

STONE ISLAND STEEL MICHIGAN, INC.

P.O. BOX 2511 BOSTON, MASSACHUSETTS 02107

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

February 15, 1984

U.S. No. 18858  
Per NPP 73

Attention: Mr. Tom

BUCKET NO. 50-339-330  
MIDLAND PLANT UNIT 1 & 2  
INDEPENDENT ASSESSMENT OF UNDERPINNING  
REPORT NO. 73

A copy of the Independent Assessment of Underpinning Week-1, Report No. 73 for the period of February 5, 1984 through February 11, 1984 is enclosed with this letter. Included as attachments are the minutes of the daily meetings held during the week between members of the Assessment Team and Site Engineering, Construction, and Quality Assurance personnel.

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

*Stanley Luks*  
A. Stanley Luks  
Project Manager

Enclosures  
ASL/pd

16pp

8405040284 840419  
PDR ADDCK 05000329  
Q PDR

Island Plant  
 Data and  
 Independent Assessment of Interfering

Weekly Report No. 71

February 3, 1984 through February 11, 1984

Personnel on Site

Stone & Webster Michigan, Inc.

B. Majeski	2/7 - 2/8
D. Denvie	2/8 - 2/11
A. Lykens	2/8 - 2/9
C. Springer	2/8 - 2/11
L. Rouan	2/7 - 2/11
W. Kilker	2/7 - 2/11
A. Lucks	2/7 - 2/9
D. O'Nan	2/8 - 2/9

Parsons Brinckerhoff, Michigan

J. Oliveira	2/5 - 2/7
B. Matros	2/7 - 2/11

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
2/6-2/8	Stone & Webster	Daily Assessment
2/10	Bechtel Consumers Power Parsons	Team Meeting
2/8	Bechtel Spencer White Prentis	Weekly Schedule Meeting
2/10	Consumers Power Bechtel Stone & Webster	Project Soils Meeting
2/9	NRC Consumers Power Stone & Webster	Monthly Meeting with NRC

Underpinning and Remedial Soils - Construction

Kc-3 to Kc-4 Drift: Drifting has progressed out of the fill concrete and the drift is now completely in soil. Eight of twelve drift support sets have been installed.

Pier CT-1: Excavation of the drop pit is near completion. Excavation and lagging has progressed to el. 590'.

Pier W16: Excavation of the access pit is within 4' of final grade. A 6 in. drain pipe encountered just below the buttress access shaft was removed within the access pit and plugged to prevent inflow of water into the excavation.

#### Interim Assessment of Underpinning

Pier W13: The pier has been excavated to the level of the lower struts and installation of these struts is in progress.

Pier K2-9: Excavation of the pier has been completed to el. 590'. Removal of fill concrete encountered while excavating the pier is in progress.

Pier CT-12: Excavation of the drop pit is almost complete to el. 590'. Removal of fill concrete encountered on the south side of the excavation is in progress.

Pier E16: The access pit has been completed to final grade. Installation of plates for support of the rakers is in progress.

Pier E13: Excavation of the pier is in progress.

Access Shafts: Drilling continued for installation of the level C wale supports on the east and west access shafts.

SWPS: Excavation and lagging has progressed to the first level of wales along the east side. The west and north sides of the SWPS have been excavated to approximately 3 ft. deep. The final soldier pile for Phase I construction was grouted in place.

#### Assessment Team Observations - Construction

The construction in the Auxiliary Building included excavation activities in two access pits, two drop pits and three piers. The Subcontractor took adequate measures to control water seepage into the W16 access pit and W13 pier excavations. At the pier CT 1/12 drop pit excavations, the soil stabilization measures previously performed appear to have been quite effective in that the fine sand has, in general, been stable. In the SE corner of the excavation at CT12 there was minor sloughing of material between el. 590 and 593 resulting in a void area of up to 6 inches deep. When the Subcontractor starts backpacking activities, this void area will be filled with soil or grouted.

At the SWPS, excavation methodology, observed by the Assessment Team, conformed with applicable procedures. Over-excavation behind the soldier pile wall was kept to a minimum. The effectiveness of the soil stabilization grouting aided the Contractor in maintaining the excavation to the design limits. The excavation lift thicknesses were maintained within specified tolerances. Placement of lagging was performed in accordance with the procedures. Workmanship exhibited by the contractor was of high quality. Drilling of expansion anchor holes for installation of a bearing plate on the SWPS east was observed by the Assessment Team. The bearing plate is part of the soldier pile wall lateral support system and will allow fastening of the first level of struts for transfer of lateral loads from the soldier pile wall to the SWPS wall. Drill permits were in place at the work area. Drilling penetration and hole locations were maintained within the drill permit tolerances. The drill permit procedure is being properly implemented.

Assessment Team Observations

As part of the Assessment Team's ongoing review of document control as it relates to the underpinning activities, the Contractor's procedures for distribution and posting of documents were reviewed. The first part of the review dealt with the distribution and posting of documents with the FSO organization and between FSO and Central Document Control. A document transmittal/acknowledgement procedure is in effect between FSO and the underpinning subcontractors. A distribution transmittal log is used for distribution of controlled documents from Central Document Control to FSO. This transmittal log is developed from the main document control register and updated daily. Last verification of the proper posting of documents at the FSO document control stations is performed by FSO at least once a month using sampling techniques. The second part of the review concerned the distribution and posting of documents between FSO and vendors. Distribution of documents to vendors is controlled through procurement procedures. When a new issue of a document or revision to a document is received by a vendor, the procurement procedures require that a receipt acknowledgement be sent to the Contractor. Proper posting of documents and verification are controlled by the vendors QA program and by other controls established between FSO and the vendors. It is the opinion of the Assessment Team that the Contractor has established appropriate procedures and controls to assure that documents associated with the underpinning work are correctly distributed, transmitted and acknowledged.

The Assessment Team completed a review of the MPQAD-Soils Document Control Station. The purpose of the review was to verify that the drawing revisions released since the lifting of the FCR/FCN related Stop Work Order have been correctly posted. Based on the sample reviewed it is the Team's opinion that the documents are being properly posted.

A review was conducted of QC Inspection Reports that had been closed-out during the previous week. These IRs covered such items as expansion anchor installations, welding, crack monitoring, instrument installations and cable terminations closed-out during the previous week. The review concentrated on the completeness and accuracy of the reports and the qualifications and certifications of the inspectors. All the inspection reports and inspector certifications were found to be acceptable.

The Assessment Team verified that the Contractor's Field Engineers and the Subcontractor's Field Engineers and Superintendents were trained to the site Document Control procedures. These individuals are assigned full-time to the specific work areas and are responsible for assuring the proper construction documents are available and used. In addition, the Team observed that the Quality Awareness session conducted by the Subcontractor for craft personnel was devoted to a discussion of document control and distribution. In the Team's opinion, FSO is adequately implementing project document control procedures and is training the personnel involved in the underpinning work.

## Assessment Abstract of Interventions

### WFO Activity Calendar

The following WFO Activity Package overviews are in the open response stage or have been completed during the past week.

<u>WAF No.</u>	<u>Title</u>	<u>Status</u>
20	Admixer Portline Ballasting Vertical Movement Monitoring	Closed 2/10/84

### Nonconformance Identification Reports

The following Nonconformance Identification Reports (NIR's) remain open or have been closed during the past week.

<u>NIR No.</u>	<u>Description</u>	<u>Date</u>
		(Opened) (Closed)
20	Concrete Admixture Dispenser Calibration	12/1/83
21	Welding Procedures	1/26/84 2/10/84

### Open Items

Items discussed during meetings are categorized as follows:

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

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

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

OPINION ITEM - An opinion or suggestion, given by the Assessment Team expressing an alternate construction or quality assurance technique. The opinion or suggestion is given as a possible alternate that may facilitate an operation.

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

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

<u>Item No.</u>	<u>Description</u>	<u>Closure</u>
57-17	Wall Ties	Open

Unit 1, No. 1431  
 Class Block  
 Unit 1 & 2  
 Independent Assessment: Underpinning

<u>Item No.</u>	<u>Description</u>	<u>Closure</u>
68-3	Tubular Steel Lagging	Open
68-7	QAP Review Program	Open
68-10	Trend Analysis	Open
68-84, Pg. 1	US Testing Corrective Action	Open
68-50	Request for CR Distribution	73-24
70-2	Review of Crack Mapping Program	Open
70-6	Close Out of Lessons Learned Action Items	73-27
70-21	Document Transmittals	73-11
71-4	US Testing Work Instructions	Open
71-9	US Testing QA Manual	Open
71-17	Computerized Civil Drawing Register	Open
71-29	Use of "Retired" FCRs	Open
72-12	Welding Procedures	Open
72-20	Controlled Document Procedures	73-12
72-26	Recertification of Equipment and Tools	Open

*RJ Majster*  
 Project Engineer

*RJ Majster* for ASLUCKS  
 Project Manager



Midland Plant, Units 1 & 2  
Consumers Power Company

Self at Midland Site  
Midland, Michigan  
February 6, 1984

Present For:

Consumers Power

C. Murray  
B. Wheeler

Bechtel

J. Morris  
J. Fisher  
E. Cviki  
A. Gaydos

FSK

E. Sevo

Stone & Webster

D. Benvis  
P. Majeski

Parsons

J. Oliveira

PURPOSE

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

DISCUSSION

Status Items

Item 73-1 - Auxiliary Building Underpinning Activities.

Drifting to Kc-4 has progressed out of the fill concrete and the drift face is now entirely in soil.

Removal of that portion of the buttress access shaft footing required for advancement of the drop pit to Pier E-16 has been completed.

The finger drift to Kc-9 has been completed. Excavation of the pier began during the weekend.

Pier E-9 was rejaacked due to settlement in excess of 10 mils within 48 hours.  
(INFORMATION ITEM)

Item 73-2 - Computerized Civil Drawing Register.

A review of the computerized civil drawing register by the Assessment Team showed the only drawings listed to date are Bechtel controlled drawings. P. Majeski asked for a clarification as to whether or not other documents including vendor documents and FSK drawings will be listed on the register. J. Fisher stated that the above referenced documents will be incorporated into the register and a schedule will be provided later this week. (Item 71-16 remains OPEN) (INFORMATION ITEM)

Item 73-3 - SWPS Lagging Connector.

E. Cviki provided a clarification pertaining to welding requirements for fastening of lagging to soldier piles at the SWPS excavation. In addition to welding of every fourth lagging to the soldier pile, welding is also required when the angle between the flange of the soldier pile and the lagging meets certain design criteria. (Reference Item 71-24) (CLOSED ITEM)

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

Held at Midland Site  
Midland, Michigan  
February 6, 1984

New Items

Item 73-4 - Weekly Report No. 71.

Dr. Beville issued copies of Weekly Report No. 71. No open items were identified for tracking by the Assessment Team. (CLOSED ITEM)

Item 73-5 - Interim Approval of FCR's.

It was noted that interim approval of FCR's has ceased as of 2-4-84.  
(INFORMATION ITEM)

Response Items

No response items were addressed.



Independent Assessment of Underpinning  
Midland Plant Units 1 & 2  
Consulters Power Services

Held at Midland Site  
Midland, Michigan  
February 7, 1984

Present For:

<u>Consulters Power</u>	<u>Records</u>	<u>MTCAD</u>	<u>Stone &amp; Webster</u>
C. Murray	J. Fisher	B. Gavo	C. Benvie
R. Wheeler	E. Cvinkl	L. McMaster	F. Majaski
	J. Gaydos		D. Armstrong
	R. Cleary		
			<u>Parsons</u>
			J. Oliveira

PURPOSE

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

DISCUSSION

Status Items

Item 73-6 - Auxiliary Building Underpinning Activities.

J. Gaydos stated that the certification for the concrete batch plant has been received and placement of concrete for the Kc-2 to Kc-3 drift invert is scheduled for later this week. (INFORMATION ITEM)

Item 73-7 - Use of "Retired" FCRs.

J. Fisher reported that establishment of a permanent method for handling and controlling one time deviation FCRs/FCNs is tentatively scheduled for the beginning of April. (Item 71-29 remains OPEN) (INFORMATION ITEM)

Item 73-8 - Computerized Civil Drawing Register.

J. Fisher reported that incorporation of FSK drawings, vendor documents, specifications and other related documents into the computerized civil drawing register is scheduled for mid March 1984. (Item 71-17 remains OPEN) (INFORMATION ITEM)

Item 73-9 - Update on US Testing Corrective Action.

R. Cleary provided a matrix listing current certifications of the US Testing inspectors and the lab chiefs. The list also identifies key test for which the lab chiefs will be certified. Upgrading of a Level II inspector to level III has been completed. (WP 64, Pg. 1 remains OPEN) (INFORMATION ITEM)

Item 73-10 - Crack Mapping Data Sheets.

E. Cvinkl provided the Assessment Team with the crack mapping data sheets completed to date for the Auxiliary Building. (Item 70-2 remains OPEN) (INFORMATION ITEM)

一、二、三、四、五、六、七、八、九、十、十一、十二、十三、十四、十五、十六、十七、十八、十九、二十、二十一、二十二、二十三、二十四、二十五、二十六、二十七、二十八、二十九、三十、三十一、三十二、三十三、三十四、三十五、三十六、三十七、三十八、三十九、四十、四十一、四十二、四十三、四十四、四十五、四十六、四十七、四十八、四十九、五十、五十一、五十二、五十三、五十四、五十五、五十六、五十七、五十八、五十九、六十、六十一、六十二、六十三、六十四、六十五、六十六、六十七、六十八、六十九、七十、七十一、七十二、七十三、七十四、七十五、七十六、七十七、七十八、七十九、八十、八十一、八十二、八十三、八十四、八十五、八十六、八十七、八十八、八十九、九十、九十一、九十二、九十三、九十四、九十五、九十六、九十七、九十八、九十九、一百。

1-4  
1-4  
1-4  
1-4  
1-4

12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

100  
90  
80  
70  
60  
50  
40  
30  
20  
10  
0

DOCUMENTS  
101-102

Item T-12 - Controlled Document Procedures.

1. The first step is to identify the problem. This involves understanding the current situation and the goals that need to be achieved.

2. The second step is to analyze the problem. This involves breaking down the problem into smaller, more manageable parts and identifying the causes of the problem.

3. The third step is to develop a plan. This involves determining the steps that need to be taken to solve the problem and the resources that will be needed.

4. The fourth step is to implement the plan. This involves putting the plan into action and monitoring progress.

5. The fifth step is to evaluate the results. This involves assessing the effectiveness of the solution and making adjustments as needed.

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

Held at Midland Site  
Midland, Michigan  
February 8, 1984

Present For:

<u>Consumers Power</u>	<u>Bechtel</u>	<u>MPCAD</u>	<u>Stone &amp; Webster</u>	<u>Parsons</u>
J. Schaub	J. Fisher	B. Sevo	D. Benzie	B. Watson
	H. Quinn	J. McMaster	M. Majeski	
	C. Caydos		S. Lyons	
			L. Rouen	
			W. Kilker	
			J. Springer	

PURPOSE

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

DISCUSSION

Status Items

Item 73-13 - Auxiliary Building Underpinning Activities.

The drop pit to pier E-16 has been completed and pier excavation began today. Drilling of vertical rock bolt holes for installation of the transfer frame stabilizer plate at CT-12 has been completed.

Installation of piezometer BB-2 inside the Auxiliary Building has been completed.

(INFORMATION ITEM)

Item 73-14 - Welding Procedures.

J. Fisher reported that the Mergentime and Spencer, White and Prantis welding procedures have been signed off and will be issued by Central Document Control today. (Item 72-12 remains OPEN) (INFORMATION ITEM)

Item 73-15 - Trend Analysis.

R. Sevo reported that two procedures to implement a trend analysis program for tracking NCRs are tentatively scheduled for issuance on 3/1/84. (Item 64-10 remains OPEN) (INFORMATION ITEM)

Item 73-16 - Close Out of Lessons Learned Action Items.

J. Fisher stated that 8 of the 11 action items related to lessons learned from construction activities at the Auxiliary/Building have been closed out. The remaining 3 items to be applied to the SWPS are scheduled for resolution within the next few days. (Item 70-6 remains OPEN) (INFORMATION ITEM)

Steve J. Quirk, Project Manager  
Environmental Assessment Team  
Midland Plant, Units 1-2  
Consumers Power Company

Held at Midland Site  
Midland, Michigan  
February 8, 1984

Item 73-17 - Auxiliary Building Crack Survey.

E. Quirk provided the Assessment Team with a copy of the Auxiliary Building crack survey. The remaining crack mapping data sheets will be available today. (Item 70-2 remains OPEN) INFORMATION ITEM.

New Items

Item 73-18 - Document Control Training.

W. Kilker asked what training is conducted for manual supervisory personnel on document distribution. J. Gaydos explained that Bechtel and Subcontractor Field Engineers as well as Subcontractor Superintendents are trained to the Document Control procedures. All of these individuals are assigned to the respective work areas on a full-time basis. The Field Engineers are responsible for assuring that the documents used at the respective work areas are correct. To this end, a Work Print list is published daily. A copy of this list is available at the work area. The Quality Awareness sessions conducted by the Subcontractor provides a forum for the dissemination of this information to the craft foremen and craft personnel. Based on this explanation, the Assessment Team believes the training to Document Control procedures being conducted is adequate. (CLOSED ITEM)

Item 73-19 - Plant QAR Concrete Batch.

J. Gaydos reported that MPQAD is in the process of issuing a QAR on the concrete batch plant operation. The QAR addresses Bechtel programmatic commitments to approve off-site laboratories and co-ordination of Bechtel and State of Michigan scale calibration frequency requirements. The concrete placement at the pier Kc-2 to Kc-3 drift invert will likely take place on 2/10/84. (INFORMATION ITEM)

Item 73-20 - Void Space Between Lagging.

J. Fisher stated that in order to achieve the required design elevation at the drop pit/pier interface spacing between 8 sets of lagging would be decreased to 1.25 in. from 1.5 in. for construction of piers CT-1 and CT-12. The Assessment Team concurs with this variation of the lagging spacing. (INFORMATION ITEM)

Response Items

Item 73-21 - IR Distribution.

In response to a previous Assessment Team request to be included on the distribution list for closed QC Inspection Reports, L. Rouen stated the Team has been regularly receiving these reports. Item 66-5Q which has been carried as an open item is now closed. (CLOSES ITEM 66-5Q)

Board of Public Utility  
Independent Assessment of the  
Midland Plant, Unit 1  
Consumers Power Company

Held at Midland Site  
Midland, Michigan  
February 9, 1984

No meeting was held on this date.

INDEPENDENT ASSESSMENT OF  
MIDLAND PLANT UNITS 1 & 2  
Consumers Power Company

Held at Midland Site  
Midland, Michigan  
February 10, 1984

Present For:

Consumers Power

G. Murray

Bechtel

J. Fisher

E. Cwikl

J. Daydos

MP&AI

R. Sevo

J. McMaster

Stone & Webster

D. Benyle

W. Kilker

J. Springer

L. Rouer

Parsons

E. Matros

PURPOSE

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

DISCUSSION

Status Items

Item 73-22 - Auxiliary Building Underpinning Activities.

Removal of fill concrete encountered during excavation of Pier Kc-9 is in progress.

The approach pit to pier E-16 has been completed. Excavation of the pier began yesterday.

Fill concrete has been encountered while excavating the approach pit for CT-12. Preparations are being made to start removing the fill concrete today.

A 6 in. drain line was encountered while excavating the drop pit to pier W-16.

As of today the differential movement measured at the W8 grillage was 51 mils.

(INFORMATION ITEM)

Item 73-23 - NIR # 20.

J. McMaster reported that the NCR and QAR written as a result of NIR # 20 have been closed and copies of these documents will be transmitted to the Assessment Team today. (INFORMATION ITEM) (NIR# 20 remains OPEN)

Item 73-24 - Welding Procedures.

J. Fisher asked the Assessment Team for a status on the review of the revised Mergentime and Spencer White & Prentis welding procedures. J. Springer stated that the review is in progress. Additionally, J. Springer

Item 72-12  
Independent Assessment to the US Testing  
Midland Plant, Units 1 & 2  
Consumers Power Company

Held at: Midland Site  
Midland, Michigan  
February 10, 1984

stated that the Assessment Team is awaiting issuance of a QAR in response to NIP # 20. J. McMaster replied that issuance of the QAR was expected today and a copy of the QAR will be transmitted to the Assessment Team. (Item 72-12 remains OPEN) (CLOSED ITEM)

#### New Items

Item 72-25 - Weekly Report No. 72

Weekly report # 72 was reviewed for open items. No open items were identified for tracking by the Assessment Team. The observations on the QAR review program and the status of US Testing are already being carried as Open Items. (CLOSED ITEM)

Item 73-26 - Document Control Training.

W. Kilker stated that the Mergentime Field Engineer conducted a discussion of the site Document Control procedures at the Quality Awareness training sessions held for craft personnel on 2/9/84. A copy of the discussion outline and the attendance sheet was supplied to the Assessment Team. (Refer to Item 73-18) (CLOSED ITEM)

#### Response Items

Item 73-27 - Lessons Learned Action Items.

J. Fisher reported the 3 remaining open action items from the Auxiliary Building Lessons Learned list have been closed. A summary sheet outline of the actions taken was provided to the Assessment Team. (CLOSES ITEM 70-6)



At a MPRI meeting  
in a recent assessment of  
Midland Plant Site

Held at Midland Site  
Midland, Michigan  
February 10, 1984

No MPRI meeting was held this year.