

# STONE & WEBSTER ENGINEERING CORPORATION



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

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 18, 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 Lucke  
Project Manager

Enclosures

ASL/ka

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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. Sankar*  
 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. Ketoren	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	W. Kilker	L. Kettren	G. Murray
	E. Cvikl			

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	W. Kilker	L. Kettren	K. Razdan
	E. Cvikl	A. Scott		
		<u>Persons</u>		
		J. Retner		

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.