

STONE & WEBSTER ENGINEERING CORPORATION



245 SUMMER STREET, BOSTON, MASSACHUSETTS

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

February 18, 1983

J.O. No. 14358
Ref. MPF 21

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 21

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 21 for the period February 6, 1983 through February 12, 1983, is enclosed with this letter. Included, as an attachment, 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. S. Lucks
by WK
A. Stanley Lucks
Project Manager

Enclosures

ASL/ka

8406120228 840517
PDR FOIA
RICE84-96 PDR

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

Weekly Report No. 21

February 6, 1983 through February 12, 1983

Personnel on Site

Stone & Webster Engineering Corporation (SWEC)

S. Lucks	2/8 - 2/9
S. Rossier	2/8
W. Kilker	2/7 - 2/8
L. Rouen	2/7 - 2/12
P. Barry	2/7 - 2/12

Parsons Brinckerhoff, Quade and Douglas (PBQD)

P. Parish	2/7 - 2/12
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
2/7 through 2/11	Stone & Webster Bechtel Consumers Power Parsons (2/7 - 2/11)	Daily Meetings
2/8	Stone & Webster Bechtel Consumers Power Mergentime	FIVP proofload jacking coord- ination
2/11	Stone & Webster Bechtel Consumers Power Mergentime	Weekly Soils Review

Activities

Construction - The telltales were installed in pier W12. Forming was completed and concrete was placed from the bottom of the bell to the top of the pier. Concrete Mix C-1c was used. This mix was previously tested and approved for use on the main plant construction. Concrete was pumped to the pier and a trunk was utilized within the pier to place the concrete. The vertical free fall of the concrete was controlled as the placement progressed and the concrete was continuously vibrated to insure consolidation.

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Units 1 and 2
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Auxiliary Building Underpinning 2

Installation of reinforcing steel was started in pier E12.

The proofload jacking of the Unit 1 FIVP was performed.

Quality Control, Documentation and Records -

1. Reviewed the over-inspection report for pier W12 rebar installation and splicing.
2. Reviewed splicer qualification test results.
3. Reviewed production "sister splice" test results.
4. Observed the installation and inspection of reinforcing in pier E12.
5. Reviewed trial mix data for the concrete mix to be used in pier E12.
6. Observed batching of concrete for pier W12.
7. Observed placement of pier W12 concrete.
8. Observed testing of pier W12 concrete.
9. Observed Unit 1 FIVP proofload jacking.

Observations

Construction - The concrete placement for pier W12 was in accordance with the specifications and procedures. Concrete was properly placed and vibrated.

Reinforcing steel for pier E12 was clean and installed properly. The tapered threaded ends of the reinforcing were protected and in good condition prior to installation.

The proofload jacking of the Unit 1 FIVP was well planned and organized. It was accomplished in accordance with the drawings. A transcription error on the Combined Calibration Record for one of the jack points resulted in a load that was slightly lower than that specified for the 90, 95 and 98% load increments. The resolution of this problem was immediately coordinated between the Resident Structural Engineer, the Project Engineering Representative, the Field Engineers and the Quality Assurance and Quality Control Representatives. The situation was corrected prior to attaining the 100% load increment and the intent of the proofload jacking was accomplished.

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Quality Control, Documentation and Records - A review of the splicer qualification records showed that one splicer was not fully qualified. MPOAD had already issued a non-conformance report on this item. The review of production splice test results and the over-inspection reports for reinforcing steel installation indicated these items to be in compliance with the project requirements.

A review of the data for Concrete Mix C-5c showed that the mix did not meet the qualification requirements of ACI-301. This was identified by the Assessment Team as NIR Nc. 5.

The contractor elected to use a previously approved concrete mix for pier W12 instead of Concrete Mix C-5c.

Non-Conformance Identification Reports

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

<u>NIR No.</u>	<u>Description</u>	<u>Date</u>	
		(Opened)	(Closed)
4	Welding Qualification Procedure	12/29/82	2/8/83
5	Concrete Mix Qualification	2/10/83	

W. E. Keller
Project Engineer

A. S. Zander, Jr.
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 7, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	W. Kilker	R. Sevo	-----
	J. Fisher		W. Lytle	
	J. Gaydos			

1. J. Fisher said all NCR on materials in pier W12 including access drift will be dispositioned before concrete is placed in the pier.
2. Plasticized concrete will be used for pier W12 if all of the trial mix design criteria can be met in time.
3. E. Cvikl explained the need for washers on the bolts for the steel lagging.
4. J. Fisher stated that a specification change has been issued to require vibrating of all concrete.
5. J. Gaydos said truck mixer uniformity tests are scheduled to be made with the plasticizer additive.
6. J. Fisher said the requirements for minimum strength on mud-mat mixes is being re-evaluted.
7. In response to a Team question, E. Cvikl said spreading of steel sets in done in the direction of the adjacent piers (i.e., east/west) to produce an arching effect. On some future piers spreading will be on the long sides.
8. J. Fisher and W. Kilker discussed a clarification of defining use of and need for backpacking as stated in daily meeting note of January 18. Backpacking will be performed to avoid loss of ground and all voids will be backpacked unless the RGE agrees it is not necessary.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 8, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	W. Kilker	R. Oliver	R. Weiland
	J. Gaydos	A. Lucks	J. Shah	
	D. Lavelle	L. Rouen		
		<u>Parsons</u>		
		P. Parish		

1. Dave Lavelle described the on-going process of qualifying the plasticized concrete mix for use in the underpinning.
2. R. Oliver said further discussions with engineering are required on closing-out the NCR on channel welding.
3. J. Gaydos stated truck mixer uniformity tests were completed yesterday. Results will be available today.
4. In response to previous discussions on Carlson meter installation J. Gaydos will prepare short description.
5. Dave Lavelle said there had been two "round-map" meetings on concrete placement. W. Kilker said the Team should be informed of these meetings ahead of time.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 9, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	L. Rouen	R. Sevo	-----
	E. Cvikl	S. Lucks		
	J. Kelleher	P. Barry		
		<u>Parsons</u>		
		P. Parish		

1. The disposition to the NCR for the reshore channel in the west access drift is due February 9, 1983.
2. Calibration data was submitted for equipment to be used in the addition of plasticizer to concrete.
3. J. Kelleher said truck mixer uniformities were performed today.
4. The Team raised questions about the preliminary road map for concrete placement. R. Sevo said that the questions are answered in the Revision No. 12 of the Mergentime procedure.
5. The Assessment Team questioned Spec C-195 statement that jackloading of FIVP - on hold. E. Cvikl is to provide answer.
6. The Team questioned what requirements are used for the development of concrete mixes. J. Kelleher is to provide answer.
7. The Team also questioned the adequacy of the Mergentime rebar splicing procedure, to define what functions are to be performed by the qualified splicer. J. Fisher will investigate.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 10, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	L. Rouen	G. Carpenter	-----
	E. Cvikl	P. Barry		
	D. Lavelle			
	J. Gaydos			
	D. Hemmelberger			
	V. Patankar			
		<u>Parsons</u>		
		P. Parish		

1. Additional mixer uniformity tests will be performed on the truck mixers using a mix with the working slump range.
2. Received requested mix design information.
3. FIVP proof load jacking is not on hold. The details are on drawing No. C-1494.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 11, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	L. Rouen		G. Murray
	E. Cvikl	P. Barry		
		<u>Parsons</u>		
		P. Parish		

1. NIR #5 was written on the approval of mix C-5c since trial mix data did not meet ACI-301. Bechtel will use another concrete mix for placement of pier W12 today.
2. Stone/Webster considered the mixes with and without HRWR separate mixes requiring separate qualifications. The requirement for the qualifications of mix with HRWR is based on ACI-301 Section 3.8.2 and ACI-212 Section 1.5.2.
3. Stone/Webster questioned if two sets of cylinder tests would be taken, if concrete used for a pier placement included trucks with and without HRWR. Bechtel will advise.
5. Stone/Webster asked if mix E-4c approved by an SCN on December 1, 1982 is still approved for use in underpinning. Bechtel will advise. If the mix is still approved, Stone/Webster would like to review the test data on this mix.
6. Stone/Webster asked if the mix to be used for pier W12 placement was approved mix. Bechtel stated it was approved mix that had been used during plant construction. Stone/Webster asked for the test data for mix approval on this mix.

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

February 9, 1983

J.O. NO. 14358
Ref. MPF 20

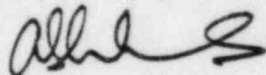
Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 20

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 20 for the period January 30, 1983 through February 5, 1983, is enclosed with this letter. Included, as an attachment, 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

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214 293

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

Weekly Report No. 20

January 30, 1983 through February 5, 1983

Personnel on Site

Stone & Webster Engineering Corporation (SWEC)

✓ W. Kilker	1/31 - 2/5
A. Scott	1/31 - 2/5
✓ B. Holsinger	1/31 - 2/4
✓ A.S. Lucks	2/1 - 2/2
G.M. Schierberg	2/1
N.B. Cleveland	2/1
J.P. Allen	2/1
J.R. Hall	2/1
E.A. Long	2/1

Parsons, Brinckerhoff, Quade and Douglas (PBQD)

J. Ratner	1/31 - 2/3
L. Silano	2/1

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
1/31 through 2/4	Stone & Webster Bechtel Consumers Power Parsons (1/31 - 2/3)	Daily Meetings
2/4	Stone & Webster Bechtel Consumers Power	Weekly Soils Review
2/1	Stone & Webster Consumers Power Parsons	Senior Level Management Team Site Visit

Activities

Construction - Within pier W12 the bell bottom reinforcing mat, shaft stirrups and vertical reinforcing steel was installed up to about El. 604. The Fox-Howlett couplers used to join sections of reinforcing rod were installed and torqued. Forming was begun for the portion of the pier above the access drift floor at El. 600. In addition, three embedment plates with headed stud anchors were installed as shown on the design drawings.

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Units 1 and 2
Independent Assessment
Auxiliary Building Underpinning 2

Grouting behind the steel plating in the bell was done where necessary to fill voids. Since nearly all of the bell area has been sheeted and braced there are only small areas of soil left exposed. Throughout the week there has been minor raveling of the exposed soil near the bottom of the bell. Minor seepage of groundwater into the pier continued to accumulate on the mud-mat and was easily handled by periodic bailing.

Excavation of pier E12 as a straight shaft was completed to El. 565, approved by the Engineers, and a concrete mud-mat was installed at the bottom. Work on the bell commenced once the mat had set sufficiently to allow work to proceed. Initially, the short sides of the bell were formed and trimmed to the correct dimensions. Then the long sides were excavated in two stages on each side followed by cutting the slopes into the corners. The installed bell support consists of 2 braced channel sections extending the entire height of the bell on each of the long sides of the bell.

The excavated soil consisted of a natural, very stiff gray clay with occasional randomly oriented thin brown silt lenses. No groundwater entered the excavation.

Quality Control, Documentation and Records -

1. Reviewed the batch plant calibration and certification.
2. Reviewed the certification and tests for concrete materials.
3. Witnessed the QC inspection and subsequent documentation of pier W12 bell.
4. Reviewed QC Inspection Reports for concrete mud-mat placement in piers W12 and E12.
5. Witnessed the QC inspection of torquing of Fox-Howlett couplers between approximate El. 580 and El. 590 on pier W12.
6. Reviewed truck mixer uniformity test results.
7. Verified the taking and testing of the specified number of Fox-Howlett "sister splices" of the No. 11 reinforcing bars installed in pier W12. Verified the strength adequacy of the referenced splice tests.
8. Reviewed Geotechnical Engineers Daily Reports on pier W12.
9. Verified the evaluation and acceptance of the pier W12 subgrade.
10. Verified sign-off of Geotechnical Engineer on QC Inspection Report on excavation of piers.

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

Observations

Construction - The pier W12 bell support installation was judged to be thoroughly done in accordance with good industry practice. The steel plates are well supported and care was taken to grout behind the plates as required.

The reinforcing steel was clean and installed properly. The tapered threaded ends of the reinforcement were protected and in good condition prior to installation. The Fox-Howlett coupler connections were being properly installed. The pier E12 bell installation was accomplished quite efficiently. The combination of the stiff clay till and absence of ground-water seepage resulted in normal bell support without the additional support required on pier W12.

Quality Control, Documentation and Records - The review of the documentation on the batch plant, concrete materials, truck mixer uniformity and coupler splice testing indicated these items are in conformance with the project requirements. In addition, the Team's review of the QC Inspection Reports for the mud-mats and bell inspections, and the Geotechnical Engineers Daily Reports demonstrated that adequate records and documentation of these activities have been kept. The Team identified a minor problem with one facet of the concrete Inspection Report, in that the method of consolidating the concrete was not identified. The Team also observed that completion of Inspection Reports should be done in a more timely manner. The adequacy of the QC Inspector's performance on the bell inspection and coupler torquing was demonstrated in the presence of a member of the Assessment Team during the actual inspections.

Non-Conformance Identification Reports

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

<u>NIR No.</u>	<u>Description</u>	<u>(Opened)</u>	<u>Date</u>	<u>(Closed)</u>
4	Welding Qualification Procedure	12/29/82		

L.T. Rowen
Project Engineer

ash
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 31, 1983

Attendees	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher E. Cviki	A. Scott B. Holsinger	J. Shah	G. Murray R. Weiland
		<u>Parsons</u>		
		J. Ratner		

1. Discussed the need for a definition of when couplers can be torqued against reinforcing bars embedded in freshly placed concrete. This situation will arise when bell concrete is placed prior to installation of the shaft reinforcement. E. Cviki will resolve.
2. A. Scott questioned why the resolution of the channel welding non-conformance on the pier W12 access drift has not yet been dispositioned.
3. J. Fisher stated that as a result of recent discussion with the NRC, an FCN is being prepared to require vibration of all the concrete placed in pier W12. A Mergentime procedural change will be to generated.
4. The Team requested the schedule on U.S. Testing calibration of jacks and the mock-up of jacking set-ups. J. Kelleher will notify.
5. A. Scott requested copies of truck mixer uniformity tests and pump calibrations for water reducing agents.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 1, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>	<u>Mergentime</u>
	E. Cvikl	A. Scott	R. Sevo	-----	T. Goedjen
	R. Bradford	W. Kilker			
	J. Kelleher				
		<u>Parsons</u>			
		J. Ratner			

1. Discussion of previous items not resolved (coupler torquing, mixer uniformity, grout storage.)
2. J. Ratner asked for status of pier W12 jacks. T. Goedjen replied the jacks are on-site with calibrated gauges.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 2 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	A. Lucks W. Kilker A. Scott	G. Carpenter	G. Murray

1. G. Murray requested that Bechtel take steps to respond more efficiently to a number of open item questions or requests of the Team.
2. Team concern of storage of grout materials is being addressed by a change in Mergentime procedure.
3. A. Scott reported he had received the mixer uniformity test results on the non-plasticized concrete mix. If plasticizer is to be used he requested simuler results be made available for that mix.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 3, 1983

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

1. J. Fisher reported that daily meeting times may vary in order to allow J. Fisher or D. Lavelle to attend the meeting.
2. J. Gaydos will be responsible for tracking Team requests. J. Fisher presented a close-out schedule for responding to Team requests on Carlson meters, grout storage, NCR disposition on pier W12 channel welding, plasticizer metering equipment, and grout strength determination.
3. J. Ratner submitted a list of questions as a result of observations of the excavation and support of piers W12 and E12:
 - A. Has the use of beam sections, rather than channel sections for bell support, been considered as an option to allow for easier insertion of plating when required?
 - B. Would shotcrete be an acceptable alternate bell support method?
 - C. Has the use of bentonite powder applied to the exposed soil surfaces been considered a means to stabilize any revealing material?
 - D. Why are the short sides of the lagging spreader sets being spread and not the long sides?J. Fisher and J. Gaydos will respond.
4. J. Fisher explained that in future piers the bell excavation maybe initiated once the bottom of the shaft section is reached without first excavating the shaft section to final grade.
5. A. Scott questioned why the steel lagging is considered under AISC structural steel code with respect to a recent non-conformance written on the use of washers for the lagging bolts. J. Fisher will respond.
6. W. Kilker asked if due to the break in the construction activities not that the excavating of piers W12 and E12 is nearing completion, the "trained" labor force could be lost by lay-offs. This action could deter from the goal to learn from the initial pier installations. J. Fisher said every reasonable effort would be made to retain the the labor crews until the next excavating activity proceeds.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: February 4, 1983

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

1. W. Kilker stated the Team received a copy of MCP 28.000. The Team will review the procedure to evaluate how previous questions have been addressed.
2. J. Fisher reported that if a concrete mix design with plasticizer is approved and tested this material will be used for pier W12. Reportedly the strength of the plasticized concrete is gained faster than "non-plasticized" concrete.
3. W. Kilker requested an explanation of the field engineering response to an NCR written on steel lagging washers. J. Fisher explained the steps taken by the "field" to expedite the disposition.
4. J. Fisher stated the tell-tale centralizers are being fabricated. A. Scott said he intends to witness the procedure.
5. Since J. Fisher also keeps notes of the daily Team meetings with Bechtel, W. Kilker will insure that the Bechtel copy includes at least the topics included in the Team copy. This consistency is important since Bechtel takes action based on those items on their copy.
6. W. Kilker reminded J. Fisher that one of J. Ratner's questions of February 3, 1983 had not been included on Bechtel's meeting notes.

STONE & WEBSTER ENGINEERING CORPORATION

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

February 3, 1983

J.O. NO. 14358
Ref. MPF 19

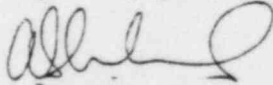
Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
Midland Plant - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 19

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 19 for the period January 23, 1983 through January 29, 1983, is enclosed with this letter. Included, as an attachment, 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

FEB 9 1983

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

Weekly Report No. 19

January 23, 1983 through January 29, 1983

Personnel on Site

Stone & Webster Engineering Corporation (SWEC)

L. Rouen	1/24 - 1/28
P. Barry	1/24 - 1/27
A. Scott	1/25 - 1/29
B. Holsinger	1/27 - 1/29

Parsons, Brinckerhoff, Quade and Douglas (PBQD)

J. Ratner	1/24 - 1/29
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
1/24 through 1/28	Stone & Webster Bechtel Consumers Power Parsons (1/25 - 1/28)	Daily Meetings
1/21	Stone & Webster Bechtel Consumers Power	Weekly Soils Review

Activities

Construction - Pier W12 bell excavation was initiated and completed. The excavation was sequenced and supported in order to minimize the possibility of soil collapse. Initially, the short sides of the bell were excavated and supported by steel plates prior to commencing work on the long sides. Excavation of the two long faces was accomplished in 4 stages - one-half of the bell length on each side was shaped and supported before starting excavation on the remaining half. Since some raveling of the soil had occurred near the top of the bell excavation, the contractor elected to support nearly the entire bell area surface with steel plating and channel sections. Minor groundwater seepage continued to enter the pier excavation as during the previous weeks. The contractor installed a second trough type seepage collector in the shaft portion of the pier at El 575.

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

Pier E12 excavation was advanced as a straight shaft to El 570. The excavated material consisted of natural stiff gray clay. The excavation was carefully shaped in order to minimize backpacking requirements. In areas of over-excavation backpacking with sand was done as the lagging proceeded. Steel lagging was installed to the level of the top of the bell followed by the placement of temporary wood lagging to El 570. No groundwater entered the pier excavation. In addition, a probe hole was advanced to El 565 with no evidence of groundwater.

Quality Control, Documentation and Records -

1. Reviewed Quality Control Instructions for placing reinforcing steel, miscellaneous embedments, and concrete.
2. Verified that Mergentime training requirements were satisfied for those present in an access pit.
3. Verified resolution of a MPQAD identified need for providing identification and traceability of high strength steel.
4. Verified that Inspection Reports were being reviewed. (See Weekly Report No. 17.)

Observations

Construction - Both pier excavations were advanced and supported in accordance with the project procedures. Based on ground conditions, the decision was made to steel support the belled area of pier W12. The work progress during the week was delayed to the point where some collapsing of the soil would likely have occurred without the added support. For future belling work the Contractor should either be prepared to organize, schedule, and perform the work in such a way as to avoid the lengthy delays encountered during the pier W12 belling operation or, enter into the belling operation with the objective of steel supporting the bell area.

Quality Control, Documentation and Records - The Assessment Team found the MPQAD quality controls employed were in compliance with project procedures and recognized standards. Of particular significance, the Assessment Team observed the MPQAD organization identify and resolve the need for the Contractor to provide identification of high strength steel. Resolution was provided by adding requirements to the Subcontractor's procedures for maintaining identification to the ASTM designation. In addition, Weekly Report No. 17 identified a need for the MPQAD supervisor to review the Inspection Reports in a more timely manner. The Assessment Team observed the MPQAD implementation of corrective action in this area.

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 no longer listed have been closed-out during previous week.)

<u>NIR No.</u>	<u>Description</u>	(Opened)	<u>Date</u>	(Closed)
4	Welding Qualification Procedure	12/29/82		

W.E. Kilmer
Project Engineer

A. S. Seely
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 24, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	L. Rouen	J. Shah	G. Murray
	E. Cviki	P. Barry		

1. G. Murray stated that CPCo is providing design packages to the NRC for review in order to gain to release for work on subsequent pier installations.
2. J. Fisher stated that access to the pits is available at anytime for persons with a definite purpose for entry.
3. It was agreed by all present, that at this time meetings on Saturday are not necessary, but will be held if and when the need arises.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 25, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	L. Rouen	-----	-----
	E. Cvikl	P. Barry		
	D. Lavelle			
		<u>Parsons</u>		
		J. Ratner		

1. J. Ratner asked if P. Parish questions were answered concerning unused grout stabilization materials. J. Fisher said no answer was yet available.
2. D. Lavelle asked that Stone & Webster personnel on night shift advise the night shift superintendent, Al Meier. J. Fisher also asked for notification of the personnel on night shift and to be informed of the group leader in W. Kilker's absence.
3. P. Barry questioned if there was a requirement on strength of concrete for torquing against embedded reinforcement when installing couplers. E. Cvikl will respond.
4. D. Lavelle stated that the NRC site visit of the previous week did not result in findings concerning the work performed on the E-W12 piers to date.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 26, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cviki J. Kelleher	L. Rouen P. Barry A. Scott	J. Shah	G. Murray
		<u>Parsons</u>		
		J. Ratner		

1. Discussed the W12 pit angle welding non-conformances and the effect of response time on the work.
2. E. Cviki stated that Project Engineering is considering action on a minimum strength requirement prior to torquing couplers.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 27, 1983

Attendees: Bechtel Stone/Webster MPQAD CPCo

 E. Cvikl L. Rouen D. Oliver G. Murray
 J. Kelleher P. Barry
 A. Scott

Farsons

 J. Ratner

1. J. Ratner and J. Kelleher will meet to discuss resolution of P. Parish's concerns regarding storage of stabilizing grout.
2. E. Cvikl stated that the NCR on the pier W12 breast plate weld had been resolved. An FCN had resolved the question of welds on the angle supports within the bell of pier W12.
3. J. Ratner asked if the ring set for E12 would be ready when needed. J. Kelleher would check.
4. A. Scott asked how the week lag between E/W piers would be handled. G. Murray said he believed E12 would not progress into the bell, unless W12 was ahead by one week.
5. J. Ratner stated that he reviewed the backpacking of pier E12 with Mr. Lewis and reached concurrence on a acceptable degree of backpacking.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 28, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	L. Rouen	R. Oliver	-----
	R. Bradford	A. Scott	J. Shah	
	J. Kelleher			
		<u>Parsons</u>		
		J. Ratner		

1. NCR on pier W12 steel set channel weld is still unresolved.
2. The ring beam for E12 pier is ready.
3. A second shift on the E12 pier will begin Monday. Bob Wheeler is checking on the NRC commitment to maintain one week lag time between piers.
4. Pier concrete is tentatively scheduled for Wednesday or Thursday.
5. L. Rouen requested pier concrete mix design information. J. Kelleher action item.

STONE AND WEBSTER ENGINEERING CORPORATION

NONCONFORMANCE IDENTIFICATION REPORT

DATE OF NONCONFORMANCE: 12/8/82 NIR Number 3

IDENTIFICATION/LOCATION OF ITEMS: Specification 7220-C 195(Q) Rev. 1, and U. S. Testing Co. Inc. QCP-11, Rev. 2 - Testing of splices for Qualification of Splicers and Production Splices made by Splicers.

DESCRIPTION OF NONCONFORMANCE: ASME, Section III, Div. 2, Para. CC-4333.5.4 requires splice tensile test for all tapered threaded splices be conducted at 20°F (-7°C). QCP 11 - Rev. 2, Section VI, Para. 2-1 specifies splice tensile test to be conducted at 60°F minimum.

INITIATOR: <i>A.B. Scott</i>	DATE: <i>12-3-82</i>	PROJECT MANAGEMENT CONCURRENCE: <i>A. S. Zamboni</i>
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CORRECTIVE ACTION BY: C.P.Co.
(IDENTIFY ORGANIZATION TAKING CORRECTIVE ACTION)

C.P.Co. has prepared an SAR change for submittal to the NRC that delineates the applicable requirements for crew qualifications and tensile testing of the Fox-Howlett couplers. This SAR change takes exception to the ASME Section III Division 2 requirements for low temperature testing. At the same time the SAR change endorses the requirements of ACI 349. Since the ASME III Division 2 Code applies only to concrete containments and ACI 349 does not detail requirements for taper threaded splices, the SAR commitment forms the criterion to be used for installation, inspection and testing of Fox-Howlett couplers.

INITIATOR CONCURRENCE: <i>A.B. Scott</i> <i>by PR</i>	PROJECT MANAGEMENT CONCURRENCE: <i>A.S. Zamboni</i> <i>by PR</i>	DATE: <i>1/2/83</i>
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STONE & WEBSTER ENGINEERING CORPORATION



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

January 25, 1983

J.O. NO. 14358
Ref. MPF 18

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
Midland Plant - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 18

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 18 for the period January 16, 1983 through January 22, 1983, is enclosed with this letter. Included, as an attachment, 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. S. Lucks
SLR

A. Stanley Lucks
Project Manager

Enclosures

ASL/ka

8406120746

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

Weekly Report No. 18

January 17, 1983 through January 22, 1983

Personnel on Site

Stone & Webster Engineering Corporation (SWEC)

W. Kilker	1/17 - 1/20
L. Rouen	1/19 - 1/22
P. Barry	1/17 - 1/22

Parsons, Brinckerhoff, Quade and Douglas (PBQD)

V. Madill	1/17 - 1/21
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
1/17 through 1/21	Stone & Webster Bechtel Consumers Power Parsons	Daily Meetings
1/21	Stone & Webster Bechtel Consumers Power	Weekly Soils Review

Activites

Construction - Pier W12 was excavated to the approximate final elevation of 564.6. At this elevation support channels were grouted and the mud-mat concrete placed. The excavation for the bell was not started. Wood lagging was used to temporarily support the side of the pit in the zone to be later excavated for the bell.

The material encountered during this weeks excavation in W12 was predominately natural (undisturbed) gray clay containing some small silt lenses. As excavation approached the final elevation, very few silt lenses were encountered and only small traces of silt were evident in the clay. The flow rate of perched groundwater into the excavation had reduced to approximately 10-15 gallons per day.

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

After entering the natural clay, the pier pit was alternately excavated approximately 42 inches and lagged. However, after breakback occurred the unlagged portion of the excavation was not allowed to exceed 18 inches. The void left by the breakback was formed and filled with grout. Probing for groundwater was performed as the pit was advanced. No groundwater was encountered (apart from the perched groundwater at El 586) and the probe hole was grouted as required by the construction procedures.

Excavation and lagging of pier E12 was begun this week and progressed to El 588. In addition fill concrete, the excavated material was a combination of sand and clay backfill, no perched groundwater was observed. The pier pit was alternately excavated approximately 18 inches and lagged. Backpacking of the lagging was done after installation of each spreader set (every 4th set). The backpacking material was an imported medium grained sand.

Quality Control, Documentation and Records-

1. Reviewed records of the performance demonstration that the Assessment Team witnessed the previous week.
2. Observed the RGE's verification of satisfactory conditions of pier W12 founding grade.
3. Observed the verification of the W12 founding grade elevation.
4. Reviewed qualification and certification records for the new excavation inspectors.
5. Observed QC inspection of bolting of spreader sets.
6. Observed batching of concrete for W12 mud-mat.
7. Observed testing of concrete for W12 mud-mat.

Observations

Construction - The Assessment Team determined that the construction practices employed to advance both the E12 and W12 pier excavations were in compliance with the project documents. In particular, the Assessment Team observed instances where work had progressed to an inspection point and was stopped until MPQAD was notified and an inspector was made available. The Assessment Team inspected the founding grade for pier W12 and did not note any unstable conditions. These observations agreed with the RGE's verification of satisfactory foundation conditions. It is the opinion of the Assessment Team, that the parties involved have exhibited great care in following procedures and performing the work in the best manner possible.

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

Quality Control, Documentation and Records - Training of MPQAD personnel continues in order to build-up sufficient numbers of knowledgeable inspectors. However, the need for inspectors has not resulted in "rubber stamping" certifications. This point is demonstrated by the fact that certification was denied one inspector who did not adequately document inspection documents to be used in his performance evaluation. This and other performance demonstrations were witnessed by the Assessment Team. The performance demonstrations were observed to be rigorous as to inspection details. The attention of supervisors to inspection hold points was clearly demonstrated on several occasions. Certification documentation reviewed was adequate and in accordance with procedures.

Non-Conformance Identification Reports

NIR #3 - Closed as a result of a CCo safety Analysis Report change prepared for submission to the NRC. The change describes the commitments to control the production testing of the couplers.

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

<u>NIR No.</u>	<u>Description</u>	(Opened)	<u>Date</u>	(Closed)
3	Coupler Testing Temperature	12/2/82		1/21/83
4	Welding Qualifi- cation Procedure	12/29/82		

L. T. Rowen
Project Engineer

A. S. Lucks
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 17, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Weh-ter</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl R. Bradford	W. Kilker	R. Sevo	G. Murray

1. W. Kilker advised that Project Engineering had responded to NIR #3. W. Kilker requested G. Murray or E. Cvikl obtain for him a copy of the proposed SAR change notice on interpretation of the ASME III code with respect to the coupler testing.
2. R. Bradford reminded R. Sevo that QA must issue a new letter on the qualifications of the jack calibration agency. (MPQAD is in the process of auditing and certifying the manufacturer/calibrator.)
3. E. Cvikl advised that the Bechtel concrete specialist requested to be advised of the first pier concrete placement so as to be on-site.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 18, 1983

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

1. E. Cvikl reported he had received a copy of the FSAR change notice on the code requirements for testing of the Fox-Howlett couplers. However, he needed a clarification prior to passing it on.
2. J. Fisher said that starting today, the subcontractor will not attempt to fill the space between lagging levels unless in the view of the Geotechnical Engineer a large enough void exists behind the lagging to initiate a backpacking operation.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 19, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	-----	-----
	E. Cviki	Paul Barry		
	D. Lavelle			
		<u>Parsons</u>		
		V. Madill		

1. W. Kilker advised that NIR #3 on Testing Temperature of Couplers is being closed-out based on the SAR change notice. (The notice describes the intent to design the underpinning structure in accordance with ACI 349 not to ASME III - 2.)
2. J. Fisher advised that the audit of the jack calibration agency is complete and QC is witnessing the calibration.
3. J. Fisher issued the notes of a step-by-step procedure prepared by Mergentime on excavating the pier bell.
4. The importance of maintaining a proper perspective with respect to backpacking was discussed. Attempting to backpack very narrow or spaces of limited spacial extent was not the intent of the procedure, nor is it considered necessary from the standpoint of a high quality installation. Backpacking will be used to prevent loss of ground and when in the opinion of the Geotechnical Engineer the trimming of the soil results in large void spaces.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 20, 1983

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

1. J. Fisher reported that a zone of clay along the north side of pier W12 at approximately E1573 had spalled into the excavation last night. The zone was approximately 6 ft. long 2 ft. high and up to 1½ ft. deep. The subcontractor was authorized to grout the void to maintain stability and was performing that procedure this morning.
2. The option of placing concrete only in the bell of pier W12, maybe selected if in excavating and preparing the bell the clay material appears somewhat unstable. J. Fisher will insure that QC can support that option, if selected.
3. Discussion of the need for the sign-out of a work permit for the load transfer work on pier W12 with held.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 21, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	P. Barry	-----	G. Murray
	R. Bradford	L. Rouea		
		<u>Parsons</u>		
		V. Madill		

1. J. Fisher stated that the work schedule would remain 2-10 hr. shifts 6 days a week during the excavation of the bell. Work over and above this scheduled will be performed as needed to stabilize the excavation if required.
2. R. Bradford stated that all material necessary to place concrete in the bell, if that option is used, is available now. Concrete can be ordered normally during the day, and arrangements have been made to have concrete delivered at night and on weekends if necessary with minimum of advanced notice.
3. The fabricators of the Fox-Howlett couplers in the fab shop are qualified splices. This will allow half of the coupler to be torqued at the fab shop.

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

January 18, 1983

J.O. NO. 14358
Ref. MFP 17

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
Midland Plant - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 17

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 17 for the period January 9, 1983 through January 15, 1983, is enclosed with this letter. Included, as an attachment, 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
ASL

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. 17

January 9, 1983 through January 15, 1983

Personnel on Site

Stone & Webster Engineering Corporation (SWEC)

W. Kilker	1/10 - 1/15
L. Rouen	1/10 - 1/14
A. Scott	1/10 - 1/15
S. Lucks	1/10 - 1/11

Parsons, Brinckerhoff, Quade and Douglas (PBQD)

J. Ratner	1/10 - 1/14
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
1/10 through 1/14	Stone & Webster Bechtel Consumers Power Parsons	Daily Meetings
1/14	Stone & Webster Bechtel Consumers Power	Weekly Soils Review

Activites

Construction - Pier W12 was excavated and lagged to E1 581. The excavated material consisted of a mixture of brown sand and clay fill above E1 586 and natural gray clay below E1 586. Perched groundwater entered the excavation near E1 586 at a rate of 50-60 gallons/day. The water was encountered on January 12 and as of January 15, the rate of flow had remained relatively constant. The water was controlled by sump pumping from the bottom of the excavation during periods when the hole was not being advanced. During the excavating operation the water was simply removed as part of the excavated material. Because the seeping water was creating "muddy" working conditions in the bottom of the pier excavation, the subcontractor devised a plastic pipe trough attached to the lagging near E1 585 to divert the water directly to a collection barrel rather than allowing the water to drain to and disturb the clay at the bottom.

The excavation was alternately excavated approximately 18 inches and lagged throughout the fill material. Below the elevation of the natural clay, the excavation was advanced approximately 3½ ft. prior to initiating lagging placement.

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

Backpacking of the lagging was done after the installation of each set in the fill and after installation of each spreader set (every 4th set) in the natural clay. The backpacking material was either the excavated brown fine sand fill or an imported medium grained sand.

The degree of backpacking required was minor since the excavated surfaces were being trimmed smooth and no collapsing of the soil was occurring. Excelsior was not used except near the southwest corner of the excavation, between E1 588 and 585 where the seepage of water between the lagging had begun to wash out a very minor quantity of fine sand. When the collection trough was installed a portion of the excelsior was removed and a cement grout packed into the lagging separation zone directly above the trough.

On January 14, a 4-6 inch thick concrete mud-mat was installed in the access pit and drift excavation of pier W12.

The access drift of pier E12 was advanced to completion - approximately 9 ft. under the outside edge of the turbine building. The excavation was mainly in lean mix concrete except for a wedge of clay fill along the west side. The concrete at the top of the drift was chipped away to the level of the turbine mat structural concrete, as determined by examination of core samples. Along the west side of the drift, the "stress relief" wedge was excavated in the clay fill just below the roof level. Clay fill soil was also encountered in the lower right corner of the face of the drift. This material was cut back on a flat slope commencing at the bottom of the face. No groundwater entered the drift excavation, although minor perched water continued to enter the sump in the adjacent access pit.

Quality Control, Documentation and Records -

1. Reviewed the qualification of the QC welding inspector performing the inspection of the pier W12 channel bracing.
2. Verified the proper implementation of the probing procedure for measuring groundwater at pier W12.
3. Reviewed the qualification records of the concrete batchplant inspector.
4. Witnessed the performance evaluation of a QC inspector by a Quality Assurance Engineer on the W12 drift excavation inspection plan.

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

5. Reviewed the completed QC Inspection Reports for the W12 pier excavation to date.
6. Reviewed two QC Inspection Reports on the fabrication of steel lagging.
7. Reviewed the QA "over-inspection" reports for the W12 drift and pier excavation for the last week of December and first 10 days of January.
8. Verified the development of strength vs time curves for the concrete mix designated for the W12 access pit and drift mud-mat.
9. Observed and inspected the mock-ups in the Poseyville storage area that will be used to aid in the performance evaluation of QC inspectors. The mock-up installations include an in-ground lagged pier excavation with reinforcing bars in-place, an above-ground pier bell with bracing and bottom reinforcing steel, and concrete anchor and anchor drill hole installations.
10. Witnessed the performance evaluation at the mock-up area of a QC inspector by a QA engineer on the pier lagging procedure.

Observations

Construction - The Team determined that the construction practices employed to advance the W12 pier excavation and the E12 access drift excavation were in compliance with the project documents.

On the W12 pier excavation, care was taken to accurately trim the soil, to maintain the overall verticality of the shaft, to control and remove perched water seepage and to minimize the movement of fines and fine sand into the excavation by the use of excelsior packing where required. The Team did observe that backpacking was difficult due to the narrow 1 inch spacing between lagging sets. The inspection of the effectiveness of the backpacking is also difficult. However, due to the care being exercised in trimming the excavation prior to installation of the lagging, this does not represent a problem.

On the E12 access drift, the contractor did a thorough investigation to determine the junction of the turbine mat structural concrete with mud-mat concrete.

J. O. NO. 14358
Midland Plant
Units 1 and 2
INdependent Assessment
Auxiliary Building Underpinning 4

Quality Control, Documentation and Records - The Team surveillance indicated the MPQAD organization has adequately performed and documented the inspections, training, qualifications and overview assessments.

In the opinion of the Assessment Team, the concept of partial training of the QC personnel at the mock-up area, is worthwhile. It not only results in a more efficient training schedule, but permits the QA examiner to test the ability of the QC inspector to detect "built-in" errors.

The Team advised MPQAD that although the Inspection Reports produced to date by the field personnel are in good order, the final sign-off of these documents by supervisory personnel should be accomplished more efficiently.

Non-Conformance Identification Reports

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

<u>NIR No.</u>	<u>Description</u>	<u>Date</u> (Opened)	(Closed)
3	Coupler Testing Temperature	12/2/82	*
4	Welding Qualifi- cation Procedure	12/29/82	

* A reply has been received and is being reviewed.

W. E. Keller
Project Engineer

A. S. Smith
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 10, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	L. Kettren	G. Murray
	E. Cvikl	A. Scott		
		A. Lucks		
		<u>Parsons</u>		
		J. Ratner		

1. L. Kettren reported that a list of shop drawings requiring Engineering approval has been compiled. Copies of the list were distributed.
2. W. Kilker said that J. Ratner discussed the backpacking of the west wall of the access drift lagging with M. Lewis (FSO) on January 8, 1983.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 11, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	A. Scott	D. Oliver	G. Murray
	E. Cvikl	J. Ratner		
	D. Lavelle	L. Rouen		

1. R. Oliver reported that MPQAD comments on completed access pit and drift installations are included on their documentation reports. D. Lavelle said construction will conduct a review for any possible improvements.
2. J. Fisher stated that MIOSHA had some observation based on their recent inspection of the construction improve barriers around access pits, modify hoist cable and protect floodlights.
3. The second shift for the West Pier will commence once bell level is reached - tentatively January 17, 1983.
4. E. Cvikl said Engineering is preparing to answer the Assessment Team NIR #3 on the testing temperature of couplers.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 12, 1983

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

1. E. Cvikl and J. Fisher described the conversation engineering had with NRC with respect to backpacking. Backpacking as stipulated in the procedures will continue to be adhered to.
2. R. Sevo reported that QA has established mock-ups of a lagged excavation, a pier bell and concrete bolt installation in order to conduct QC performance evaluation on certain of the Quality Control Plans.
3. D. Lavelle said engineering is conducting a review of drawings, specifications and procedures for piers E-W 9 and 11 to assure agreement between documents.
4. R. Wieland will verify requirements on resuscitators for inspection after work hours.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 13, 1983

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

1. W. Kilker and J. Ratner described the observation of January 12, 1983 concerning the difficulty of backpacking and inspecting the degree of backpacking with the present spacer size on the pier lagging. There was no concern over the quality of the lagging/backpacking work.
2. E. Cvikl reported that engineering is preparing the response to the team NIR #3.
3. L. Rouen questioned if the mud-mat placement in pier W12 would impact the NRC written on welding of the bracing channel. J. Fisher replied there would be no interference since the mat wouldn't come up to the level of the channel.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 14, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MFQAD</u>	<u>CPCo</u>
	J. Fisher E. Cvikl	L. Rouen A. Scott W. Kilker	-----	G. Murray
		<u>Parsons</u>		
		J. Ratner		

1. Mud-mat in W12 access drift will be placed at 5:00 PM today.
2. J. Fisher advised that pier excavation will begin to advance 42 inches in the clay prior to lagging installation.

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January 11, 1983

J.O. NO. 14358
Ref. MFP 16

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
Midland Plant - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 16

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 16 for the period January 2, 1983 through January 8, 1983, is enclosed with this letter. Included, as an attachment, 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

~~8302750427~~

JAN 17 1983

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

Weekly Report No. 16

January 2, 1983 through January 8, 1983

Personnel on Site

Stone & Webster Engineering Corporation (SWEC)

W. Kilker	1/5 - 1/8
L. Rouen	1/4 - 1/8
A. Scott	1/3 - 1/8

Parsons, Brinckerhoff, Quade and Douglas (PBQD)

J. Ratner	1/3 - 1/8
-----------	-----------

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
1/4 through 1/8	Stone & Webster Bechtel Consumers Power Parsons	Daily Meetings

Activities

Construction - Excavation and lagging of the 3 ft. x 6 ft. pier W12 was advanced approximately 5 ft. to El 595. The excavated material consisted of a mixture of sandy clay and fine sand fill. No groundwater was encountered. Five sets of metal lagging were installed including 2 sets of spreader lagging.

The pier E12 access drift was advanced to an average distance of 5 ft. under the turbine building. The face excavation was mainly in lean concrete with a wedge of soil in the lower right quadrant. The second steel set location was modified slightly to avoid interference between a tank sump foundation wall reinforcement bar and an anchor bolt. Very minor perched groundwater seepage continued to enter the access pit sump area.

Quality Control, Documentation and Records-

1. Witnessed the performance of the QC welding inspection for the bracing channel in the pier W12 drift. Reviewed the associated documentation.
2. Conferred with CPCo on the purpose and use of the computerized Soils Commitment Punchlist. The list is a tool used to assure all commitments to the NRC are tabulated, responsibility assigned, and items closed out as accomplished.
3. Tracked the progress of an observation by MPQAD of an inadequacy noted in the subcontractors procedure on welding.
4. Verified the issuing and use of concrete drill permit. for pier E12 lean concrete removal and anchor bolting.
5. Verified the QC inspection of torquing the bolts on a spreader set of lagging.

Observations

Construction - The Team found the construction practice employed to advance the respective pier and drift excavation to be satisfactory with the exception of backpacking a portion of the lagging on the west side of the E12 access drift between the first and second steel set. In this area void spaces of $\frac{1}{2}$ "-1" were encountered behind the lagging. However, the lagging was subsequently removed in order to reset the second steel set. After replacement, the backpacking was judged to be satisfactory. In general, the methods of excavating and lagging installation have been acceptable and in accordance with good industry practice.

Quality Control, Documentation and Records - The Quality Control methods surveyed were in accordance with the project procedures as were the issuance and use of the drill permits.

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 no longer listed have been closed-out during previous weeks.)

<u>NIR No.</u>	<u>Description</u>	<u>Date</u> (Opened)	(Closed)
3	Coupler Testing Temperature	12/2/82	
4	Welding Qualifi- cation Procedure	12/29/82	

W. S. Killeen
Project Engineer

Allen
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 3, 1983

No meeting was held on this date.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 4, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher E. Cvikl	A. Scott	None	None

Parsons

J. Ratner

1. List of shop drawings requiring Project Engineering approval as outlined in Item 1 of the December 30, 1982 Assessment Teams Meeting Notes. The forecast date was moved from January 3, 1983 to January 5, 1983.
2. Requested by J. Fisher to ask P. Parish if the comments on "Soil Stabilization" are still valid.
3. A. Scott asked if a concrete "mud-mat" for Pier W12 access shaft would be placed where lean concrete fill had been removed.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 5, 1983

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

1. A. Scott requested that Bechtel review the Coordination of "Hold" on the drawings regarding the access to piers 13 and 14 (East and West), from pier 12 access (East and West.) Drawing 1430 Rev. 3, shows a "Hold" in this area. Drawing 1427-4 does not indicate a "Hold" in the same area. J. Fisher stated he would look into this matter.
2. A. Scott requested that the Team be on the Uncontrolled Distribution List of design drawings. J. Fisher stated that he would put them on the Distribution List. J. Fisher requested that the Team update the list by use of the Bechtel Control Drawing.
3. J. Ratner stated he talked with P. Parish. The comments on MCP 28.000 are still valid.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 6, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	R. Bradford	A. Scott L. Rouen W. Kilker	L. Kettren	G. Murray

1. General discussion on aspects of pier W12 construction that have caused delays or problems (permits, drawing modification, inspection, etc.)
2. MPQAD will present update on QC training schedule at weekly soils meeting.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: January 7, 1983

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	F. Cvikl	W. Kilker	L. Kettren	G. Murray
	J. Fisher	A. Scott		
		J. Ratner		
		L. Rouen		


1. W. Kilker asked for verification of independent survey in W12 drift prior to initiating excavation of the pier. J. Fisher confirmed the survey had been completed.
2. J. Fisher requested that the subcontractor and Quality groups submit any comments as a result of work performed to date for incorporation into future revisions.
3. J. Fisher presented answers to Assessment Team questions on "Soil Stabilization, "MCP 28.000. J. Ratner will forward to P. Parish for verification of adequacy of responses.

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January 5, 1983

J.O. NO 14358
Ref. MFP 15

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
Midland Plant - UNITS 1 and 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 15

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 15 for the period December 26, 1982 through January 1, 1983, is enclosed with this letter. Included, as an attachment, 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. S. Lucks
by WSR

A. Stanley Lucks
Project Manager

Enclosures

ASL/ka

830225042

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

Weekly Report No. 15

December 26, 1982 through January 1, 1983

Personnel on Site

Stone & Webster Engineering Corporation (SWEC)

W. Kilker 12/27 - 12/30
L. Rouen 12/27 - 12/30

Parsons, Brinckerhoff, Quade and Douglas (PBQD)

P. Parish 12/28 - 12/30

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
12/27 through 12/30	Stone & Webster Bechtel Consumers Power Parsons (12-28/12-30)	Daily Meetings

Activities

Construction - The pier W12 drift excavation continued mainly through lean concrete and was advanced to completion, a total distance of approximately 9 ft. from the turbine building northwall. The second steel set was installed and drift lagging was placed along the east side where a zone of backfill soil formed the excavation surface. The quantity of perched groundwater entering the excavation has reduced to a trickle.

The pier E12 access pit has been completed and removal of the lean concrete and soil in the access drift was advanced an average of 2½ ft. Perched groundwater flowing into the excavation was minor and was controlled by sump pumping.

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

Quality Control, Documentation and Records -

1. Reviewed the Quality Control Documentation on the modification of the first steel set including certification of the inspector and identification marks of the structural members.
2. Verified the completion of Inspection Reports by MPQAD for the east access pits.

Observations

Construction - The construction of the piers W12 and E12 access pits and drifts has been advanced according to the project requirements. The contractor has maintained accurate survey control, groundwater has been efficiently collected and pumped from the excavation, concrete removal has been careful and deliberate, and the steel set and lagging installation were done in accordance with the project documents and good industry practice.

Quality Control, Documentation and Records - The documentation of the steel set modification was accomplished in accordance with project procedures. The final Inspection Reports on the access shaft had been properly completed.

Non-Conformance Identification Reports

NIR #4 - Issued December 29, 1982 - Project procedure on allowable variances in weld rod size and electrical current do not conform to AWS codes.

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

<u>NIR No.</u>	<u>Description</u>	(Opened)	<u>Date</u>	(Closed)
3	Coupler Testing Temperature		2/12/82	
4	Welding Qualifi- cation Procedure	12/29/82		

W. E. Keller
Project Engineer

A. S. Seckman
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 27, 1982

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	R. Bradford E. Cvikl	W. Kilker L. Rouen	L. Kettren	G. Murray

1. R. Bradford reported the first steel drift set installation was nearing completion and that the removal of concrete on pier W12 would now proceed.
2. E. Cvikl said the work on shop modification of the steel set was released by QC after field engineering had reviewed the shop drawing last Wednesday December 22, 1982.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 28, 1982

Attendees: Bechtel Stone/Webster MPQAD CPCo
R. Bradford W. Kilker L. Kettren G. Murray
E. Cvikl

Parsons

Pete Parish

1. Discussion of engineering and QC interpretation of "construction aids." ON-going discussions with respect to what level of "construction aids" are required on drawings.
2. L. Kettren described the on-going process of QC certification. The excavation in concrete has had only minor impacts on progress of certification.

INDEPENDENT ASSESSMENT TEAM MEETING WITH Bechtel

Date: December 29, 1982

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	R. Bradford E. Cvikl	W. Kilker L. Rouen	R. Oliver	G. Murray
		<u>Parsons</u>		
		P. Parish		

1. R. Oliver reported that MPQAD and FSO have met with respect to resolving issue of defining what is considered a "construction aid" and therefore not required to be shown on a drawing. A procedure will likely be developed to target the responsibility for decision making and possibly field markings, will be used to distinguish "construction aids" from structural members.
2. L. Rouen inquired as to who is responsible for tracking the Commitment Punchlist and how the procedure works. G. Murray said SMO uses the list constantly, but that it is developed in CPCo (Jackson.)
3. W. Kilker reminded R. Bradford that P. Parish questions from October on MCP 18, Ground Stabilization, had not been addressed. R. Bradford will take action.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 30, 1982

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

Parsons

P. Parish

1. J. Fisher is looking into need for lagging against excavated surfaces in concrete. Will verify.
2. R. Bradford said MCP 18 on soil stabilization is now in Rev 5. The questions by P. Parish were based on Rev 3. W. Kilker will verify to see if all questions apply. Will notify R. Bradford.
3. J. Fisher & R. Sevo discussed need for jack calibration certification. MPQAD is going to vendor laboratory early in January for auditing and performance testing.
4. R. Sevo reminded E. Cvikl that when pier loading procedure is implemented, engineering must support QC in the effort.

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December 28, 1982

J.O. NO. 14358
Ref. MFP 14

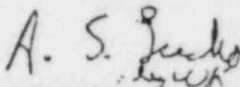
Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
Midland Plant - UNITS 1 AND 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 14

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 14 for the period December 19 through December 25, 1982, is enclosed with this letter. Included, as an attachment, 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 during the week.

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

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8302250414

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

Weekly Report No. 14

December 19 through December 25, 1982

Personnel on Site

Stone & Webster Engineering Corporation (SWEC)

B. Holsinger	12/20 - 12/23
W. Kilker	12/21 - 12/22
A. Scott	12/20 - 12/21

Parsons, Brinckerhoff, Quade and Douglas (PBQD)

J. Ratner	12/21 - 12/22
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
12/20 through 12/23	Stone & Webster Bechtel Consumers Power Parsons (12-21/12-22)	Daily Meeting
12/21	Stone & Webster Consumers Power (MPQAD) NRC Parsons	Discussion of assess- ment Team activities and MPQAD role in implementation of underpinning design
12/21	Stone & Webster Bechtel Consumers Power NRC	Discussion of require- ments for vibration of concrete in pier bells, update on settlement monitoring data, and NRC restriction on non - auxiliary build- ing underpinning activi- ties.

Activities

Construction - The advancement of the pier W12 drift excavation was restricted to removing approximately 1 foot of concrete at the toe of the face to about 4 ft. at the top of the drift.

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

The concrete was removed by initially advancing 2 inch diameter drill holes space at 1 ft. - 1½ ft. centers to a depth of 1 ft. - 2 ft. and subsequently a hydraulic rock splitter was utilized to dislodge the concrete.

Minor quantities of perched groundwater entered the excavation in the north-east corner of the pier W12 access drift along a narrow band of soil between the access pit lagging and the lean concrete encountered under the turbine building. The seepage was not sufficient to cause instability or loss of ground in the soil mass. The water was controlled by directing it to a sump hole in the access pit and then removed by pumping.

Construction was initiated on the pier E12 access pit. The 6 ft. x 8 ft. pit was excavated from E1 609½ to E1 601. Lagging, similiar to that used in the pier W12 access pit, was installed on three sides of the pit as the excavation progressed. A formed vertical face of concrete was encountered on the south side of the pit immediately under the turbine building foundation mass. Once the pit reached E1 601 lagging boards were also installed on the south face. Backpacking and excelsior placement procedures were similar to those employed to complete the pier W12 access pit.

Minor perched groundwater seepage, estimated at less than 0.1 gpm, entered the pit between the lower levels of the east side lagging. A sump hole was dug in the pit to collect the seepage and the water was then pumped out.

Quality Control, Documentation and Records -

1. Observed the methodology of proficiency testing of the Quality Control Inspectors by the QA engineers on the access pit and drift excavation/lagging and anchor bolt installations.
2. Reviewed Quality Control Instructions on excavation/lagging, field fabrication of miscellaneous items for lagging, miscellaneous steel and steel sets.

Observations

Construction - The removal of the mass lean concrete in the W12 pier access rift proceeded according to project requirements. Perched groundwater seepage was properly controlled. Careful observations were maintained by the contractors of the stability of a narrow band of soil between the access pit and lean concrete mass.

Quality Control, Documentation and Records -

The Assessment Team considered the QA methodology of proficiency training of inspectors to date to be quite adequate. An addition, the quality inspector procedures reviewed by the team will, (when implemented) assure adequate control of the activity.

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 no longer listed have been closed-out during previous weeks.)

<u>NIR NO.</u>	<u>Description</u>	(Open)	<u>Date</u>	(Closed)
3	Coupler Testing Temperature		12/14/82	

W E Kilber
Project Engineer

A. S. Zwick
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 20, 1982

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	A. Scott	L. Kettren	R. Weiland
	E. Cvikl	B. Holsinger		

1. J. Fisher mentioned visit of the NRC with Assessment Team on December 21, 1982.
2. B. Holsinger discussed concerns with stainless steel to carbon steel welding qualification procedure.
3. J. Fisher mentioned that Bechtel would have a daily 4:30 PM meeting between Bechtel and Mergentine to clear up problems of the day & prepared for next day work.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 21, 1982

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	R. Bradford	W. Kilker A. Scott B. Holsinger	-----	-----

1. A. Scott requested that R. Bradford expedite the team request for Mergentime prints.
2. A. Scott requested results of recent tests on the "mud-mat" mix.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 22, 1982

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	R. Bradford	W. Kilker	-----	-----
	E. Cvikl	B. Holsinger		
		<u>Parsons</u>		
		J. Ratner		

1. J. Ratner asked two questions on which E. Cvikl referred him to M. Lewis for clarification.
 - A. Does 2 ft. of groundwater level below excavation restriction apply in the present access pit advancement.
 - B. Can the top of the drift advance more than 9" beyond the 1st drift set even though the work is in the concrete.
2. B. Holsinger advised that an NIR will be issued on a procedure vs AWS code conflict on stainless to carbon steel welding.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 23, 1982

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	R. Bradford E. Cvikl	B. Holsinger	S. Jagdish	G. Murray

1. G. Murray advised that the NRC will continue to require a one-week lag-time between piers W12 and E12 once the concrete removal is complete. CPCo will issue a memorandum.
2. E. Cvikl noted that if Bechtel's action is required on any of the Assessment Team issued NIR's, MPQAD or SMO should see to it they receive a copy at the earliest possible date.
3. B. Holsinger observed that in his opinion the Soils Remedial/MPQAD group is now functioning better organizationally than upon his arrival on-site in September 1982.
4. M. Lewis has answered the two questions of J. Ratner (see notes of December 22, 1982.)
 - A. Groundwater encountered in pit is perched and does not need to be maintained 2 ft. below working level.
 - B. The top of the drift can be advanced to the location of the next drift set but the bottom can only go 9 inches beyond the first drift set location.

STONE AND WEBSTER ENGINEERING CORPORATION
NONCONFORMANCE IDENTIFICATION REPORT

DATE OF NONCONFORMANCE: December 28, 1982 NIR Number 4

IDENTIFICATION/LOCATION OF ITEMS: Mergentime procedure on welding (MCP 19.000, Rev 6) - qualification restrictions on stainless steel to carbon steel welding. (Refer to Attachment E - MCP 19.)

DESCRIPTION OF NONCONFORMANCE: The project procedure permits electrode weld wire sizes that exceed the size used in the qualification process - in this case 1/8 inch and 5/32 inch diameter. The AWS D1.1 (1972-74) standard restricts the use of electrode sizes only to those sizes qualified by demonstration (Refers to pgs 25 and 26-29 of MCP 19). In addition, the procedure allowables on amperage and voltage exceed the qualification level by more than the 15% variance stipulated in AWS D1.1 (Refer to pgs 25 and 26-29 of MCP 19).

INITIATOR: <u>Barry L. Holsinger</u> <i>by KTR</i>	DATE: <u>12-21-82</u>	PROJECT MANAGEMENT CONCURRENCE: <u>A. S. Zwick</u>
--	--------------------------	---

CORRECTIVE ACTION BY:
(IDENTIFY ORGANIZATION TAKING CORRECTIVE ACTION)

INITIATOR CONCURRENCE:	PROJECT MANAGEMENT CONCURRENCE:	DATE:
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STONE & WEBSTER ENGINEERING CORPORATION



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December 20, 1982

J.O. No. 14358
Ref. MFP 13

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
Midland Plant - UNITS 1 AND 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 13

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 13 for the period December 12 through December 16, 1982, is enclosed with this letter. Included, as an attachment, 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 during the week.

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

A Stanley Luck's

A. Stanley Luck's
Project Manager

Enclosures

ASL/ka

8302040344

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

Weekly Report No. 13

December 12 through December 18, 1982

Personnel on Site

Stone & Webster Engineering Corporation (SWEC)

B. Holsinger	12/15 - 12/18
W. Kilker	12/13 - 12/17
L. Rouen	12/13 - 12/16
A. Scott	12/13 - 12/18

Parsons, Brinckerhoff Quade and Douglas (PBQD)

J. Ratner	12/13 - 12/17
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Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
12/13 through 12/17	Stone & Webster Bechtel Consumers Power Parsons (12-16/12-17)	Daily Meeting
12/17	Stone & Webster Bechtel Mergentime Consumers Power	Weekly Soils Review

Activities

Construction - Assessment Team Members observed the soil excavation and lagging installation in the pier W 12 access pit commencing at El 609 and extending down to approximate El 600. The excavated soils varied from a brown sand in the upper 2 ft. - 3 ft. to a mixture of gray sandy clay and brown sand in the bottom 6 ft. - 7 ft. A minor quantity of perched water was encountered in the upper portion of the excavation. A concrete "mud mat" extending out from the turbine building wall was removed by chipping and 2 electrical grounding cables encountered in the pit area were rerouted to the perimeter of the lagged pit.

The installed lagging consisted of 8 levels of 4" x 12" wood planking separated by 2" spacers. Granular excavated material was backpacked where required and excelsior was placed between the lagging boards.

A wooden yoke was placed at the face of the access drift to the pier followed by removal of the lagging from that face. Within a few inches of excavating into the drift, a formed vertical face of concrete was encountered, encompassing nearly the entire face of the drift.

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Using a hydraulic rock splitter to dislodge the concrete, the contractor advanced approximately 1.5 ft.

Quality Control, Documentation, and Records - Surveillances were made of the following item and activities:

1. Insurance and use of work permits, drill permits for concrete removal, work authorization for steel fabrication and confined entry safety permits.
2. Update plots of the settlement monitoring data.
3. Use of controlled copies and latest approved revisions of relevant procedures and drawings.
4. Training of QC inspectors and performance testing in excavation/lagging and steel fabrication.
5. Survey documentation including independent survey records.

Observations

Construction - The workmanship involved in construction of the access pit meets the requirements of the project documents. The contractor limited the excavating to less than 18 inches below the previously installed level of lagging. Care was taken in shaving the vertical faces of soil to insure a good fit for the lagging. Jacks were used to temporarily hold the lagging as each level was installed. Backpacking was done, where required, as the excavation progressed.

For each of the upper levels of lagging, excelsior was placed prior to excavating for the next level. The Assessment Team recommended to the contractor that unless groundwater is seeping into the area, the excelsior placement be delayed somewhat to allow better access to the soil behind the lagging, in case the soil tended to unravel as the excavation progressed. Observation of the subsequent work indicated that the soil was remaining in place.

Quality Control, Documentation, and Records - The Assessment Team found that the contractor had obtained the required work and safety permits. Records of the previous week's settlement monitoring data had been updated and plotted. Records were verified showing that a location survey had been done and checked by an independent surveyor.

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The surveillance indicated that the drawing and procedures being used by the contractor in the field were "controlled" copies that had been fully signed-out and were the latest revisions containing all change notices.

The team was satisfied with the QC training being conducted. Quality assurance engineers were performing full-time inspection of all activities - in this case the excavating/lagging and some shop modification to a steel drift set. In addition to the actual inspection work, the QA engineer was training a Quality Control Inspector on the respective procedure. The "on site" training culminated in performance evaluations of the QC inspectors.

Non-Conformance Identification Reports

NIR #2 - Closed as a result of a response by CPCo on December 8, 1982 notifying the team of the updating of the drawings at the MPQAD document control stations. Subsequently, a team member verified the incorporation of the previously missing drawings.

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

<u>NIR NO.</u>	<u>Description</u>	<u>Date</u>	
		(Open)	(Closed)
2	Document Control Surveillance	10/29/82	12/14/82
3	Coupler Testing Temperature	12/14/82	

W.E. Kellner
 Project Engineer

L.S. [Signature]
 Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 13, 1982

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	L. Kettren	G. Murray
	E. Cvikl	A. Scott		
		L. Rouen		

1. J. Fisher reported that the work permit was signed and work was underway.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 14, 1982

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	L. Kettren	G. Murray
	E. Cvikl	A. Scott		
		L. Rouen		

1. J. Fisher reported that work on the access pit stopped on Monday PM after a "mud mat" was encountered protruding 6" - 12" out from the turbine building wall into the pit. A concrete removal permit has been issued to allow removal of the mat today.
2. G. Murray advised that additional monitoring gauges are proposed for the FIVP and that conduit runs should proceed into the access shaft as soon as permission from the NRC is obtained.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 15, 1982

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

1. J. Ratner stated that, in his view, the initial backpacking was relying too much on the placement of excelsior but that the methodology had now been modified to increase the use of excavated material to fill in behind the lagging.
2. W. Kilker confirmed that to date (EL605) the work in the view of the assessment team has been performed according to the plans & procedures.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 16, 1982

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	J. Fisher	W. Kilker	L. Kettren	G. Murray
	E. Cvikl	A. Scott		R. Wheeler
		<u>Parsons</u>		
		J. Ratner		

1. W. Kilker advised that the assessment team had no technical concerns about the work performed to date. A. Scott inquired as to the state of the steel set needed to start the drift to pier W 12.
2. J. Fisher described need to modify first steel set because of turbine building mat extending to El 607.3 ft. not El 608 ft. as anticipated.
3. J. Fisher reminded QA/QC of the FIVP load verification requirement.
4. R. Wheeler said that the QA training of the QC personnel in "performance" on Pier W 12 will serve to qualify sufficient personnel for pier E 12.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 17, 1982

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	R. Bradford E. Cvikl	W. Kilker A. Scott	L. Kettren	K. Razdan
		<u>Parsons</u>		
		J. Ratner		

1. W. Kilker described the team activities - evaluation of QA/QC inspection within the pit and at the fabrication yard, surveillance of the construction activities. The team was satisfied with the activities performed.
2. L. Kettren reported that QC was covering the fabrication change of the first steel set.

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Weekly Report No. 12

December 5 through December 11, 1982

Personnel on Site

Stone & Webster Engineering Corporation (SWEC)

A. B. Scott	12/6 - 12/10
W. Kilker	12/6 - 12/10

Activities

Reviewed and where necessary, updated status of drawings, procedures and specifications on file.

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
12/7 through 12/10	Stone & Webster Bechtel Consumers Power	Daily Meeting
12/6	Stone & Webster Bechtel Consumers Power Mergentime	Pier 12 request for Authorization Letter
12/10	Stone & Webster Bechtel Mergentime Consumers Power	Weekly Soils Review

Observations

On December 9, 1982 the NRC released the work activities for piers E/W 12. Work is expected to commence on W 12 and E 12 on December 13 and 20, respectively.

Non-Conformance Identification Report

NIR No. #3 - Issued December 8, 1982 - Project requirements for testing temperature of tapered threaded connectors does not conform to ASME III, Division 2 requirements.

Status of previous issues:

<u>NIR No.</u>	<u>Description</u>	<u>(OPEN)</u>	<u>Date</u>	<u>(CLOSED)</u>
1	Mechanical Splicing Procedure	10/21/82		12/8/82
2	Document Control Surveillance	10/29/82		

W E Kelher
Project Engineer

A. S. Jacks *in USA*
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 6, 1982

No meeting this date at the request of Bechtel Corporation.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 7, 1982

Attendees:

SWEC

W. Kilker
A. Scott

Bechtel

E. Cvikl
J. Fisher

MPQAD

L. Kettrom

1. Full review of outstanding pier 12 items completed yesterday. CFCo letter to go to NRC today.
2. J. Fisher asked if SWEC/PBQD can support present plan to start work on 12/13/82. W. Kilker replied that assessment team will support any schedule that is set for the remedial work.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 8, 1982

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>
	J. Fisher	W. Kilker	L. Kettren
	E. Cvikl	A. Scott	R. Wieland

1. R. Wieland agreed to verify the status of the two outstanding SWEC NIR'S.
2. Assessement team is issuing NIR #3 concerning level of temperature testing of Fox Howlett couplers. At issue is ASME code requirements verses project procedure requirements.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 9, 1982

Attendees:

SWEC

W. Kilker
A. Scott

CPCo

R. Wieland

MPQAD

L. Kettren

Bechtel

J. Fisher
E. Cvikl

1. W. Kilker advised that NIR #1 and #2 replies had been recieved and will be closed out.
2. NIR #3 was issued on 12/8/82.'
3. Assessment team is updating it's files on Specifications, Procedures and Drawings.

INDEPENDENT ASSESSMENT MEETING WITH BECHTEL

Date: December 10, 1982

Attendees:	<u>Bechtel</u>	<u>Stone/Webster</u>	<u>MPQAD</u>	<u>CPCo</u>
	E. Cvikl	W. Kilker	L. Kettren	R. Wieland
	J. Fisher	A. Scott		

1. J. Fisher advised that the NRC letter on work authorization was received. Bechtel will start work when a work permit from CPCo is sent. Tentatively set for December 13, 1982.
2. Use of the confined entry space permit was reviewed.
3. W. Kilker inquired as to what resulted from the settlement presentation to the NRC regarding monitored building movements. J. Fisher and E. Cvikl replied that no written opinion had been expressed by the NRC but that data is constantly updated and available.

STONE & WEBSTER ENGINEERING CORPORATION

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Midland Site Resident Inspection Office
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Midland, MI 48640

December 7, 1982

J.O. No. 14358
Ref. MFP 11

Attention Mr. R. Cook

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 AND 2
INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
REPORT NO. 11

A copy of the Independent Assessment of the Auxiliary Building Underpinning Weekly Report No. 11 for the period November 28 through December 4, 1982, is enclosed with this letter. Included, as an attachment, are the minutes of the daily meetings held between members of the Assessment Team and Site Engineering, Construction and Quality Assurance personnel during the week.

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

A S Lucks
A. Stanley Lucks
Project Manager

Enclosures

ASL/nb

PRINCIPAL STAFF		
RA		
D/RA		
A/RA		
DPRP		
D/PROS		
DESTP		
ML		
OL	FILE	

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Midland Plant
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Auxiliary Building Underpinning

Weekly Report No. 11

November 28 through December 4, 1982

Personnel on Site

Stone & Webster Engineering Corporation (SWEC)

A. B. Scott 12/1 - 12/3

Parsons, Brinckerhoff, Quade & Douglas (PBQD)

J. Ratner 11/29 - 12/3

Activities

Observed the results of a bell mock-up concrete pour done on November 23, 1982, at the Poseyville Storage Yard.

Reviewed the latest revision of the Auxiliary Building and FIVP Underpinning specification.

Meetings Attended

<u>Date</u>	<u>Represented</u>	<u>Purpose</u>
11/30 through 12/02	Stone & Webster(12/1-12/2) Bechtel Parsons, Brinckerhoff, Quade & Douglas(11/30-12/1) Consumers Power	Daily Meeting
12/2	Stone & Webster Bechtel Parsons, Brinckerhoff Quade & Douglas Consumers Power Mergentime	Update on items requiring resolutions to start construction-- Specification, Procedures, PQCI's, and QC Training
12/3	Stone & Webster Bechtel Parsons, Brinckerhoff Quade & Douglas Mergentime Consumers Power	Weekly Soils Review

Observations

The concreted mock-up of a belled pier showed no significant voids or evidence of separation between fine and course aggregates.

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Non-Conformance Identification Report

No new issues.

Status of previous issues:

<u>NIR No.</u>	<u>Date</u>	<u>Status</u>
1	10/21/82	Open
2	10/29/82	Open

W E Keller
Project Engineer

A S Brando WSK
Project Manager

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: November 29, 1982

No Meeting held this date. No representatives from Stone & Webster or Parsons Brinckerhoff present on site at meeting time.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: November 30, 1982

Attendees:

<u>PEQD</u>	<u>Bechtel</u>	<u>CPCo</u>	<u>MPQAD</u>
J. Ratner	J. Fisher E. Cvikl	R. Weiland	L. Kettren

1. Fisher stated that the letter to the NRC from CPCo notifying the agency that CPCo is ready to start work may be transmitted to NRC early part of next week, at the earliest.
2. Upon approval to start work, contractor will start both East and West number 12 Piers on a single shift basis.
3. Contractor will start bringing material to work areas after letter to NRC requesting permission to start is sent.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 1, 1982

Attendees:

<u>FBQD</u>	<u>CPCO</u>	<u>Bechtel</u>	<u>MPQAD</u>
J. Ratner	R. Weiland	J. Fisher E. Cvikl D. Lavelle	L. Kettren

1. J. Fisher stated that they are proceeding on schedule to complete their review in order that CPCo can advise the MRC on Monday, December 6, 1982, that the underpinning work is ready to be started.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 2, 1982

Attendees:

<u>SWEC</u>	<u>PBQD</u>	<u>CPCO</u>	<u>Bechtel</u>
A. Scott	J. Ratner	R. Weiland	J. Fisher E. Cvikl D. Lavelle

1. J. Fisher stated that CPCo is continuing on schedule to send letter to NRC requesting permission to start underpinning. Tentative schedule:
 - a. Send Letter to NRC Monday, December 6, 1982.
 - b. NRC to come to site Wednesday, December 8, 1982, to review CPCo.
 - c. Start work pier 12 Monday, December 13, 1982.
2. Bechtel will test mud mat mix with a higher temperature water (but no accelerator) in order to attempt to reduce time to obtain 300 psi.
3. J. Fisher will find out the Holiday schedule for working during the Christmas and New Year holidays.

INDEPENDENT ASSESSMENT TEAM MEETING WITH BECHTEL

Date: December 3, 1982

No meeting was held this date. Meeting cancelled by Bechtel Corporation.