properly initiated, issued, tracked, and closed the Non-conformance Reports (NCRs) that were reviewed by the Assessment Team. In one case, the Assessment Team noted the need for additional documentation on the inspection report form associated with the issuance of an NCR on the vibration of concrete. In another case, an NCR on concrete placement at one of the piers was not dispositioned prior to release for load transfer (Refer to Assessment Team NIR #9). However, the QC inspector was fully aware of the resolution of the technical concern prior to the load transfer.

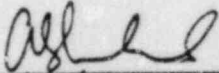
The concrete testing and concrete placement procedure observed at piers E/W11 were in compliance with the project documents. The Team review of the data used in developing the dry-pack grout testing procedure indicated an adequate basis for developing the procedure.

As referenced in the Assessment Team Weekly Report No. 28, the Team continued the assessment of the shop welding of underpinning materials. In addition to discussions with the Contractor's welding engineers and a review of the welding procedures, the assessment included inspections and evaluations at the Subcontractor's fabrication shop. The evaluation of selected welded materials indicated the welds were of high quality. A number of the observed welds had been rejected by the QC inspection process. However, it is the Assessment Team's opinion that the rejections were generated by a very vigorous interpretation of the welding code and procedures and do not reflect significant weld defects. Entire lots of fabricated materials consisting of several individual pieces are presently being "held" if a single piece is rejected. In order to expedite the release process, the Contractor may want to consider redefining the lot size of work to be inspected. The prequalified welding procedures are taken directly from the AWS code. Code information is therefore fully included. However, considering the nature of the welding (mostly fillet welds) the qualification could be presented in a less complex manner. As stated in the previous Assessment Team welding evaluation, active participation of the Project Engineering group is crucial to the efficient functioning of the welding fabrication. Weld designs should be reviewed in light of field fabrication and inspection experiences.

Non-Conformance Identification Reports

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

<u>NIR NO.</u>	<u>Description</u>	<u>Date</u> (Opened)	(Closed)
5	Concrete Mix Qualification	2/10/83	
6	Lagging Spacers	3/21/83	
7	Backpacking Material in Wet areas-Pier W11	4/5/83	
8	Load Transfer Methodology-Pier E12	4/5/83	
9	Release of Pier W9 for Load Transfer	4/13/84	


Project Engineer


Project Manager

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 11, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	A. Scott	R. Sevo	R. Wieland
	E. Cvikl	P. Majeski		
	J. Gaydos			

1. J. Fisher indicated that an FCR has been written to permit excavation of the drift to E/W8.
2. J. Fisher indicated that the initial concrete pour at pier W11 will be completed to just below the upper level of Carlson meters (about 7 ft. from top).
3. A. Scott expressed a concern that the joint tape on the anti-friction liner is loose. J. Fisher replied that the condition will be corrected before concrete placement.
4. A discussion was held concerning soil unravelling at pier E11. The minor seepage was apparently sufficient to cause unravelling of the soil in the bell area prior to and during concrete placement. P. Majeski expressed a concern that unravelling occurring during concrete placement could go undetected and that stabilizing the bell area before hand is important. J. Fisher stated that keeping water from the bell area is important and that efforts to contain and remove the water before reaching the bell have been done and will be repeated or expanded in future bells to try to avoid the condition in pier E11.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 12, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	P. Majeski	J. Shan	D. Puhalla
	J. Gaydos	A. Scott		
		P. Barry		

1. A. Scott indicated that the slump of the concrete for the placement of the bell of E11 on April 9 was erratic. He suggested that the procedures used by the supplier be reviewed (particularly with respect to the water content of the aggregate) to determine the cause of this problem.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 13, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	P. Majeski	G. Carpenter	R. Wheeler
	J. Kelleher	A. Scott		R. Wieland
		P. Barry		
		<u>Parsons</u>		
		V. Madill		

1. R. Wheeler stated that he and J. Meisenheimer had the opportunity to discuss the Construction Aid Procedure, "Administrative Guideline" FIU. 1.100 and plan to meet with D. Lavelle concerning whether this guideline is required or not on April 14. In R. Wheeler's opinion construction aids should be so noted on the drawings.
2. R. Wheeler stated that when CPCo documents the technical items presented to the NRC via telephone conversation the NRC may permit excavation on E/W8 piers to the elevation of the top of bell or ring support.
3. In reference to A. Scott's concern on the inconsistent characteristic of concrete slump, Jim Kelleher reported that, as an initial step, the moisture test performed on the aggregates would be performed in the morning of the batching of concrete to insure that the latest condition is reflected in the mix proportion.
4. P. Barry reported that the Assessment Team had issued NIR #9. An NCR written on the pier W9 concrete placement has not been dispositioned. Conditional release to complete the pier had been given but not to perform the load transfer. In addition, P. Barry reported having difficulty in locating in FSO & MPQAD the initial conditional release for the concrete placement.
6. P. Majeski questioned if there were plans to chart or detail the settlement of piers particularly with respect to the effect of loading a pier on in-place adjacent piers. The concern is that the load on the in-place piers be maintained during the jacking of an adjacent pier(s). E. Cvikl will respond.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 14, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	W. Kilker	-----	G. Murray
	J. Fisher			

Parsons

V. Madill

1. J. Fisher reported that MPQAD has issued a conditional release to perform rejackung of pier W9.
2. V. Madill stated that the load transfer wedges on piers E/W9 have different details (lengths and thicknesses) than what he interprets from the drawings. J. Fisher will respond.
3. V. Madill questioned irregularities along the surface of some of the load transfer wedges. J. Fisher stated that a new supply of wedges are on order.
4. P. Barry asked about the status of the NCR on the drift set installation at pier E12. J. Fisher will respond.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 15, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPCAD</u>	<u>CPCo</u>
	E. Cvikl	W. Kilker	R. Sevo	J. Mooney
	J. Fisher	P. Barry		J. Schaub
	J. Gaydos	B. Holsinger		
		<u>Parsons</u>		
		V. Madill		

1. J. Fisher reported that approval has been obtained from the NCR to perform the auxiliary building beam fixes. Work will begin immediately.
2. P. Barry stated that on April 14 he witnessed the reworking of pier W9. The field personnel put forth considerable effort in driving the wedges resulting in a load reduction in the jacks of nearly 20 percent prior to release of the jack pressure.
3. J. Fisher said the forecast date for W11 load transfer is April 21.
4. There was a general discussion of the interactive effect between a pier being loaded and the potential reworking of adjacent piers. J. Fisher requested the Assessment Team submit any specific questions on this subject to allow FSC to prepare proper response.
5. B. Holsinger questioned if the concrete vibrators are frequency tested in air or in concrete. J. Fisher and E. Cvikl will respond.



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

April 15, 1983

J.O No. 14358
Ref. MPF 29

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 29

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 29 for the period April 3, 1983 through April 9, 1983, is enclosed with this letter. Included as attachments, are the minutes of the daily meetings held during the week between members of the Assessment Team and Site Engineering, Construction, and Quality Assurance personnel.

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

Very truly yours,

A. Stanley Lucke

A. Stanley Lucke
Project Manager

Enclosures

ASL/ka

APR 18 1983

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J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning

Weekly Report No. 29

April 3, 1983 through April 9, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

W. Kilker	4/4 - 4/7
L. Rouen	4/4 - 4/8
A. Scott	4/4 - 4/9
P. Majeski	4/4 - 4/9

Parsons, Brinckerhoff Michigan, Inc.

J. Ratner	4/4 - 4/8
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
4/4 through 4/8	Stone & Webster (4/5 - 4/8) Bechtel Consumers Power Parsons	Daily Meetings
4/7	Stone & Webster Bechtel Consumers Power Mergentime Parsons	Presentation on Grillage Beam Installation Procedure
4/8	Stone & Webster Bechtel Consumers Power Mergentime	Weekly Project Soils Meeting

Activities

Construction -

Pier W12: The Contractor continued to monitor the pier settlement and check the shims for tightness. This pier has been rejaacked once since the mandatory rejackings were completed. Approximately 5 mils of structure movement were noted at pier W12 during jacking of pier W9.

Pier W9: Initial load transfer was accomplished on April 5. The active jacking mode at 110 percent of specified load began on April 6 and continued thru the end of the week. Deflection of the bottom of the pier was approximately 0.3 inches as of April 9 while elastic shortening of the pier was on the order of 0.05 inches. Upward movement of the turbine building, as measured by a nearby deep-seated benchmark, was on the order of .02 inches.

Pier W11: Excavation of the pier was completed and the plywood sheathing anti-friction liner installed. The seepage into the excavation was reduced by grouting the majority of the lagging spaces below the fill-natural soil interface. Installation of reinforcement started on April 9.

Pier E12: The Contractor continued to monitor the pier settlement and check the shims for tightness.

Pier E9: Initial load transfer was accomplished on April 4. The active jacking mode of 110 percent of specified load began on April 4 and continued through the end of the week. Deflection of the bottom of the pier was approximately 0.25 inches as of April 9, while elastic shortening was about 0.04 inches. Uplift of the turbine building was on the order of .03 inches as measured by a nearby benchmark.

Pier E11: Excavation of the pier shaft and bell was completed. Water seepage entered the excavation over the weekend of April 2-3 due to a shutdown of the sump pump in the access pit to pier E12. Once pumping resumed, the seepage was virtually eliminated. However, even this minor amount of seepage caused the soil material in the bell area to begin unravelling. After bracing and supporting the long side of the bell area, the Contractor elected to concrete the bell. During concrete placement several additional cubic feet of soil collapsed. The soil and contaminated concrete were removed and the bell pour was completed.

Quality Control, Documentation and Records:

1. Evaluated the proposed engineering response to the NCR written concerning approval of concrete mix C5-C.
2. Reviewed preliminary copies of inspection reports for: pier E/W9 bell area concrete placement, pier E9 reinforcing installation, over-inspection for pier E/W9 rebar splicing and placement, and over-inspection for pier E/W9 concrete placement.

Observations

Construction - The load transfer activities at piers E/W9 were performed in a timely and satisfactory manner. The reworking operations continue to be of some concern to the Assessment Team. The wedges should be driven tight enough to lift a significant portion of the load off the jacks in order to insure full building load transfer to the piers. Also, the Team has observed some irregularities in the size and taper of the steel wedges. The quality of the wedges should be improved to insure full and uniform bearing.

Concerns of the Assessment Team with regard to backpacking operations led to a meeting at the pier E11 excavation on April 7 attended by representatives of the Contractor, Subcontractor and Resident Engineering. Specifically the Assessment Team concerns were: (1) over the use of fine sand in areas of seepage and (2) the effect of narrow lagging spacing and full backpacking of the louver space between lagging sets on the final quality of backpacking and the ability to adequately perform an inspection. It is the opinion of the Assessment Team that the quality of future backpacking would be improved by the use of a more appropriately graded material for wet conditions and that the lagging spacing should be wide enough to permit easier placement of the backpacking material and inspection of the final product. Also, the packing of the louver spacing between lagging serves no useful purpose and may actually encourage arching of the soil behind the lagging as well as impeding inspection.

The Contractor displayed good judgment in supporting the bell area of pier E11 and in electing to concrete the bell area prior to readying the pier shaft for concrete. Delays would have resulted in the further soil unravelling and the need for more sheeting support. The Contractor's reaction to the collapse of additional soil during concrete placement was appropriate resulting in a satisfactory pier bell.

Quality Control, Documentation and Records - The concerns of the Assessment Team stated in NIR #5 were adequately addressed by the proposed Project Engineering response. The NIR will be closed pending closure of the corresponding MPCAD NCR.

The inspection reports reviewed by the Assessment Team adequately document compliance with the applicable procedures.

Non-Conformance Identification Reports

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

<u>NIR NO.</u>	<u>Description</u>	<u>Date</u>	
		(Opened)	(Closed)
5	Concrete Mix Qualification	2/10/83	
6	Lagging Spacers	3/21/83	
7	Backpacking Material in Wet areas-Pier W11	4/5/83	
8	Load Transfer Methodology- Pier E12	4/5/83	

WSE Kishin
Project Engineer

AS E...
Project Manager

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 4, 1983

Attendees: Sechtel Stone/Webster MPQAD CPCo
 E. Cviki ----- R. Sevc R. Wieland
 J. Gaydos

 Parsons
 J. Ratner

1. E. Cviki will discuss with R. Oliver of MPQAD the engineering response to the QAR on the concrete mix design.
2. E. Cviki reported that load transfer on pier E9 began today. Pier W9 load transfer is expected on April 5.
3. The Mergentime presentation on grillage beam installation is scheduled for this week.
4. The results of the drypack grout sample testing on piers E/W9 leveling plates will be available today. J. Gaydos will supply.
5. J. Ratner questioned why in backpacking, the material is packed nearly out to the front face of the lagging since the inspection of the conditions behind the sheets is hindered by this material. FSO will respond.
6. E. Cviki reported that Project Engineering feels as-built drawings of the structural components of the underpinning are not required as long as things are done within document tolerances and that changes are covered by FCRs and DCNs. However, soil foundation condition descriptions are required as a "close-out" of the underpinning work.
7. J. Ratner questioned why a certain percentage (on the order of 10-15 percent) of the jack load is not picked up by the wedges during the re-jacking operations as is in keeping with good underpinning practice.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 5, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPOAD</u>	<u>CPCo</u>
	J. Fisher	A. Scott	R. Sevo	D. Puhalla
	E. Cviki	L. Rouen		
	J. Gaydos			
		<u>Parsons</u>		
		J. Ratner		

1. L. Rouen has contacted E. Cviki concerning concrete mix C-5C. Resolution of the Project Engineering response on the NCR will be handled by E. Cviki and R. Oliver.
2. The Assessment Team will be informed of the time for review of installation plans for the grillage beams at pier 8 by Mergentime some day this week.
3. J. Fisher stated that E9 pier load transfer was in the phase of .01 settlement per 24 hours and this limit should be attained by tomorrow morning. Load transfer for W9 pier will start today.
4. J. Gaydos reported that the drypack test cubes molded on March 31 showed similar results for slab made cubes by both Mergentime and U.S. Testing for 1 and 3 day tests, but the 1 day test made by U.S. Testing lab on the table were 20% lower than those made on slab.
5. J. Ratner reiterated that backpacking with fine sand in wet areas was not good underpinning practice. J. Fisher to investigate why action was not taken to correct.
6. E/W8 pier and drift design review package is to be given CPCo this week upon receipt of Shop Drawings.
7. D. Pullalla supplied excerpts from the SSER which were marked to indicate what was required in the way of detailed as-builts of the underpinning effort. J. Fisher stated that were keeping necessary records to satisfy the commitments of the SSER, FSO and Project Engineering.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 6, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	L. Rouen	R. Sevo	G. Murray
	E. Cviki	A. Scott		
	J. Kelleher	W. Kilker		
		P. Majeski		
		<u>Parsons</u>		
		J. Ratner		

1. W. Kilker advised that the disapproval of the FCR on the concrete mix design C-5C was sufficient to allow NIR #5 to be closed.
2. J. Fisher advised that grillage beam installation procedure presentation was scheduled for April 7.
3. There was a general discussion of Assessment Team concerns with respect to backpacking. (a) The method of placement of the backpacking material and possibly the width of the lagging spacing has at times impeded complete backpacking of void spaces behind the lagging. (b) The use of a fine grained sand as backpacking material in wet areas is not the best practice. All concerned parties will meet at pier E11 @ 11AM to discuss and resolve concerns.
4. G. Murray said the E/W8 design package may go to NRC April 7.
5. G. Murray will advise on what the commitments are to produce underpinning as-built documents. The question is as to what extent the foundations are included as opposed to the soil foundation material.
6. W. Kilker advised that the Assessment Team has issued an NIR on the observed method of assuring full load transfer when re-jacking the piers. MPQAD will issue a QAR to initiate FSO response.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 7, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	L. Rouen	J. Shah	G. Murray
	E. Cvikl	A. Scott	J. McMaster	
		P. Majeski		
		<u>Parsons</u>		
		J. Ratner		

1. The Assessment Team indicated that Mergentime's presentation on April 7 regarding installation of the grillage beams at pier 8 provided the information currently required.
2. J. Ratner and A. Scott indicated that Team members met with representative of Field Engineering, Resident Engineering, MPQAD, and Mergentime at pier E11 on April 6. The concerns raised in the daily meeting of April 6 over the backpacking material grain size in wet areas and the louver spacing effect on the final backpacking product were satisfactorily addressed.
3. G. Murray indicated that drawing "as-builts" of underpinning effort will be the same as those for balance of plant; that is, changes are required when there is a FCN or FCR written against a drawing.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 8, 1983

Attendees: Bechtel Stone/Webster MPQAD CPCo
 J. Fisher L. Rouen J. Shah G. Murray
 E. Cvikl A. Scott
 J. Gaydos

Parsons

J. Ratner

1. J. Fisher stated that two shifts are scheduled to work Saturday on E/W8 and E/W11. Also it is possible that the pier E11 bell will be poured Saturday.
2. J. Ratner asked if the plate supporting the E11 bell excavation would be grouted prior to placement of concrete. J. Fisher stated it would be either grouted or removed prior to placement.
3. J. Gaydos said that mixes with plasticizer have been developed and now await approval by Bechtel San Francisco office.



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

April 7, 1983

J.O. No. 14358
Ref. MPF 28

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 28

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 28 for the period March 27, 1983 through April 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,

A. Stanley Lucks
A. Stanley Lucks
Project Manager

Enclosures

ASL/ka

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J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning

Weekly Report No. 28

March 27, 1983 through April 2, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

W. Kilker 3/27 - 4/1
P. Barry 3/28 - 3/30
B. Holsinger 3/28 - 3/29
R. Beaudet 3/28

Parsons, Brinckerhoff Michigan, Inc.

J. Ratner 3/30 - 4/2
M. Abrahams 3/30 - 3/31

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
3/27 through 4/1	Stone & Webster Bechtel Consumers Power Parsons (3/30-4/1)	Daily Meetings
3/30	Stone & Webster Bechtel Consumers Power Mergentime	Daily Field Meeting (West Side)

Activities

Construction -

Pier W12: The Contractor continued to monitor the pier settlement and check the shims for tightness. Based on the minor additional settlement re-jacking was not considered necessary.

Pier W9: Curing of the pier surface was maintained throughout the week. The upper and lower leveling plates and telltale plate were installed. Drypack grout was used for the upper plates and a flowable grout for the bottom plate.

Pier W11: Excavation of the pier was advanced nearly 30 ft. to El. 570 ft. A mixture of granular and clay fill was encountered to El. 585 underlain by the stiff natural clay. Minor perched groundwater entered the excavation through a granular zone at El. 586.

The lagging in the vicinity of the perched water level was backpacked with grout. Below that level a relatively fine grained sand was used to backpack the lagging. Minor seepage continued to infiltrate the excavation below the sealed zone.

Pier E12: The load transfer was monitored and a re-jacking of the pier was performed. The specified load was re-introduced by the jacks and the shims were re-driven to a tight fit.

Pier E9: The upper concrete surface curing was maintained. All of the preparations were completed for load transfer including installation of the leveling plates, telltale box and dial gauges, bearing plates and jackstands.

Pier E11: The excavation was completed to El. 580. Granular and clay fill were excavated to El. 586, the interface with the natural stiff gray clay. There was minor seepage into the excavation at a depth of 13 ft. The lagging was backpacked with fine sand.

Quality Control, Documentation and Records:

1. Witnessed QC inspection of Hilti bolt torquing.
2. Assessed the sampling and making of drypack grout samples.
3. Assessed the welding program implementation.

Observations

Construction - The preparatory activities for load transfer on piers E9 and W9 were adequate. The drypack grout was well-mixed and densely packed and curing conditions well maintained. Also, care was taken in properly aligning the leveling and bearing plates.

On pier E12 the Contractor performed a re-jacking to verify the tightness of the shims. The procedure involved applying the specified load to the building through the jacks and then driving the wedges to a tight fit. The Assessment Team feels that in keeping with good underpinning practice the wedges should be driven until 10 to 15 percent of the specified load has been removed from the jacks as indicated by the pressure gauge.

At pier W11 perched groundwater was encountered near the fill-clay interface. Seepage of this water into the excavation was controlled by grouting the lagging spaces to divert the flow to a collection trough. However, as the excavated/lagging progressed a sufficient quantity of water continued to seep between the lagging to erode some of the fine grained sand backpacking material. The Assessment Team feels the use of fine grained sand for backpacking under these conditions is not consistent with good underpinning practice.

Quality Control, Documentation and Records - With reference to the drypack grout samples, the Assessment Team feels that the Contractor and testing agency should verify that the energy input used for making samples is comparable to that used in packing the grout in-place. Comparable energies should be used in order to have test samples representative of the installation.

The Assessment of the welding program will appear in Weekly Report No. 29.

Design Work Packages

The Assessment Team performed an overview of the design work package for the construction and feels the package for piers E/W8 was complete. The Team feels that the retrieval of the bell foot size dimensions from the drawings is difficult and drawing cross-referencing could be improved. In addition, the Team recommended that the as-built pier E/W9 dimensions be checked for impact on the E/W8 pier foot dimensions.

J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning

3

Non-Conformance Identification Reports

Status of previous issues: (NIR numbers on longer listed have been closed-out.)

<u>NIR NO.</u>	<u>Description</u>	<u>Date</u>	
		(Opened)	(Closed)
5	Concrete Mix Qualification	2/10/83	
6	Lagging Spacers	3/21/83	

WE Kilker
Project Engineer

A. S. Savelle by WEX
Project Manager

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: March 28, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	R. Visser	G. Murray
	R. Weight	B. Holsinger		
	G. Cable	P. Barry		
	M. Blendy	R. Beaudet		
	E. Cvikl			

1. General discussion of concrete placement for pier shafts E/W9 on March 26, 1983. Placement went well. Concrete was kept near the low side of the slump limitations.
2. J. Fisher said load transfer at piers E/W9 could be March 30-
March 31.
3. M. Blendy reported the work package for the drift and pier installation for E/W8 is nearly ready for submittal to SMO.
4. B. Holsinger questioned why on the bell pour at W9, a slump test at the end of the pumpline was not taken after the previous load of concrete was rejected for too high a slump based on an end-of-the-line test. MPQAD will respond.
5. B. Holsinger questioned the adequacy of the testing procedure on the preparation of dry pack grout samples for testing. Are the field conditions being adequately simulated? MPQAD will respond.
6. W. Kilker requested the schedule for work on the SWPS. J. Fisher will provide. J. Fisher said there was a demonstration of the deep probe device today.
6. R. Beaudet presented a brief synopsis of his assessment of the project welding procedure, the implementation and inspection. W. Kilker stated the assessment summary will appear in Weekly Report No. 27.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: March 29, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	R. Visser	G. Murray
	E. Cvikl	B. Holsinger		
	J. Gaydos	W. Kilker		

1. P. Barry asked if the two NCR's on E/W9 bell concrete placement have been resolved. J. Gaydos said the slump-related NCR was conditionally dispositioned depending upon the cylinder strength test results. The NCR on the vibrator use interruption was dispositioned by FSO.
2. W. Kilker requested to meet the Spencer, White, Prentis, Inc. site management personnel. J. Fisher will arrange.
3. P. Barry inquired if there is a minimum 7 day cure period for the piers or if strength considerations dictate the cure period. J. Fisher will resolve.
4. J. Gaydos reported that only one set of record concrete cylinders is required on a given day of concrete placement volumes of less than 100 cy.
5. R. Visser stated that additional end-of-line concrete slump tests were not performed on pier W9 bell after an initial high slump test because the subsequent mix was kept in the mixer for 45 minutes before placement.
6. With respect to the dry-pack grout sampling and testing procedure, R. Visser said that MPQAD is satisfied with the procedure. B. Holsinger stated it is important to match the ramming energy inputs for the field installation and the laboratory test samples. The field strength should then be better represented by the lab test results.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: March 30, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	R. Sevo	G. Murray
	E. Cvikl	W. Kilker		D. Puhalla
	J. Gaydos			
	K. Pearson			
			<u>Spencer/White/Prentis</u>	
			H. Armstrong	
			D. Canale	
			J. Cataldo	

1. J. Fisher reported that a review session with Mergentime on grillage beam installation would be next week.
2. J. Fisher inquired if MPQAD felt the 2 NCR's on pier W9 bell concrete placement contained enough information in the description. R. Sevo replied that the NCR description is meant to contain only the cause of the non-conformance not additional information.
3. Three principals from Spencer, White & Prentis were introduced to Assessment Team members present.
4. J. Fisher stated load transfer on piers E/W9 is still planned for April 1, 1983.
5. Discussion of discrepancies noted in quality of dry-pack grout test samples vs. actual field installed dry-pack grout. R. Sevo suggested FSO resolution by tracking through the handling and making of the cubes and compare to field grout placing techniques.
6. P. Barry stated he reviewed the E/W8 drift and pier excavation/installation work package. Suggested: (1) An improvement in the dimensioning designation of the bell foot. Retrieval of this size is difficult and cross-referencing is poor. (2) That piers E/W9 as-built dimensions be evaluated in piers E/W8 review since E/W9 are installed and actual locations are known. J. Fisher will resolve.
7. R. Sevo inquired if two adjacent piers are allowed to bond at the bell bottom or if there is a "separation" requirement. E. Cvikl will advise.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: March 31, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	R. Sevo	G. Murray
	E. Cvikl			
	J. Gaydos			
	K. Hevner			
	G. Cable			
	J. Northrup			
		<u>Parsons</u>		
		J. Ratner		
		M. Abrahams		

1. J. Ratner introduced M. Abrahams, welding engineer from Parsons, on-site for the day to evaluate welding quality.
2. NIR #5 cannot be closed until Project Engineering responds to MPQAD open issues. E. Cvikl is resolving. W. Kilker said the Team would then review the responses and if satisfactory close-out the NIR.
3. J. Fisher said the April 1 E/W9 load transfer date is tentative. No additional underpinning work will be performed this week-end.
4. K. Hevner reported on the 2 team observations raised during the overview of the work package for piers E/W8 (see Daily Meeting Notes of March 30).
(1) The concern was well-taken but the drawing complied with Project Engineering standards. W. Kilker responded that the Team felt the initial observation raised was nevertheless valid and would be reported as such. (2) J. Darby of Resident Engineering has taken action on pier E8 since pier E9 bell bottom as built extends approximately 2 inches into the pier E8 "foot-print". Pier W9 bottom as built is within a fraction of an inch plan location and is therefore of no concern.
5. J. Ratner raise a concern over the use of the fine sand to backpack in the wet area of pier W11. J. Fisher said coarser backpack material could be employed if the running sand is a problem.
6. J. Ratner questioned if the excavation from piers 8 toward the containment will proceed before the schedule for grillage beam delivery is finalized. J. Fisher replied that the opening of those areas will be tied into the grillage delivery dates.

DAILY INDEPENDENT ASSESSMENT TEAM MEETING

Date: April 1, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	R. Sevo	G. Murray
	E. Cvikl			
	J. Gaydos			
		<u>Parsons</u>		
		J. Ratner		

1. G. Murray advised that the guideline on the definition of construction aids is under discussion between MPQAD and SMO. Resolution will depend on the outcome of this discussion.
2. E. Cvikl reported that Project Engineering has responded to the NCR on concrete mix design. R. Sevo and W. Kilker said their observations will be made on April 4.
3. J. Gaydos said the 10-day strength on the cylinder made from the "high slump" concrete in pier W9 bell was 5000 psi.
4. R. Sevo and G. Murray stated that with regard to Assessment Team NIRs, the response will be generated directly by Consumers or through a Quality Action Request or by an NCR which require disposition.
5. J. Fisher advised load transfer to piers E/W9 is scheduled for April 4.
6. J. Gaydos said the field had prepared some dry-pack grout samples to compare to record samples prepared by the testing agency. Concern is that test samples have not been as well compacted or cured as the in-place grout.
7. J. Fisher concurred with J. Ratner's concern over the use of a fine-medium grained sand as backpacking material in locations where seepage may wash-out the material. J. Fisher will resolve.
8. W. Kilker inquired of CPCo if the work package for E/W8 has been finalized. G. Murray stated that SMO is waiting until Mergentime issues a schedule on the shop drawing completion.
9. J. Ratner asked if there is a commitment to produce as-built drawings of the underpinning installation and when the effort will commence. J. Fisher will respond.



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

April 1, 1983

J.O. No. 14358
Ref. MPF 27

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 27

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 27 for the period March 20, 1983 through March 26, 1983, is enclosed with this letter. Included as attachments, are the minutes of the daily meetings held during the week between members of the Assessment Team and Site Engineering, Construction, and Quality Assurance personnel.

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

Very truly yours,

A. Stanley Lucks
A. Stanley Lucks
Project Manager

Enclosures

ASL/ka

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J.O. NO. 14358
Midland Plant
Units '1 and 2
Independent Assessment
Auxiliary Building Underpinning

Weekly Report No. 27

March 20, 1983 through March 26, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

W. Kilker	3/25 - 3/26
P. Barry	3/21 - 3/26
B. Holsinger	3/21 - 3/26
S. Lucks	3/21 - 3/23
R. Beaudet	3/22 - 3/26

Parsons, Brinckerhoff Michigan, Inc.

P. Parish	3/22 - 3/25
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
3/21 through 3/25	Stone & Webster Bechtel Consumers Power Parsons	Daily Meetings
3/25	Stone & Webster Bechtel Consumers Power	Weekly Soils Review
3/22	Stone & Webster Bechtel	Pier W11 Load Test

Activities

Construction - Pier W12: The pier settlement was monitored and shims checked for tightness.

Pier W9: As stated in Weekly Report No. 26, there was minor unravelling of the soil so the Contractor elected to install the reinforcing steel and instrumentation within the bell portion only of the pier. The concrete was placed on March 22, 1983. During the placement a concrete slump test on material taken from the end of the pumpline indicated excessive slump which required making additional test cylinders to verify the strength. A compressor powering the concrete vibrators failed forcing a delay of nearly one hour during the placement. However, once repaired the vibrator was able to penetrate the in-place concrete under it's own weight. Subsequently, the shaft reinforcing steel, telldatales, embeds and forming were completed and the shaft concrete was placed on March 26, 1983. The concrete slump was relatively low (between 2 and 3 inches) making discharge from the mixer slightly difficult.

Pier W11: The advancement of the drift was slow due to the cure time required on the dry-pack grout used to fill partially drilled drift set anchor bolt holes. Excavation of the pier advanced to a depth of 2 ft.

Pier E12: The load transfer was completed on March 22, 1983 when the 24 hour deflection criteria was satisfied. Routine re-jacking of the pier continued for the remainder of the week.

Pier E9: As in the case of pier W9 the Contractor elected to install the concrete in the bell portion to prevent excessive unravelling of the soil. The reinforcing steel and telltale were installed to above bell elevation and the concrete was placed on March 22, 1983. After installation of the remaining reinforcing steel, embeds and telltales, the concrete placement in the shaft was completed on March 26, 1983.

Pier E11: The progress on the drift to the pier was slow due to the drift set anchor bolt hole grout cure time as described above for the pier W11 drift. The excavation was complete but the drift sets and re-shore channels have not been completely secured.

Quality Control, Documentation and Records:

1. Verified the re-jacking of pier E12 was being performed in accordance with the project procedure.
2. Performed a pre-placement evaluation of E9 and W9 shafts prior to concrete placement.
3. Witnessed the inspection and testing of concrete during placement of pier shaft concrete on piers W9 & E9.
4. Verified issue of 2 NCRs on pier W9 bell concrete pour.
5. Performed an assessment of the welding activities associated with the fabrication of materials for the underpinning work. The assessment included discussions with craftsmen, welding engineers, and MPQAD engineers and inspectors. Specifications, procedures, and inspection reports were reviewed. Welds were inspected prior to and after release from QC inspection. The training certification and experience of the QA/QC personnel were evaluated and in-process inspections were witnessed.

Observations

Construction: The Team feels the Contractor showed good engineering judgment in electing to concrete the bell portion of piers E9 and W9 thereby preventing additional unravelling of the soil. The reinforcing steel placement and pre-placement clean-ups in both piers was satisfactory. The concrete placement in pier bell E9 and shafts E9 and W9 was accomplished without incident. The high slump and loss of vibrator problems associated with the pier W9 bell pour were adequately addressed.

Quality Control, Documentation and Records- The completion of the load transfer to pier E12 was in accordance with the project documents. Total pier deflection to date is on the order of $\frac{1}{4}$ inch.

The QC personnel on the pier bell W9 pour reacted correctly to the high slump concrete in rejecting the load, taking additional record cylinders and writing a non-conformance for engineering disposition. The issuance of a non-conformance on the vibrator down-time was correct. However, the NCR failed to mention the condition of the concrete upon resumption of the vibration. In this case adding the QC evaluation of the concrete condition to the NCR would have aided in the engineering disposition.

The overall assessment of the welding program was positive. The weld quality appeared good and the rejection rate was quite low during the time period of this assessment. The inspection personnel were well-trained and knowledgeable. Project Engineering and the construction groups have both committed qualified engineers to assist in the resolution of welding problems. Until recently the overall progress of the underpinning has been impacted by welding-related delays. The Assessment Team feels it is the responsibility of all the organizations involved - construction, engineering and quality Assurance - to improve the process, whether by actual improvements in the weld quality, by clarification to the specifications and procedures, or by improved communication. A common understanding of the level of quality of the welding required for this work must be attained. The Assessment Team is of the opinion that the engineering group must be instrumental in fostering this understanding.

Pier W11 Load Test

The Assessment Team raised a concern expressed by the NRC over the construction activities planned in the vicinity of pier W11 during the proposed load test. Project Engineering stated that no new construction would be initiated within 20 ft. of pier W11 until completion of the test. The Team concurs that this commitment is sufficient to avoid effects of construction on the test or test results.

Non-Conformance Identification Reports

Status of previous issues: (NIR numbers on longer listed have been closed-out.)

<u>NIR NO.</u>	<u>Description</u>	<u>Date</u>	
		(Opened)	(Closed)
5	Concrete Mix Qualification	2/10/83	
6	Lagging Spacers	3/21/83	

W E Kilmer
Project Engineer

A S Pankov
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 21, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	R. Visser	D. Puhalla
	J. Darby	S. Lucks		
	J. Gaydos			

1. J. Fisher stated that work on the third drift set for pier W11 was delayed until the expansion bolt location and the drift set top plate details are finalized. J. Darby stated that the hold on torquing the expansion bolts would not restrain excavation of pier W11 because the diagonal braces that require the expansion bolts are not required until the mass excavation.
2. J. Fisher stated that the channel embedded in the lean mix concrete will no longer be used to support the plywood used to keep load off freshly placed concrete or grout. In the future if this platform is required it will be supported from the temporary wood lagging in the bell.
3. J. Fisher stated that the plan is to place concrete in the bell of both piers E/W9.
4. R. Visser stated that QA had not approved the disposition of the NCR or the concrete mix approval because of insufficient information on the training of personnel to the ACI requirements.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 22, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	R. Visser	D. Puhalla
	J. Kelleher			
	E. Cvikl			
	M. Lewis			
		<u>Parsons</u>		
		P. Parish		

1. J. Fisher stated that load transfer on E12 was continuing.
2. J. Fisher stated that excavation in E/W11 drifts was delayed pending issue of an FCR on expansion bolt and drift set details.
3. P. Barry questioned why two complete sets of concrete test were required when both bells were placed on the same day. Bechtel will advise.
4. P. Barry asked about the method of installing the E/W8 grillage beams. Bechtel will arrange a meeting to present the installation method. The construction procedure for the activity is being revised.
5. J. Fisher requested E. Cvikl to confer with project engineering in Ann Arbor concerning NIR #6. M. Lewis stated that back packing and inspection could be done with the 1-1/8 inch spacers. A. Lucks stated that the backpacking installed is acceptable but that the procedure should be revised to use the 1 1/2 inch spacers. Bechtel previously agreed to use the spacers. J. Fisher stated that it would be difficult to use 1 1/2" minimum near the ring beam since the spaces at the ring beam are adjusted so that the ring beam can be installed at the proper elevation.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 23, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	R. Visser	R. Wieland
	J. Gaydos	A. Lucks		
	M. Lewis	R. Beaudet		
		B. Holsinger		
		<u>Parsons</u>		
		P. Parish		

1. M. Lewis stated that the load transfer for pier E12 was completed on the afternoon of March 22, 1983. Routine jacking will begin this morning March 23, 1983.
 2. M. Lewis stated that the RSE requested re-jacking of pier W12 because the pier had settled 5 mils since the end of routine jacking to ensure that 110% of specified load is in the pier.
 3. J. Fisher stated that the FCR on testing dry pack grout has been written.
 4. J. Fisher stated that the compressor for the concrete vibration broke down at 5:30 PM during the placement of concrete in the E9 bell. Another compressor was used to power the vibrator. Vibration of concrete was resumed at 5:55 PM and the vibrator penetrated the existing concrete by its own weight. The vibration was witnessed by the MFE, Bechtel FE and QC. J. Fisher stated that this was in conformance with the specification and that a NCR was not necessary.
 5. J. Fisher stated that during the placement of the E9 bell a slump was taken at the end of the pumpline at the request of B. Holsinger. This slump was $6\frac{1}{2}$ inch. Two additional slumps, each $5\frac{1}{2}$ inch, and a set of concrete cylinders were taken at the end of the pumpline. A slump test was also taken at the end of the truck. This slump was $4\frac{1}{2}$ ". Bechtel feels that since this was the first truck that the slump change can be attributed to the 1 cubic yard of grout used to lubricate the pipeline. A. Lucks and B. Holsinger stated that enough concrete had gone through the line to preclude the grout affecting concrete slump. *J. Fisher stated that the second test for the placement was taken on the first truck load in pier E9.
 6. P. Barry requested a copy of all FSO and QA/QC records concerning the concrete placement.
- * Subsequent check of QC records show that 6 cubic yard out of 8 cubic yard total had been discharged from the truck.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 24, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	R. Visser	R. Wieland
	J. Gaydos			
	R. Weight			
	E. Cvikl			
		<u>Parsons</u>		
		P. Parish		

1. J. Fisher advised that the re-jacking of W12 would be done tomorrow morning, March 25, 1983.
2. J. Fisher stated that the NCR on dry pack grout has been given interim approval and that work or grouting can proceed.
3. P. Barry stated that the question concerning holding the proof load on the pier longer than required was still open. E. Cvikl stated that this is contrary to the procedure and cannot be done without a procedure change.
4. P. Barry stated that the vibrator down-time mentioned in yesterday's meeting was incorrect. The placement according to the Bechtel field engineer daily reports show the placement delayed from 5:12 to 5:55 PM. The opinion of the Assessment Team members present during placement was that the delay was slightly longer than recorded. J. Fisher stated that since the additional slump testing and the loss of power occurred essentially at the same time and the extent of the loss of power was not known immediately the determination of the time of loss of power may have been approximate.
5. J. Gaydos stated that two NCR's were written by QC on the loss of power and the excessive concrete slump. Disposition for these NCR's one being postponed. One of the cylinders cast to verify concrete strength for the out of spec concrete was damaged but 5 cylinders remain intact.
6. P. Barry stated that the NCR's should note that when power was restored the vibrator penetrated the concrete under its own weight and that cylinders were cast from the out of spec concrete.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 25, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	R. Visser	P. Puhalla
	J. Gaydos	R. Beaudet		
	E. Cvikl			
		<u>Parsons</u>		
		P. Parish		

1. P. Barry requested any data available on concrete slump correlation between slump at the tailgate and slump at the end of the pumpline. P. Barry also requested that tailgate slump be taken on the placements for E/W9 to correlated with the record tests. J. Gaydos stated that this is normal procedure. J. Gaydos also stated that concrete placement for E9 is scheduled for tomorrow March 26, 1983. Placement for W9 maybe done tomorrow if the two NCR's on the bell concrete placement have been dispositioned.



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

March 23, 1983

J.O. No. 14358
Ref. MPF 26

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 26

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 26 for the period March 13, 1983 through March 19, 1983, is enclosed with this letter. Included as attachments, are the minutes of the daily meetings held during the week between members of the Assessment Team and Site Engineering, Construction, and Quality Assurance personnel.

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

Very truly yours,

A. Stanley Lucks
Project Manager

Enclosures

ASL/ka

~~8307140319~~ app.

J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning

Weekly Report No. 26

March 13, 1983 through March 19, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

W. Kilker 3/13 - 3/14
P. Barry 3/15 - 3/19

Parsons, Brinckerhoff Michigan, Inc.

V. Madill 3/14 - 3/18

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
3/14 through 3/18	Stone & Webster Bechtel Consumers Power Parsons	Daily Meetings
3/14, 16, 18	Stone & Webster Bechtel	Bechtel Meetings on Welding Issues
3/18	Stone & Webster Bechtel Consumers Power	Weekly Soils Review

Activities

Construction - Pier W12: On the morning of March 14, 1983 the acceptance criteria of .01 inch deflection maximum in 24 hours was attained, the shims were tightened, and the pressure in the jacks released. For the next 3 days 110% of the specified load was rejaacked into the pier, the shims tightened, and the jacks depressurized. After this rejaacking effort, shims were checked for tightness each shift.

Pier W9: Pier excavation including belling was completed from El. 582 to the subgrade. All lagging and bell supports were installed. The mud-mat was placed after approval of the subgrade by the RGE. The material excavated was natural gray clay. No significant groundwater seepage entered the excavation. The natural gray clay in the bell experienced some unravelling. Additional steel plates were installed to support the areas subject to unravelling.

Pier W11: The excavation for the drift to W11 was completed. The second drift set was installed but an NCR on the testing of dry pack grout for the abandoned expansion anchors holes has prevent torquing of the expansion achors. The third drift set and associated lagging has not been installed. Temporary breast boards have been installed in place of the lagging.

Pier E12: The jackstand and telltales were completed and installed. The load transfer was initiated on the morning of March 18, 1983. Within 6 hours the proof test load of 1250 kips (125% of the specified load) was applied through two 565 ton jacks and accepted with pier deflection less than .01 inch for a continuous 1 hour period. Then the load was reduced to 110% of specified load. The pier had moved downward approximately 0.19 inches with respect to the turbine mat while the bottom of the pier had moved 0.03 inches with respect to the top of the pier. As of March 19, 1983 the 110% load had been maintained for approximately 36 hours. The pier deflection criteria of less than .01 inches for 24 hours had not yet been satisfied. Total pier settlement, after 36 hours, was approximately 0.23 inches. The actual movement of the building as measured by a benchmark approximately 55 ft. away was less than 0.003 inches.

Pier E11: Once the proof loading for pier E12 was accepted, excavation and support of the N-S access drift to pier E11 was initiated and completed to a distance of approximately 3 ft. under the turbine building. The excavated material consists of approximately 1 ft. of unreinforced concrete, a thin layer of sand, and 7 ft. of clay fill. One steel set was installed in the drift.

Pier E9: The construction activities and progress on this pier are similar to those at pier W9. The material excavated from the pier was natural gray clay. The remaining lagging and bell supports were installed. The lean mix concrete mud-mat was placed after approval of the subgrade by the RGE. More unravelling occurred in this bell than in pier W9. The unravelled areas were covered with additional steel plates and the voids behind the plates were backpacked with grout.

Quality Control, Documentation and Records:

- (1). Verified the completion of the combines calibration record for pier E12.
- (2). Verified that the jack system record, pressure schedule, and combined calibration record were available at pier E12 during the jacking operation.
- (3). Reviewed the preliminary concrete trial mix data for the new concrete mix for underpinning piers.

Observations

Construction: The load transfer to pier W12, which is complete, and to E12, which is on-going, has been accomplished according to project documents. Pier performance during proof jacking and load transfer has been satisfactory.

The excavation of pier E/W9 was done essentially in parallel with E9 remaining slightly ahead of W9. Material fabrication kept pace with the excavation with only a slight delay occurring as a result of fabrication problems. This is an improvement in comparison with pier E/W12. Soil conditions in the bells were similar. The unravelling in E9 was greater than W9 and both bells were provided with additional support. Although the unravelling was not considered major, it appears to be a continuing process and the contractor decided to place concrete in the bell section as early as possible.

The drift excavation for pier E/W11 made little progress this week. Difficulties locating expansion anchors because of rebar interferences requires an FCR. Torquing of the expansion anchors is delayed pending resolution of an NCR on dry pack grout testing.

J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning 3

Quality Control, Documentation and Records - The quality related procedures verified for the load transfer were properly implemented. The 3 day and 7 day strength breaks and the corresponding concrete tests were reviewed. The data will not be complete until the 14 day and 28 day strength are available. However, the 7 day strength are almost high enough to approve the entire range of water cement ratios tested for the mixes. The 14 day strength should be sufficient to approve the new concrete mixes. Future assessment will be needed when the mixes are approved.

Overview of Design Work Packages

We have reviewed a schedule for the preparation of the design work packages for the Auxiliary Building and the Service Water Pump Structure. This schedule will be used to coordinate our overview with Consumers Power Company submittals of design work packages.

Non-Conformance Identification Reports

Status of previous issues: (NIR numbers on longer listed have been closed-out.)

<u>NIR NO.</u>	<u>Description</u>	(Opened)	<u>Date</u>	(Closed)
5	Concrete Mix Qualification	2/10/83		

WE Kilber PEB
Project Engineer

Alfred
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 14, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	R. Visser	G. Murray
	J. Gaydos			
	E. Cvikl			
	R. Weight			
	J. Kelleher			

1. J. Fisher introduced R. Weight and J. Kelleher representing the Direct Hire and Constructability groups.
2. J. Fisher reported W12 pier settlement criteria will likely be satisfied today so shims can be tightened.
3. J. Fisher reported week-end fab. shop work went well and that all lagging for E/W9 is complete and E/W11 lagging is started. Ring set for E/W9 is also nearly ready.
4. J. Fisher said the welding NCR on the E12 jackstand had not been resolved. Once resolved 2 shifts will be needed to finish the fabrication. Earliest load transfer is now March 17, 1983.
5. W. Kilker advised the group that the NRC had requested the Team assessment expand to include all underpinning of safety related structures.
6. W. Kilker asked if any underpinning work on safety related structures other than the Auxiliary Building or SWPS is planned for the near future. G. Murray said he did not envision any real soon.
7. J. Fisher advised that today there is a "kick-off" meeting on the resolution of welding non-conformance.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 15, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	-----	R. Visser	G. Murray
	J. Gaydos			
	E. Cviki			
	J. Kelleher			
		<u>Parsons</u>		
		V. Madill		

1. J. Fisher stated that the .01 inch settlement criteria for a 24 hour period was met at 9:30 AM March 14, 1983. (Total settlement was $\frac{1}{2}$ " in 72 hrs.) for pier W12. It is anticipated that the load test at pier E12 maybe started Thursday March 17, 1983. The welding for the jacking stand is being completed.
2. The review of the draft copy of the administrative guideline FIU-1.100 is still being reviewed. The issue is still open with a meeting on same being pursued by FSO.
3. A meeting on welding codes and procedures is to be hold at 3:30 PM today. A meeting is also being held at 10:00 AM at Mergentime's to review shop layout requirements.
4. This writer requested the name of the Subcontractor who will do the well installation for Spencer, White & Prentis, Inc. and the approximate start up time. J. Fisher stated that Loughney Dewatering Company will be the well Subcontractor and that they have been given OK to mobilize Monday March 21, 1983. They will work 6 day-10 hour shifts.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 16, 1983

Attendees:	<u>Bechtel</u>	<u>Stone & Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	R. Visser	G. Murray
	J. Gaydos			
	E. Cviki			
	J. Kelleher			
	L. Weight			
		<u>Parsons</u>		
		V. Madill		

1. The load transfer for pier E12 is scheduled for tomorrow morning March 17, 1983.
2. Spencer, White & Prentis Subcontractor, Loughney Dewatering should be ready to start work at the SWPS on March 23, 1983. However, the availability of certified QC inspection may require starting later.
3. Work on the drift to pier W11 is delayed pending closing an NCR on dry pack grout material.
4. In order to close out NIR #5, the C-5c concrete mix in question has to be deleted from the job and the NCR written by QA on the same subject has to be closed out. Approval of the new concrete mix will not be sufficient to close out this NIR.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 17, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	-----	G. Murray
	E. Cvikl			
	J. Kelleher			
		<u>Parsons</u>		
		V. Madill		

1. Load transfer on pier E12 is scheduled today. A copy of the combine calibration record for pier E12 was provided.
2. J. Fisher provided a copy of the daily construction schedule for the probing, core drilling and test holes for the SWPS.
3. A copy of the engineering response to NCR No. MO143043 concerning the approval of mix C-5c was provided. The mix approval has been withdrawn. When the NCR is closed by QA. NIR #5 will be closed.
4. P. Barry questioned that since the new mix with the 5 inch slump appears to give 4000 psi in 3 days, is it necessary to use the mix with the high range water reducer (HRWR). Bechtel wishes to use the HRWR since this mix improves constructability.
5. V. Madill questioned if it was intended for the laybacks on the drifts for W9, W11, and W12 to intersect. This intersection removes soil from beneath the turbine building mat for a long distance and reduces the load on drift set to approximately 5 ft. of soil only. Bechtel responded that many discussions concerning the laybacks have been held and no change is anticipated, and that the turbine building has been checked for this condition.
6. The drift sets for pier W11 access drift are different from W12 and W9 drifts because they will be incorporated into a bulk head later.
7. Pier E9 has progressed to the bottom of the pier and the mud-mat with embedment has been placed. Pier W9 has progressed to the bottom of pier.
8. E. Cvikl stated that in the daily report notes for November 22, 1982 in Weekly Report No. 10 by the Assessment Team it was noted that J. Fisher directed E. Cvikl to arrange a meeting with QA. E. Cvikl wishes to make it clear that J. Fisher from FSO cannot direct E. Cvikl from Resident Engineering. No such line of command exist. This was a request not a direction.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BEHCTEL

Date: March 18, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	R. Visser	-----
	E. Cvikl			
	J. Gaydos			

1. During load transfer of pier E12, Mergentime intends to hold the proof load (125% of specified load) approximately 2 hours after the acceptance criteria of .01 inch deflection in one hour. The reason for this is to attempt to reduce the time required for maintaining active jacking on the pier. Bechtel will investigate if this is contrary to their procedures.
2. The dry pack grout for the unused holes for expansion bolts in drift W11 was released. The NCR only applied to U.S. Testing Lab's testing of grout. The dry pack is placed and cured but the bolts cannot be torqued until the grout cubes have been tested.
3. The working mat for the subgrade of pier W9 was placed with grout rather than lean mix concrete. Plywood was placed over the grout supported by angles that are part of the embedment to support the bell. P. Barry questioned whether this satisfies the criteria to stay off the concrete until the strength reach 300 psi. Bechtel will investigate.

J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning

Weekly Report No. 25

March 6, 1983 through March 12, 1983

Personnel on Site

Stone & Webster Michigan Inc.

W. Kilker	3/6 - 3/12
P. Barry	3/6 - 3/9
A. Scott	3/6 - 3/9
L. Rouen	3/6 - 3/8

Parsons, Brinckerhoff Michigan, Inc.

J. Ratner	3/6 - 3/11
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
3/7 through 3/11	Stone & Webster Bechtel Consumers Power Parsons	Daily Meetings
3/10	Stone & Webster Consumers Power	Discussion of Work Package Submittals
3/11	Stone & Webster Bechtel Consumers Power	Weekly Soils Review

Activities

Construction - Pier W12: The jackstands were completed and installed. The load transfer was initiated around noon on March 11. Within 2½ hours the proof test load of 1375 kips (125 percent of specified load) had been applied through two 565 ton jacks. Some 2 hours later the proof test load settlement criteria was satisfied, less than .01 inch for a continuous 1 hour period, and the load was reduced to 110% of specified load. This time the pier had moved downward approximately 0.19 inches with respect to the turbine mat while the bottom of the pier had moved 0.03 inches with respect to the top of the pier. As of March 13, the 110% load had been maintained for 36 hours. The pier deflection criteria of less than 0.01 inches for 24 hours had not yet been satisfied. Total pier settlement was approximately 0.23 inches. The actual movement of the building, as measured by a benchmark approximately 55 ft. away, was less than .005 inches.

Pier W9: The 9 ft. long N-S drift at right angles to the previously completed 20 ft. long E-W drift was excavated and supported. The excavated material was similar to that in the E-W drift - unreinforced concrete underlain by a thin layer of sand and 6 ft. to 7 ft. of clay. The unreinforced concrete was located both above and below the turbine mat membrane. No groundwater seepage entered the excavation. Three steel drift sets were installed and wood lagging was placed between the sets along the sides of the drift and at the end of the drift.

The pier excavation was completed from El. 600 to El. 582. The excavated material consisted of approximately 15 ft. of a mixture of clay, sand and gravel fill underlain by 3 ft. of natural gray clay. No groundwater seepage entered the excavation. Sixteen levels of steel lagging were installed and backpacked.

Pier W11: Once the load transfer to pier W12 was complete, excavation and support of the N-S 8 ft. x 8 ft. access drift to pier W11 was initiated and completed to a distance of 4 ft. under the turbine building. The excavated material consisted of approximately 2 ft. of unreinforced concrete and 6 ft. of clay fill. One steel set was installed in the drift.

Pier E12: Installation of the upper and lower bearing plates and the tell-tale bearing plate was completed.

Pier E9: The construction activities and progress on this drift and pier were similar to those at pier W9. The excavated materials in the drift were unreinforced concrete (above and below the turbine building mat), thin layers of sand fill and about 7 ft. of clay fill. The soil excavated from the pier to El. 581 consisted of 13 ft. of clay fill underlain by natural gray clay. No groundwater seepage entered the excavation. Seventeen levels of steel lagging were installed and backpacked.

Quality Control, Documentation and Records

1. Verified the completion of the jack record, loading schedule and calibration forms prior to initiating load transfer to pier W12.
2. Verified that the procedural criteria was met for load reduction during load transfer at pier W12.
3. Witnessed the implementation of the QC hold-point on the RGE determination of the natural clay-fill interface at pier W9.
4. Witnessed the probe for groundwater near El. 589 in a zone of granular fill at pier W9.
5. Verified the completion of the QC welding inspection report for pier W12 Jackstands.

Observations

Construction - The load transfer to pier W12 was being accomplished according to the project documents. Downward movement of the pier has been small - less than one-quarter inch over a period of 36 hours. Deflection of the turbine building as measured by nearby benchmarks has been less than .005 inch.

The construction of the N-S drifts to piers E/W9 and W11 was in accordance with the project documents and good underpinning practice. The lagging was securely installed behind the drift sets and backpacking was generally adequate.

A few spacer blocks were located so close to the set supports that good backpacking was difficult to achieve in these areas. Future lagging work should avoid this condition. The use of excelsior was avoided since no groundwater seepage was present. Previously installed excelsior in the N-S drift to pier 9E was removed.

Pier excavation and support at piers E/W9 was for the most part well done. However, narrow lagging set spacers of 1 inch or slightly less in the upper 8-10 ft. of the pier excavations makes proper backpacking and inspection extremely difficult. The Team does not agree with the use of the nominal 1 inch spacers to separate lagging sets. This separation does not provide sufficient space to adequately backpack or inspect behind the lagging. A 1½ inch minimum spacing should be maintained (unless ground conditions require closing the gap) to allow proper backpacking and inspection.

Quality Control, Documentation and Records - The quality-related procedures observed or verified by the Team were properly implemented.

Quality Assurance Overview of MPQAD-Soils Requalification and Certification Program

The Assessment Team has completed an overview of the classroom training and examination portions of the process required for MPQAD certification.

MPQAD has established a training group specifically charged with developing and presenting the required information as well as overseeing the testing of the comprehension of the classroom information. Basically, the procedure initially requires all personnel to complete courses in (1) Quality Assurance Indoctrination; (2) Midland Plant Quality Procedures (MPQP) 1 and 2; and 3) Field Soils Organization (FSO) procedures on work and excavation permits, coordination forms, and emergency plans. The QA Indoctrination course discusses such topics as the site QA program and its goals, Federal regulations, general QA organization and procedures, and the role of the NRC. MPQP 1 and 2 cover the specific soils related procedures to be implemented. The FSO training on work permits, excavation permits, and coordination forms explains the need for and proper use of the respective forms. The emergency plan training addresses the identification of an emergency condition and the defines responsibilities in responding to a given emergency. The Team reviewed the above referenced basic material and is satisfied that this training provides the proper framework to initiate specific technical and procedural training of the organization personnel.

The QA personnel subsequently receive programmatic QA and QC training and are required to pass examinations on these subjects. QC personnel are required to receive training in and pass an exam on the QC programmatic portion only. The Team reviewed the content of these courses and exams and has concluded that the necessary programmatic criteria have been met. Personnel having completed these courses should have an adequate understanding of the goals and procedures of Quality Assurance and the purpose and goals of quality control inspections.

The training for a specific technical procedure-Project Quality Control Instruction (PQCI) - is required for all QC personnel and QA personnel below Level III who will perform inspections on work covered by procedure. The format for the training to a specific PQCI consists of the preparation of a lesson plan and corresponding exam bank of questions by the training group. Prior to presentation, this material is reviewed by a Soils Level III QA Engineer (QAE). Once the comments of the QAE are resolved, the classroom training is scheduled and presented. The content of the courses is a combination of procedural and technical information with emphasis depending upon the subject material. Courses can last from minimum of a few hours to several days. Closed book exams, generally involving some 20 questions, are then given to the personnel. Those who receive a score of at least 80 percent proceed to the on-the-job training for that particular PQCI. In all cases, incorrectly answered questions are reviewed with the applicant to assure a proper understanding. For those who fail, retesting is required after review of the material with the course instructor.

The Team specifically reviewed numerous lesson plans and more than a dozen PQCI exam banks. These lesson plans and subsequent exams should result in MPQAD staff with a good understanding of the procedural and technical requirements of a particular PQCI. The lesson plans, exam banks, and the training records were kept well-organized. There is a security system in effect that keeps the exam questions from leaving the training room.

After completion of the on-the-job training, the final step in the certification process is a proficiency demonstration that is a "hand-on" test of the applicant's understanding of the inspection procedure. The portion of the certification process does not involve the speciality training group but is conducted by engineers from the Soils QA group. The Assessment Team did not witness any proficiency demonstrations this past week but have in the past been present at several (refer to Weekly Reports Nos. 13, 14, 17 and 18) and found these sessions to be thorough.

A Level III QA Engineer must give final approval for certification of the applicant.

The Team feels that the above approach to QA/QC training results in personnel who have a good understanding of the subject materials and who have the knowledge to carry out their duties correctly and thoroughly.

Future Assessment Team activities will include surveillance of classroom training, QC proficiency demonstrations, and training records.

Quality Assurance Overview of Training of FSO Personnel (Excluding MPQAD Personnel)

The Assessment Team reviewed the administrative guideline on Field Soils Organization Training. The guideline dictates that QA Indoctrination and MPQP 1 and 2 be presented to all FSO personnel and that Emergency Plans, Bechtel Field procedures and Subcontractor procedures are required for selected personnel in the organization. An organization chart is included in the guideline. The guideline identifies that a FSO Training Coordinator be named to coordinate activities and maintain training records. The Team feels that the training stipulated in the guideline adequately prepares the FSO personnel to perform in the soils remedial work effort. The Team also reviewed the training matrices for Resident Engineering, and two Subcontractors - Mergentime and Spencer, White and Prentise. It is the opinion of the Team that the training fulfills the procedural requirements of the Midland Plant Quality Plan and that the individuals are adequately trained for their particular level of responsibility. A follow-up Review of the training records indicated that implementation of the procedures is being accomplished.

Future Assessment Team effort in this area will consist of observation of the classroom training sessions and random surveillances of personnel records to insure adequate training is being obtained.

Overview of Design Work Packages

The Assessment Team reviewed the design work package on Rebar Mapping and Core Drilling for Instrumentation Raceways in the SWPS. The Team found the package was generally complete with the following exceptions - (1) Drill permits were not stamped with the rebar mapping stamp required by an administrative guideline, (2) Final Project Engineering approval of a Field Change Request had not been obtained, and (3) The referenced FCR was difficult to understand dimensionally. Understanding could only be gained through indirect reference to an architectural drawing. A meeting was held with the SMO groups of CPCo to discuss this package and how future work package overviews by the Team would be implemented.

Non-Conformance Identification Reports

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

<u>NIR NO.</u>	<u>Description</u>	(Opened)	<u>Date</u>	(Closed)
5	Concrete Mix Qualification		2/10/83	

W.E. Kilker PFB
Project Engineer

A.S. Zucko PFB
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 7, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	A. Lucks	R. Sevo	R. Visser
	J. Fisher	W. Kilker		J. Moran
	J. Gaydos	L. Rouen		
		<u>Parsons</u>		
		J. Ratner		

1. E. Cvikl advised that trial mix preparation of the proposed concrete mix design had been completed. Results will be forwarded to Project Engineering for analysis.
2. J. Fisher reported that Quality Control release of the jackstands for pier W12 had not been obtained. However, dress rehearsal for load transfer is still scheduled for March 8, 1983.
3. J. Gaydos reported that a study of concrete placement records indicated that the FIVP mat was done monolithically eliminating the concern to core for a "cold joint" in the concrete.
4. J. Ratner will discuss the procedure for calibrating the FIVP load check jacks with L. Morris of Bechtel.
5. P. Barry described review of work activity request package on core drilling in the SWPS. Will meet with CPCo on March 8, 1983.
6. J. Ratner asked for a clarification on unique requirements for grout strength on the top and bottom leveling plates for pier W12. J. Fisher will respond.
7. P. Barry discussed the general applicability of a drawing detail on welding re-shore channels to drift sets.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 8, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	Paul Berry	R. Visser	D. Puhalla
	J. Gaydos	W. Kilker	J. Moran	
		A. Scott		
		<u>Parsons</u>		
		J. Ratner		

1. E. Cvikl will respond to the request for clarification of the strength requirements for grout behind the leveling plates.
2. Dress-rehearsal for the load transfer at pier W12 is March 9, 1983.
3. J. Fisher said coring of the FIVP will not be required. However, a "mud-mat" approximately 4 inches thick has been encountered above the membrane and is being removed in the N-S access to piers E/W 9.
4. J. Fisher provided a copy of a Field Instruction on "Construction Aids."
5. J. Fisher discussed the use of excelsior between lagging in areas with no groundwater seepage with resident geotechnical engineering. Generally such usage of excelsior will be avoided in the future.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 9, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	R. Visser	G. Murray
	J. Gaydos	W. Kilker		
		A. Scott		
		<u>Parsons</u>		
		J. Ratner		

1. J. Fisher informed the meeting that beginning March 14, 1983 Mike Blendy of the Constructability group and L. Weight the area Superintendent will also attend the daily meetings.
2. J. Fisher advised that the telltale linkage between the pier and turbine mat on pier W12 is located in such away that installation of the wedges will be difficult. Resident engineering will resolve.
3. In response to earlier discussions, J. Fisher said the NCR on grout at pier W12 applies to grouted care holes not to dry-pack grouting of the leveling plates.
4. W. Kilker stated that the Team is overviewing the design work packages that CPCo will submit to the NRC. FSO will offer support for this effort as necessary.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 10, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	R. Visser	G. Murray
	J. Gaydos			
		<u>Farsons</u>		
		J. Ratner		

1. J. Fisher provided the response from E. Cvikl describing the reasons for unique grout strength requirements on different piers. Basically, it relates to the pier design and the loads on the pier.
2. "Dress-rehearsal" for the load transfer was held March 9, 1983. However, the monitoring telltale was not installed last night. Plan is to complete the installation this morning and load transfer starting in the PM.
3. J. Fisher said a material availability matrix is being introduced into their word processor to allow better planning.
4. W. Kilker said an interim report covering the September thru March period will be issued by the Assessment Team by the end of March.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECTHEL

Date: March 11, 1983

Attendees: Becthel Stone/Webster MPQAD CPCo
 J. Fisher W. Kilker R. Visser G. Murray
 J. Gaydos
 E. Cvikl

 Parsons
 J. Ratner

1. J. Fisher stated the FCRs on the telltale installations have been dis-
positioned. Load transfer will be today.
2. J. Fisher reported there is a welding NCR on one of the jackstands for
E12 that is impacting the schedule.
3. The decision has been made that NPS will perform long-term fabrication
of embeds, beams and jackstands. On-site fabrication will continue for
lagging and drift sets.
4. J. Fisher stated that in response to a concern of J. Ratner, spacers
on pier lagging will generally be by 1½" (inch) thickness to permit back-
packing and inspection.



STONE & WEBSTER MICHIGAN, INC.

P.O. Box 2325, BOSTON, MASSACHUSETTS 02107

PRINCIPAL STAFF	
RA	✓
D/RA	✓ NCS 6210+3
A/RA	PAO
DE	NO
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United States Nuclear Regulatory Commission
 Midland Site Resident Inspection Office
 Route 7
 Midland, MI 48640

March 9, 1983

J.O. No. 14358
 Ref. MPF 24

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
 MIDLAND PLANT - UNITS 1 and 2
 INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
 REPORT NO. 24

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 24 for the period February 27, 1983 through March 5, 1983, is enclosed with this letter. Included as attachments, are the minutes of the daily meetings held during the week between members of the Assessment Team and Site Engineering, Construction and Quality Assurance personnel.

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

Very truly yours,

A. Stanley Lucks
 A. Stanley Lucks
 Project Manager

Enclosures

ASL/ka

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J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning

Weekly Report No. 24

February 27, 1983 through March 5, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

A. Lucks	3/3 - 3/4
W. Kilker	2/28 - 3/5
P. Barry	2/28 - 3/5
A. Scott	3/2 - 3/5
L. Rouen	3/2 - 3/5

Parsons, Brinckerhoff Michigan, Inc.

J. Ratner	3/2 - 3/5
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
2/28 through 3/4	Stone & Webster Bechtel Consumers Power Parsons (3/3 - 3/4)	Daily Meetings
3/2	Stone & Webster Bechtel Consumers Power Weiss, Janney, Elstner	Discussion of coord- ination of Carlson meter installation activities
3/3	Stone & Webster NRC	Discussion of Scope of Assessment and Reports
3/4	Consumers Power Bechtel Stone & Webster	Weekly Soils Review

Activities

Construction - Pier W12: The upper and lower level bearing assemblies and bearing plates were installed.

Pier W9: The 20 ft. long, 6 ft. x 8 ft. access drift was excavated and supported. The excavated material consisted of approximately a 1 ft. thickness of unreinforced concrete (encountered below the turbine building mat), 2 ft. of sand fill and 5 ft. of gray clay fill. No groundwater seepage entered the excavation. Six steel drift sets were installed and wood lagging was placed between the sets and across the end of the drift. Upon completion of the drift, the concrete mud-mat was placed in the floor of the drift and access pit.

J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning 2

Pier E12: No activity.

Pier E9: The construction activities on the access drift were similar to those performed in the pier W9 access drift. The excavated material consisted of 9-12 inches of unreinforced concrete underlain by 1 ft. of sand and 6 ft. of grayish brown clay. No groundwater seepage entered the excavation. The drift supports (steel sets and wood lagging) and concrete mud-mat were installed.

Quality Control, Documentation and Records

1. Witnessed the preparation of concrete trial mixes required to qualify a new mix design incorporating a "plasticizer" additive.
2. Verified the preparation of Quality Control Inspection Records and Quality Assurance Inspection Reports on the access pit for piers W9/11.
3. Reviewed a revised procedure on the installation of mechanical splices that clarifies the responsibility in the field for the final splice quality.
4. Witnessed the fabrication and inspection of pier E/W9 steel drift sets and pier W12 jackstands.

Observations

Construction - The excavation of the drifts and installation of the steel sets and wood lagging were done in accordance with the project documents. Soil was used to backpack the lagging as required.

In the east access drift to pier E9 excelsior was inserted into the space between most of the lagging boards. The Team feels that in the absence of groundwater seepage the use of excelsior is unnecessary. The use of excelsior makes the inspection of the backpacking more difficult and under these circumstances is not considered to be good practice. In the north-west corner of the drift the excavated clayey material was used to fill the space between the lagging boards. Clay should not be used to backpack between the boards. However, in this instance it should not create a problem due to the absence of groundwater.

Quality Control, Documentation and Records - The procedures for the preparation of the concrete trial mixes were in accordance with project documents and industry standards. The Quality Assurance and Control records observed were properly completed. The revision of the splicing procedure clarified the responsibility for the splice quality.

J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning 3

The completion of piers E/W12 has been impacted to a large degree by delays associated with welding and the acceptance of the welded materials by the Quality organization. The welding associated delays that have prolonged the length of time between pier excavation and load transfer to the pier is contrary to good underpinning practice. In this regard, the Team is proposing to have welding specialists perform an on-site assessment of the shop and field welding together with the associated inspection activities.

Non-Conformance Identification Reports

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

<u>NIR NO.</u>	<u>Description</u>	(Opened) <u>Date</u> (Closed)
5	Concrete Mix Qualification	2/10/83

W E Keller
Project Engineer

A S. Smith
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 28, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	R. Sevo	G. Murray
	E. Cvikl			
	J. Gaydos			

1. The "dress rehearsal" for the load transfer for pier W12 has been delayed to Wednesday March 1, 1983.
2. P. Barry inquired as to the documentation required by the RGE when authorizing or stopping work on piers adjacent to a pier being loaded. E. Cvikl said the "authorization" is set by drawings or sequencing schedules so no written RGE statement is required. On the other hand, if the RGE stops work it will be documented in his reports.
3. J. Fisher said the jacks will be manned at all times when the jacks are pressurized including during the acceptance periods.
4. J. Fisher stated that the access pit for pier W9 is completed waiting for approval to drift under the FIVP. The access pit for E9 is almost complete and should be completed today. Fabrication of drift sets is proceeding and some sets should be released today. The drift under the FIVP is delayed pending discussion with the NRC regarding the minor cracks opened in the FIVP during proof-jacking.
5. Bechtel will up-date the training procedure to reflect the new organization of personnel. This organization does not affect the Field Engineers who are in direct contact with the Subcontractor. The training record for the Field Engineers are available for review.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 1, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	-----	G. Murray
	E. Cvikl	W. Kilker		
	J. Gaydos			

1. J. Gaydos gave the Team a copy of the proposed trial mix design. P. Barry will read and comment or question as necessary.
2. MCP 16.000 is being clarified with respect to reinforcement splicing process. MPQAD has commented on the changes.
3. G. Murray said E12 should not be loaded until after acceptance of the soil deformation criteria on W12. J. Fisher agreed.
4. E. Cvikl reported that in response to an earlier question by the Team, references to ASME requirements will be eliminated in MCP 70.000.
5. J. Fisher advised that NRC approval on E/W 9 resulted in work starting last night shift on drifting under the FIVPs.
6. J. Fisher stated that the FSO-1.000, Administrative Guideline, will be revised by March 3, 1983.
7. P. Barry questioned if MPQAD would interface with Bechtel procurement quality control (PQC) on inspection and acceptance of fabrication done off-site. The Team verified with R. Sevo that the PQC would be responsible for those off-site activities.
8. W. Kilker said he would review the past Team daily meeting notes to verify if there are any open items. If so, a list will be prepared and presented at a daily meeting.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 2, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	P. Barry W. Kilker	R. Sevo	D. Puhalla

1. E. Cvikl advised that "dress rehearsal" for load transfer at pier W12 is delayed until further notice by J. Fisher.
2. Trial mixes for concrete will be done today.
3. P. Barry asked about need for secondary telltale at piers E/W12. E. Cvikl replied that the secondary telltale was not required to be active until the mass excavation stage.
4. Discussion of what maybe a layer of non-structural concrete above membrane in pier W12 drift. E. Cvikl stated that the FIVP maybe core drilled to determine the extent on any non-structural concrete and if a "cold joint" exists that could cause a failure of any concrete into the drift.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 3, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cviki	P. Barry	R. Sevo	G. Murray
	J. Gaydos	W. Kilker		
		L. Rouen		
		A. Scott		
		A. Lucks		
		<u>Parsons</u>		
		J. Ratner		

1. A general discussion was held of the merits of improving early concrete and grout strength to allow quicker access to the loading of the pier.
2. E. Cviki presented a revised schedule on load transfer to pier W12.
3. E. Cviki indicated the FIVP slab maybe core drilled to determine if a "cold joint" exists above the membrane level.
4. A discussion was held of the value of insuring the accuracy of placement of Carlson meters compared to the effect on the load read-out. A. Scott said tolerance levels being considered should be carefully evaluated.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: March 4, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	W. Kilker	R. Sevo	G. Murray
	J. Gaydos	A. Lucks		J. Schaub
	J. Fisher	L. Rouen		
		<u>Parsons</u>		
		J. Ratner		

1. J. Fisher advised that trial mixes for revised concrete mix are underway.
2. E. Cvikl said the NCR on pier W12 grout strength was being dispositioned. Strength on grout for this pier is adequate. Clarification will be made on the drawing.
3. L. Rouen stated he had seen the Revision of the procedure on reinforcing splicing and that his question had been resolved.
4. J. Fisher provided a new schedule for pier W12 load transfer. Sunday's work had been authorized to expedite the process.
5. W. Kilker brought-up a previous item discussed in the meetings of December 28/29, 1982. At that time, there was discussion of defining "construction aids" to distinguish certain items as not being part of the design. J. Fisher will up-date on decisions regarding this subject.
6. J. Fisher provided a copy of the revised FSO Training Program procedure.
7. E. Cvikl reported that he discussed with Project Engineering the tight tolerance on Carlson meter installations. Project Engineering said that the instrumentation Subcontractor feels it needs tight tolerance and the Field group feels it can be installed to those tolerances.

STONE & WEBSTER ENGINEERING CORPORATION



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

March 3, 1983

J.O. No. 14358
Ref. MPF 23

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 23

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 23 for the period February 20, 1983 through February 27, 1983, is enclosed with this letter. Included as attachments are (1) the minutes of the daily meetings held during the week between members of the Assessment Team and Site Engineering, Construction and Quality Assurance personnel and (2) the Trip Report of the Senior Level Management and Technical group from Stone and Webster Engineering Corporation and Parsons, Brinckerhoff, Quade and Douglas.

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

Very truly yours,

A. Stanley Lucks
Project Manager

Enclosures

ASL/ka

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J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning

Weekly Report No. 23

February 20, 1983 through February 27, 1983

Personnel on Site

Stone & Webster Engineering Corporation (SWEC)

B. Holsinger	2/21 - 2/26
W. Kilker	2/21 - 2/23
P. Barry	2/24 - 2/26
A. Scott	2/21 - 2/25

Parsons, Brinckerhoff, Quade and Douglas (PBQD)

V. Madill	2/21 - 2/25
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
2/21 through 2/25	Stone/Webster Bechtel Consumers Power Parsons (2/22 - 2/25)	Daily Meetings

Activities

Construction - Pier W12: No activity.

Piers W9/11: Construction of the 6 x 6ft. access pit from El. 609 to El. 600 was completed. The excavated material consisted of up to a 1 ft. thickness of unreinforced concrete underlain by sand and clay fill. The excavation was braced with wood lagging as the work progressed. Backpacking with sand was done as required and excelsior was placed between lagging boards. No groundwater was encountered. The lagging technique and materials were similar to those employed in constructing the access pits to piers E/W12 (Refer to Assessment Team Weekly Report Nos. 13 and 14).

Pier E12: The Subcontractor installed lower leveling plate on the pier. Dry-pack grout was then placed in the spaces between the lower leveling plate and the pier, and the upper leveling plate and the turbine building mat.

Piers E9/11: The construction of the access pit progressed from El. 609 to El. 603. The excavated material consisted of up to 2 ft. of unreinforced concrete underlain by sand fill. The work was done in a manner similar to that described above for piers W9/11 access pit. No groundwater was encountered.

J.O. NO. 14358
Midland Plant
Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning 2

Quality Control, Documentation and Records

1. Observed load transfer training session at the Subcontractor's shop.
2. Observed storage conditions at the Poseyville storage yard.
3. Witnessed the mixing and installation of dry-pack grout for the upper leveling plate at pier E12.

Observations

Construction - The dry-pack grouting and excavation/lagging installations were performed in accordance with the project documents. The dry-pack grout was kept protected and moist well beyond the nominal cure time requirements.

Quality Control, Documentation and Records - The storage conditions at the Subcontractor's storage yard meet project requirements and are in-conformance with good industry practice. The grout materials were properly handled and mixed prior to installation.

Non-Conformance Identification Reports

Status of previous issues: (NIR numbers on longer listed have been closed-out.)

<u>NIR NO.</u>	<u>Description</u>	(Opened) <u>Date</u> (Closed)
5	Concrete Mix Qualification	2/10/83

WE Kilber
Project Engineer

ASL
Project Manager

TRIP REPORT
MIDLAND PLANT - UNITS 1 AND 2
INDEPENDENT ASSESSMENT
AUXILIARY BUILDING UNDERPINNING
CONSUMERS POWER COMPANY

Trip to the Midland Site
Consumers Power Company
By Senior Level Management Review Team
February 2, 1983

On February 2, 1983 the members of the Senior Level Management Review Team for the independent assessment of the Auxiliary Building Underpinning visited the site. The Management Review Team consisted of:

J. P. Allen III
N. B. Cleveland
J. R. Hall, Jr.
E. A. Long
G. M. Schierberg
L. Silano (Parsons Brinckerhoff, Michigan, Inc.)

Activities

In preparation for our visit to the soils remedial area we were given a short course on "Confined Space Training" by Consumers Power Company (CPCo) staff.

The Management Team was given a presentation on the underpinning work by J. Fisher of Bechtel Power Corporation. We were then escorted on a tour of the site with emphasis on all the soils remedial work and a full account of the instrumentation program and crack monitoring being done by Wiss, Jenny, Elstener & Associates.

At exactly 11:00 A.M. members of the team were at access shafts to piers E-12 and W-12 where we had the opportunity to inspect the two piers. Pier W-12 excavation was completed. Only the bell remained to be excavated on Pier E-12.

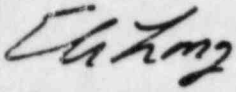
After lunch, some of the members of the team visited the pier and bell mock-up at the Poseville Yard and CPCo used a small scale model to further describe the Auxiliary Building Underpinning. Each stage of the underpinning for the Feedwater Isolation Valve Pit, the Electrical Penetration Area and the Control Tower power portions of the Auxiliary Building were adequately explained by the CPCo engineers and the Stone & Webster - Parsons Brinckerhoff Assessment Team. There was sufficient time for many questions and these were answered satisfactorily for the Management Team.

The Independent Assessment Team described their scope of work and their day-to-day operations. The reporting mechanism was discussed and the four Nonconformance Identification Reports issued to-date were described.

Conclusions

In general, the overall underpinning operation is well organized. Progress, although slow initially, has been gaining momentum and is anticipated to accelerate. The instrumentation program is very satisfactory. Plotting

of results is up-to-date and frequency of reading more than adequate. The Independent Assessment Team activities are being effectively carried out.



E. A. Long
Chairman, Management Review Team

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 21, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	R. Sevo	G. Murray
	E. Cvikl	A. Scott		
	J. Gaydos			

1. E. Cvikl stated that NIR #5 resolution is being discussed with the Team. In the meantime, as soon as Project Engineering makes available the mix design trial mixes will be prepared.
2. J. Fisher said a mock-up session on load transfer will be held today at the Mergentime's Mechanical Shop. Later a load transfer mock-up with the jack stand in-place will be held at pier W12 prior to actual load transfer.
3. W. Kilker stated the Team witnessed several increments of the Unit No. 2 FIVP proofload jacking on February 19-including the initial loading, full load and load release. The activity was well-planned and successfully accomplished.
4. A. Scott requested clarification on the requirements for washers and plates for steel lagging bolting. E. Cvikl is coordinating response with Project Engineering.
5. A. Scott requested clarification on requirements for concrete sampling during placement in terms of back of truck or end of the pump line. E. Cvikl will resolve.
6. J. Fisher stated that dry-packing of the bearing plates on pier E12 should be done today.

INDEPENDENT ASSESSMENT TEAM MEETING WHT BECHTEL

Date: February 23, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	R. Oliver	R. Weiland
	E. Cvikl	A. Scott	W. Lytle	
	J. Gaydos	B. Holsinger		
		<u>Parsons</u>		
		V. Madill		

1. E. Cvikl advised that trial mixes for concrete will begin February 28, 1983. B. Holsinger described the Assessment Team response to the proposed resolution to NIR #5. Specifically, the proposal was to perform 3 point trial mixes for the regular concrete mix and 1 point for the plasticized concrete mix. The Team agreed this was an adequate proposal but cautioned that in the future making "upward" mix adjustments could be difficult.
2. J. Fisher informed the group that jack-stand fabrication was delayed pending the resolution of a non-conformance on the milled surface quality.
3. W. Kilker requested access to the FSO training records and matrix. J. Fisher stated R. Bradford and R. Groshong were responsible for that area. W. Kilker will follow-up.
4. B. Holsinger inquired about the inspection of instrumentation installations. R. Oliver will furnish required documents and information.
5. V. Madill questioned the adequacy of the load transfer acceptance criteria of gauge monitoring "at least once per 8 hours." J. Fisher will respond.
6. V. Madill asked if a "slight drop" in the pressure reading might not be a better way to recognize effectiveness of wedge tightening rather than listening for a "ringing" sound from hammering.
7. E. Cvikl stated that AISI 8th Edition requires the use of washers or plates on all slotted holes. In this regard will pursue with Project Engineering the need for washers/plates on non-slotted sets of lagging.
8. E. Cvikl clarified the requirements for sampling concrete by reference to FSAR Revision 29, Question 42.7.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 23, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	J. Moran	-----
	E. Cvikl	A. Scott		
	J. Gaydos	B. Holsinger		
		<u>Parsons</u>		
		V. Madill		

1. W. Kilker asked for a description of "seal" required between circulating and service water pumphouse. J. Fisher said a diver would place a form and beutonite pellets to form the seal.
2. J. Fisher said FSO & MPQAD resolved the need for re-milling jack stand plates. Extra work will be done today.
3. E. Cvikl reported that although recording of data during the load transfer hold is only every 8 hours (maximum), Engineering personnel will be continuously present throughout the period. (Response to V. Madill question of February 22, 1983).
4. E. Cvikl stated that according to Project Engineering washers or plates will be required on all slotted/bolted holes.
5. E. Cvikl said Project Engineering will take under advisement the use of correlation sampling for concrete testing.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 24, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	D. Lavelle	A. Scott	R. Oliver	-----
	E. Cvikl	B. Holsinger		
	J. Gaydos			
		<u>Parsons</u>		
		V. Madill		

1. D. Lavelle informed those present that fabrication of the jack stands had commenced and completion was scheduled for February 28, 1983. A mock-up of the load transfer with the jack stands in place is scheduled to be held at pier W12 on March 1, 1983.
2. A Scott questioned the amount of time that is taken to write a NCR. Example was given to the group of NCR No. FSO-052 written on February 22, 1983.
3. B. Holsinger questioned paragraph 8.1 of the Mergentime Procedure MCP 19.000, Revision 9 as to the reason of referencing ASME in the procedure.
4. B. Holsinger questioned paragraph 9.3.5 of the Mergentime Procedure MCP 19.000, Revision 9 as to the method of identification of primary tensile stress so that welders and inspectors would know when this condition was applicable for weld undercut.
5. D. Lavelle informed the group of the sequence of work forthcoming is based on the ability of MPQAD to cover the work. The work schedule was based on the need of fabrication of drift sets and lagging which require inspection to the 1980 AWS code.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 25, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	A. Scott	R. Sevo	-----
	E. Cvikl	B. Holsinger		
	J. Gaydos	P. Barry		
		<u>Parsons</u>		
		V. Madill		

1. Reference L. Roune's question on Procedure MCP 16.000, Rebar Splicing Procedure, E. Cvikl stated that procedure will not be tied to the ASME code for inspection since the QAR-F253 states that the splicing of rebar is not ASME.
2. The "dress rehearsal" for the load transfer jacking of pier W12 will be held March 1, 1983. A meeting with heads of Engineering and MPQAD will be held on Monday February 28, 1983, to determine the number of men actually necessary to perform the work due to the area available.
3. A. Scott questioned when the form tie-rod holes would be grouted for piers E/W12. J. Fisher stated that this was under advisement at present.
4. P. Barry & A. Scott requested a breakdown of the new organization chart in accordance to the old organization chart attached to Administrative Guideline, FSO-1.000 Revision 1. In fact FSO-1.000 should be revised to incorporate the new chart.



Consumers
Power
Company

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July 7, 1983

*Stone & Webster
Underpinning file*

J A Mooney
Executive Manager
AS&S Project Office

Mr A S Lucks
Stone and Webster Michigan, Inc
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Boston, MA 02107

FILE 0485.16 SERIAL 23701

In accordance with Consumers Power Company Specification CC-100, Rev 1, "Independent Assessment of Auxiliary Building Underpinning", Section 2.1 (j), Stone and Webster Michigan, Inc shall expand the scope of the independent assessment of Soils Remedial Activities to include the following:

Provide an overview and assessment of activities associated with all remedial soils work not previously included in the Stone and Webster scope and placement of any safety related backfill within the bounds of drawing C-45.

This scope revision shall become effective immediately.

JAMooney

JAM/DES/klp