

CRACK MAPPING MONITORING STATUS

<u>DATE</u>	<u>ITEM</u>	<u>CORRECTIVE ACTION</u>	<u>SCHEDULED RESOLUTION DATE</u>
10-31-83	Delay in WJE identifying alert level to RSE	QAR RS-00051 issued 10-31-83. Procedure revised, information put on printed form, and training of WJE personnel	11-29-83 closed
11-4-83	<i>sdw</i> NIR #16 issued- WJE procedure not conforming to specification	QAR RS-00061 issued 11-9-83. WJE procedure not conforming to specification while work activities performed Procedures revised to bring procedure in compliance with specification	11-23-83
11-7-83	<i>MPGAD</i> Review of crack mapping process indicated that QC/QA inspections and overview were <u>incomplete</u> for crack mapping	Complete QC Inspections Initiate QA over inspections Review procedure and PQCI to determine corrective action required such as: a. time restraint b. receipt of documents c. formal notification when mapping is requested Review all other PQCIs for similar problems with SCM-1.0	? 11-29-83 11-21-83

<u>DATE</u>	<u>ITEM</u>	<u>CORRECTIVE ACTION</u>	<u>SCHEDULED RESOLUTION DATE</u>
11-09-83	Initiate inspection process of crack mapping to bring up to date.		
11-10-83	Ross @ Public Meeting		
11-11-83	Meeting with QA, QC, Resident Engineering, SMO to resolve crack mapping issues - discuss steps to be taken to resolve immediate issue and preclude recurrence.	Crack Mapping Action Item List issued to assign responsibilities. 12 items	
11-14-83	Reorganize QC Yard Group	Instructed QC inspection staff on the importance of crack mapping monitoring and the need to maintain inspection close to mapping time	11-14-83
		QC Yard Group Supervisor to be replaced	11-23-83
		Rad Bennett replaced with Russian	

<u>DATE</u>	<u>ITEM</u>	<u>CORRECTIVE ACTION</u>	<u>SCHEDULED RESOLUTION DATE</u>
11-17-83	NIR #18 issued-Wall not properly marked	QAR RS-00069 issued for for walls not marked properly (Removal of "grafitti" removed crack mapping marks)	
	WJE procedures for crack mapping and SCN 13007 issued for review		
11-21-83	PQCI revision initiated for process controls and procedure revisions		12-1-83
11-22-83	Meeting CPCo, Soils Management, Resident Engineering, SMO, MPQAD Soils and Stone and Webster	Provide updated status of corrective action	
	Coordinated logging system for checking WJE mapping submittals to RSE and MPQAD Soils and establish completion dates	Complete MPQAD log and check status with RSE, log of crackmapping	11-29-83
11-23-83	NIR #19 issued-Lack of QA/QC inspection	QAR RS-00077 issued 11-29-83 lack of QA overinspection All other previous corrective action noted for QC corrective action.	

<u>DATE</u>	<u>ITEM</u>	<u>CORRECTIVE ACTION</u>	<u>SCHEDULED RESOLUTION DATE</u>
11-28-83	^{NEW} WJE Site Engineering Lead brought on site full time	Site Engineering Lead assigned full time to review monitoring activities and all data.	T
11-29-83	QC completed all inspections for WJE mapping through October 1983	57 NCRs and 3 QARs issued by QC. Evaluate and resolve the nonconforming conditions.	
11-30-83	Prepare draft revision WJE crack mapping procedures and specification change notice	Revision of WJE crack mapping procedures to correct other deficiencies and NCR trend problems identified by NPQAD Soils.	1 of 2

8/1/84

Work package 59 reopened after
I reviewed it

{ grillage acceptance criteria }

1. 20% strain

2. settlement of building

Turbine
10 mils / 48 hr
EPA
10 mils / 24 hrs

3. act of distortion

Dec. 8 S&W Public Meeting

CIO

#23, p.4, what are monitors? No Answer
from anyone

SOILS

1ST ^{S&W} (STAN)
ACTION

ITEMS FROM LAST MONTH P.12
of report

1. 59-17 Carlsons (Form removal)
2. FCR/FWR Review 208/856 problems

2ND STATUS OF WHAT HAPPENED (WAYNE)

- evack mapping
- work activity packages
- review old reports 1-29[†]

• FER/FUN STOP WORK

3RD SDW REPORT (BILL CRAIG) 3RD ACTION ITEMS
IN REPORT MARKS

v'at about BOP for 1 & 2 recommendations

{ where was MPQAD
{ Rebuttal on Stan

4TH Action Items from last month, CRO's

1. U.S. Testing is improving

Time to do my own audit.

2. Truck Drum Rotation

3. lessons learned from aux to SWPS
by Jan 30th 84 will be
completed

4. QC inspection of non-^{structural} welding

only for Jack stands tack welds
to hold them in place

5. CRACK MAPPING

Delays, Spec Procedure discrepancies

Level 3

all on level 1 now
CHECK on site

where was ^{general} audit function [2 YRS]
NO.

Reports

59-17 open NCR's on W8
11-3-83 opened

They only have concepts in them,
who cares.

Work package 59 reopened after
I reviewed it

[grillage acceptance criteria]

1. 20% strain

2. settlement of building ^{Turbine} 10mils / 48hr
_{EPA} 10mils / 24hrs

3. act of distortion

11-30-83 phone call ^{Jim} Moneys, Wheeler, Ron, Bruce

crack issue

① JIM BOB lot of worms, can't get ^{all} back into can (JIM BOB)

② discussed fax.

My Bottom line

- (A) are all buildings mapped up to date - will be it
- (B) has there been an engineering analysis - will be it

their bottom line

③ WS procedures revised & issued

spec " "

PACI " "

closed ^{at} NCR

evaluate QAR

will not start work until all completed.



**Consumers
Power
Company**

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0774

J A Mooney
Executive Manager
Midland Project Office

December 2, 1983

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ENF	File

Mr J J Harrison
Midland Project Section
U S Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND ENERGY CENTER GWO 7020
CRACK MAPPING MONITORING STATUS
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-7057

On November 30, 1983, CPCo provided Region III with an update relative to crack mapping monitoring status. The attached chronology entitled Crack Mapping Status was used to explain the various significant actions/events associated with crack monitoring.

Prior to resuming soils work the following actions will be completed:

1. WJE procedures will be revised and reissued.
2. The specification will be revised and issued.
3. The PQCI's will be revised and issued.
4. The 57 NCR's will be closed.
5. The 3 QAR's will be resolved.

If you require any further information please advise our Mr. R. M. Wheeler.

J Mooney

JAM/RMW/klw

Attachment

†

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DEC 7 1983

CRACK MAPPING MONITORING STATUS

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November 22, 1983

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J A Mooney
Executive Manager
Midland Project Office

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D/RA		DE
A/RA		DRMSP
✓ RC	<i>lan</i>	DRMA
PAO		SCS ✓
SGA		ML
File		File <i>lan</i>

orig + 3

MIDLAND ENERGY CENTER GWO 7020
WORK AUTHORIZATION PROCEDURE
FILE: 048516 UFI: 42*05*22*04,12*32 SERIAL: CSC-7027

This letter documents the November 16, 1983 phone conversation between R. Wheeler of CPCo and Dr. R. Landsman of NRC Region III. As part of the work package for Activities 165054045 and 155054045 (Piers CT1 & CT12), Dr. Landsman reviewed the soil stabilization grouting plan for the control tower area. Therefore, CPCo may proceed with the soil stabilization as required for both piers CT1/12 and the remainder of the control tower. The sequencing of this grouting will be done for the convenience of construction, but at no time will drifts in this area proceed in unstabilized soil that has not been approved by the RGE. Actual pier and drift excavations for piers beyond CT1/12 will be authorized by Region III in accordance with the Work Authorization Procedure. Dr. Landsman concurred with the authorization of the soil stabilization under the previously authorized activities.

JAMooney

JAM/RHW/pl

-f

~~892090132~~

DEC 5 1983



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 WASHINGTON, D. C. 20555

November 21, 1983

Principal Staff	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Docket Nos: 50-329 OM, OL
 and 50-330 OM, OL

MEMORANDUM FOR: The Atomic Safety and Licensing Board for
 the Midland Plant, Units 1 and 2

FROM: Thomas M. Novak, Assistant Director
 for Licensing
 Division of Licensing

SUBJECT: BOARD NOTIFICATION REGARDING MIDLAND AUXILIARY
 BUILDING UNDERPINNING (BN 83-174)

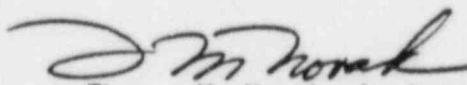
This Notification is provided in accordance with NRC procedures regarding Board Notifications and is deemed to provide new information material and relevant to safety issues in the OM-OL proceeding. On September 14 and 15, 1983, the NRC and its consultants audited revised calculations for the design adequacy of the Midland Auxiliary Building reflecting the results of an underpinning pier load test. The test results had indicated that the soil modulus for the base of the underpinning should be 1500 KSF rather than the 3000 KSF used in the original analysis; thus, Bechtel revised its structural analysis using $\frac{1}{2}$ " of settlement rather than $\frac{1}{4}$ ". The audit meeting was summarized by R. Warnick's letter of October 5, 1983, and copies were provided to the ASLB and hearing parties. During the course of this audit, the NRC received additional information which calls into question the validity of the assumptions upon which the staff's acceptance of the underpinning design was based. The additional information is reflected in paragraphs d, e and g of R. W. Warnick's memorandum of October 11, 1983 (Enclosure 1). The information concerns (1) the manner in which differential settlement has been applied in the applicant's structural stress calculations, (2) the absence of limits for upward movement of the structure during jacking operations, (3) the acceptability of the actual measured upward movement due to jacking, and (4) the extent to which settlement stresses can be jacked out of the completed structure.

Paragraph d of Enclosure 1 notes that the stress calculations for $\frac{1}{2}$ " of differential settlement at the southern edge of the Control Tower results from a settlement gradient that begins at the center of the main Auxiliary Building, rather than a point at the northern edge of the Control Tower. Application of the $\frac{1}{2}$ " gradient over this longer distance is inconsistent and non conservative with respect to the prior review performed by the staff which led to acceptance of the $\frac{1}{4}$ " differential settlement in Supplement 2 to the SER, page 2-40. The staff is presently evaluating the effects of this recent information and believes a solution can be reached by establishing a future differential settlement limit in the Technical Specifications that will be based on field monitoring records. The limit to be established will assure the integrity of the involved structures.

~~8311010021~~

Paragraphs e and g of Enclosure 1 call into question 1) what should be the upward movements of the structures during jacking operations and 2) whether or not the stresses due to settlements prior to and during underpinning construction can be completely jacked out of the completed structure. With respect to the upward movements, the staff understands that the east EPA has been jacked to 91 mils of upward movement and the west EPA has been jacked to 70 mils. Upward movement in excess of 30 mils has not been reviewed by the staff. On the issue of stresses due to settlement, and underpinning operations, the allowable jacking loads are limited by a concern for redistribution of stresses following upward movement of the structures. The applicant's analysis, relied upon by the staff, assumed no significant residual stress due to earlier settlements for the completed underpinned structure and, therefore, may not be sufficiently conservative. We understand that Region III has verbally imposed a hold on further jacking in excess of that previously reviewed by the NRC staff pending establishment of allowable jacking limits.

The issues associated with this and other information from the September design audit are presently being reviewed by NRR in accordance with R. Warnick's request by Enclosure 1. The staff's response to Enclosure 1, once available, will be provided to the Board.



Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing

Attachment:

R. Warnick memo dated October 11,
1983.

cc: See next page

DISTRIBUTION LIST FOR BOARD NOTIFICATION

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
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OCT 11 1983

MEMORANDUM FOR: D. G. Eisenhut, Director, Division of Licensing, NRR
FROM: R. F. Warnick, Director, Office of Special Cases
SUBJECT: NRC AUXILIARY BUILDING AUDIT

On September 14 and 15, 1983, an NRC team comprised of Messrs. J. Kane and F. Rinaldi of NRR; Mr. R. Landsman of RIII and Consultants S. Poulous and G. Harstead, audited the licensee reanalysis of the Midland Auxiliary Building. This audit was performed at the Bechtel Office in Ann Arbor, Michigan. As a result of the audit, the team identified several design concerns and issues requiring resolution. These are referred to the Office of Nuclear Reactor Regulation for action as appropriate.

- a. The design of the remedial soils slab fix at Elev. 659 (i.e. the eye bars) was performed to ACI 318 and not to ACI 349. The acceptability of the licensee's decision to use ACI 318 in lieu of ACI 349 needs to be evaluated.
- b. In view of the critical nature of the eye bars, the question arose as to the need for some type of monitoring on this fix (i.e. strain gages) due to the anticipated settlement over the life of the plant. Do monitoring requirements need to be imposed?
- c. Because of the anticipated differential settlement expected to occur during the life of the plant, the control tower will be pulling away from the main auxiliary building. Has the mechanical branch determined that equipment between the two buildings can withstand this elongation?
- d. The licensee performed an analysis on differential settlement of the buildings that was different from that which the NRC anticipated. The staff expected the differential settlement to be measured between the edge of the main auxiliary building and the edge of the control tower. In reality, the licensee performed an analysis using the center of the main auxiliary building as one point instead of the edge. Thus, for the requested 0.25" differential settlement analysis, the actual value was 0.17", and for the requested 0.50" differential, the actual value was 0.24". Is the licensee's analysis acceptable to NRR?
- e. There appears to be a lot of confusion as to what upward building movements the licensee and NRC staff should allow during underpinning. What are the allowable upward movements during jacking operations?
- f. The licensee stated that existing structures were analyzed according to ACI 318 as agreed to with NRR. The SSER #2 states that the buildings have been checked against ACI 349. Is this acceptable to NRR?

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OCT 11 1983

- g. The analysis of the existing structures has been performed by assuming that the existing settlement stresses will be removed during the permanent underpinning jacking. The audit team feels that the existing stresses cannot be jacked out in their entirety and must be included in the final analysis of the building. What is the NRC position in regards to including existing settlement stresses in the analysis?

Should you or members of your staff need additional information, please feel free to contact R. Landsman (388-5587).

RF Warnick

R. F. Warnick, Director
Office of Special Cases

cc: J. C. Stone, IE
E. G. Adensam, NRR
J. D. Kane, NRR
F. Rinaldi, NRR