file

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

May 6, 1983

Mr. R. A. Hartfield
Chief, Management Information Branch
Office of Management and Program Analysis
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

MIDLAND ENERGY CENTER GWO 7020
NRC SCHEDULE
File: G652.0 UFI: 53*54, 70*01 Serial: CSC-6692

Attached is the April 1, 1983 information for updating the status of Midland Units 1 and 2 of the NRC Yellowbook.

The construction percent complete is 79% for both Units 1 and 2.

DBM/PFS/dmh

Attachment

cc: Mr. James G. Keppler, Regional Director, Region III
Mr. Wayne Shafer, Midland Project Inspector, Region III
Mr. Frederick C. Williams, Isham Lincoln and Beale, Washington
Mr. Phil Steptoe, Isham Lincoln & Beale, Chicago

MAY 12 1983

CONSTRUCTION STATUS:

APPLICANT'S CURRENT ESTIMATED FUEL LOADING DATE: 10/1/84
APPLICANT'S PREVIOUS ESTIMATED FUEL LOADING DATE: 07/31/83
APPLICANT'S ESTIMATED FUEL LOADING DATE AT CP ISSUANCE: 11-00-78
APPLICANT'S CURRENT ESTIMATED COMMERICAL OPERATION DATE: 2/28/85

APPLICANTS CONSTRUCTION COMPLETION ESTIMATE AS DEFINED IN CP: (EARLIEST) July 1, 1983
(LATEST) July 1, 1984

CURRENT ESTIMATED PERCENT CONSTRUCTION COMPLETE: 79%

COMMENTS REGARDING CURRENT CONSTRUCTION STATUS:

	ESTIMATED START	ACTUAL START	ESTIMATED COMPLETION	ACTUAL COMPLETION	ESTIMATED % COMPLETE
MOBILIZE AND PREPARE SITE:		3/73		8/73	100%
PLACE STRUCTURAL CONCRETE:		8/73	*		99% +
INSTALL REACTOR PRESSURE VESSEL:		4/78		5/78	100%
INSTALL LARGE BORE PROCESS PIPE:		4/76	6/84		99%
** INSTALL LARGE BORE PIPE HANGERS,RESTRAINTS AND SNUBBERS:		11/77	6/84		93%
INSTALL SMALL BORE PIPE:		1/77	7/84		95%
INSTALL CABLE TRAY:		4/77	*		99% +
INSTALL EXPOSED METAL CONDUIT:		4/77	6/84		90%
INSTALL POWER,CONTROL,INSTRUMENTATION AND SECURITY CABLE:		1/78	6/84		93%
INSTALL ELECTRICAL TERMINATIONS:		6/78	6/84		81%
CONDUCT REACTOR COLD HYDROSTATIC TEST:	1/84		1/84		
CONDUCT HOT FUNCTIONAL TEST:	5/84		7/84		
CONDUCT PREOP AND ACCEPTANCE TESTS NECESSARY FOR FUEL LOAD:		8/82	9/84		

* Concrete and Cable Tray are 99% complete with minimal remaining to be done as required.
** Percent complete is for large bore hangers. Restraints and snubbers are not included.

PLANT CHARACTERISTICS:

DOCKET NO:	05000330
CP NO. & DATE ISSUED:	CPR-82 / 12-14-72
CP EXPIRATION DATE:	07-01-84
APPLICANT:	CONSUMERS POWER COMPANY
PLANT LOCATION:	Midland, MI 48640
IE REGION:	III
AE:	BECHTEL
NSSS:	BABCOCK & WILCOX
CONSTRUCTOR:	BECHTEL
REACTOR TYPE:	PWR
DER (MWE):	818

KEY PERSONNEL:

CORPORATE CONTACT:	J. W. Cook, Vice President Projects, Eng & Construction
CORPORATE ADDRESS:	1945 W. Parnall Road Jackson, MI 49201
CORPORATE PHONE NO:	(517) 788-0453
NRC LPM:	D. HOOD
IE PRINCIPAL INSPECTOR:	
-CONSTRUCTION:	R. J. COOK (RESIDENT INSPECTOR)
-TEST AND STARTUP:	
IE RESIDENT INSPECTOR:	

INSPECTION STATUS:

TIME PERIOD

REPORT NUMBER	BEG DATE OF INSP.	END DATE OF INSP.

FUEL LOAD DATE CHANGES

AS REPORTED BY UTILITY:

REPORT DATE	NEW SCHEDULE	REASON FOR CHANGE REPORTED BY UTILITY
11-07-74	11-00-79	CONSTRUCTION SCHEDULE STRETCHED OUT TO REDUCE CURRENT CASH OUTFLOW ANNOUNCED BY UTILITY.
01-14-75	11-00-80	CONSTRUCTION SCHEDULE STRETCHED OUT.
09-11-79	06-00-81	DEVELOPMENT OF A TWO UNIT INTEGRATED TEST SCHEDULE.
09-00-80	07-00-83	PROJECT SCHEDULE REEVALUATION INCORPORATING OUTSTANDING LICENSING ISSUES.
03/31/83	10/01/84	Project Schedule Re-evaluation and Development of CCP Plan

LOCAL PUBLIC DOCUMENT ROOM:

GRACE DOW MEMORIAL LIBRARY
1710 W. ST. ANDREWS ROAD
MIDLAND MICHIGAN 48640

CONSTRUCTION STATUS:

APPLICANT'S CURRENT ESTIMATED FUEL LOADING DATE: 2/9/85
APPLICANT'S PREVIOUS ESTIMATED FUEL LOADING DATE: 12/31/83
APPLICANT'S ESTIMATED FUEL LOADING DATE AT CP ISSUANCE: 11-00-79
APPLICANT'S CURRENT ESTIMATED COMMERICAL OPERATION DATE: 8/9/85 *

APPLICANTS CONSTRUCTION COMPLETION ESTIMATE AS DEFINED IN CP: (EARLIEST) December 1, 1983
(LATEST) December 1, 1984

CURRENT ESTIMATED PERCENT CONSTRUCTION COMPLETE: 79%

COMMENTS REGARDING CURRENT CONSTRUCTION STATUS:

	ESTIMATED START	ACTUAL START	ESTIMATED COMPLETION	ACTUAL COMPLETION	ESTIMATED % COMPLETE
MOBILIZE AND PREPARE SITE:		3/73		8/73	100%
PLACE STRUCTURAL CONCRETE:		8/73	**		99%+
INSTALL REACTOR PRESSURE VESSEL:		6/78		8/78	100%
INSTALL LARGE BORE PROCESS PIPE:		7/76	5/84		99%
*** INSTALL LARGE BORE PIPE HANGERS,RESTRAINTS AND SNUBBERS:		12/77	6/84		91%
INSTALL SMALL BORE PIPE:		1/77	6/84		95%
INSTALL CABLE TRAY:		4/77	**		99%+
INSTALL EXPOSED METAL CONDUIT:		4/77	7/84		93%
INSTALL POWER,CONTROL,INSTRUMENTATION AND SECURITY CABLE:		11/78	7/84		93%
INSTALL ELECTRICAL TERMINATIONS:		6/78	7/84		81%
CONDUCT REACTOR COLD HYDROSTATIC TEST:	3/84		3/84		
CONDUCT HOT FUNCTIONAL TEST:	7/84		9/84		
CONDUCT PREOP AND ACCEPTANCE TESTS NECESSARY FOR FUEL LOAD:		10/82	2/85		

* Commercial Operation for both process steam and electrical.
** Concrete and Cable Tray are 99% complete with minimal remaining to be done as required.
*** Percent complete is for large bore hangers. Restraints and snubbers are not included.

PLANT CHARACTERISTICS:

DOCKET NO:	05000329
CP NO. & DATE ISSUED:	CPR-81 / 12-14-72
CP EXPIRATION DATE:	12-01-84
APPLICANT:	CONSUMERS POWER COMPANY
PLANT LOCATION:	Midland, MI 48640
IE REGION:	III
AE:	BECHTEL
NSSS:	BABCOCK & WILCOX
CONSTRUCTOR:	BECHTEL
REACTOR TYPE:	PWR
DER (MWE):	492 (4,000,000 Lb/Hr process steam)

KEY PERSONNEL:

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CORPORATE ADDRESS:	Projects, Eng & Construction 1945 W. Parnall Road Jackson, MI 49201
CORPORATE PHONE	(517) 788-0453
NRC LPM:	D. HOOD
IE PRINCIPAL INSPECTOR:	
-CONSTRUCTION:	R. J. COOK (RESIDENT INSPECTOR)
-TEST AND STARTUP:	
IE RESIDENT INSPECTOR:	

INSPECTION STATUS:

TIME PERIOD

REPORT NUMBER	BEG DATE OF INSP.	END DATE OF INSP.

FUEL LOAD DATE CHANGES AS REPORTED BY UTILITY:

REPORT DATE	NEW SCHEDULE	REASON FOR CHANGE REPORTED BY UTILITY
11-07-74	11-00-80	CONSTRUCTION SCHEDULE STRETCHOUT TO REDUCE CURRENT CASH OUTFLOW.
01-14-75	11-00-81	CONSTRUCTION SCHEDULE STRETCHED OUT TO REDUCE CURRENT CAST OUTFLOW.
09-00-80	12-00-83	PROJECT SCHEDULE REEVALUATION INCORPORATING OUTSTANDING LICENSING ISSUES.
03/31/83	02/09/85	Project Schedule Re-evaluation and Development of CCP Plan

LOCAL PUBLIC DOCUMENT ROOM:

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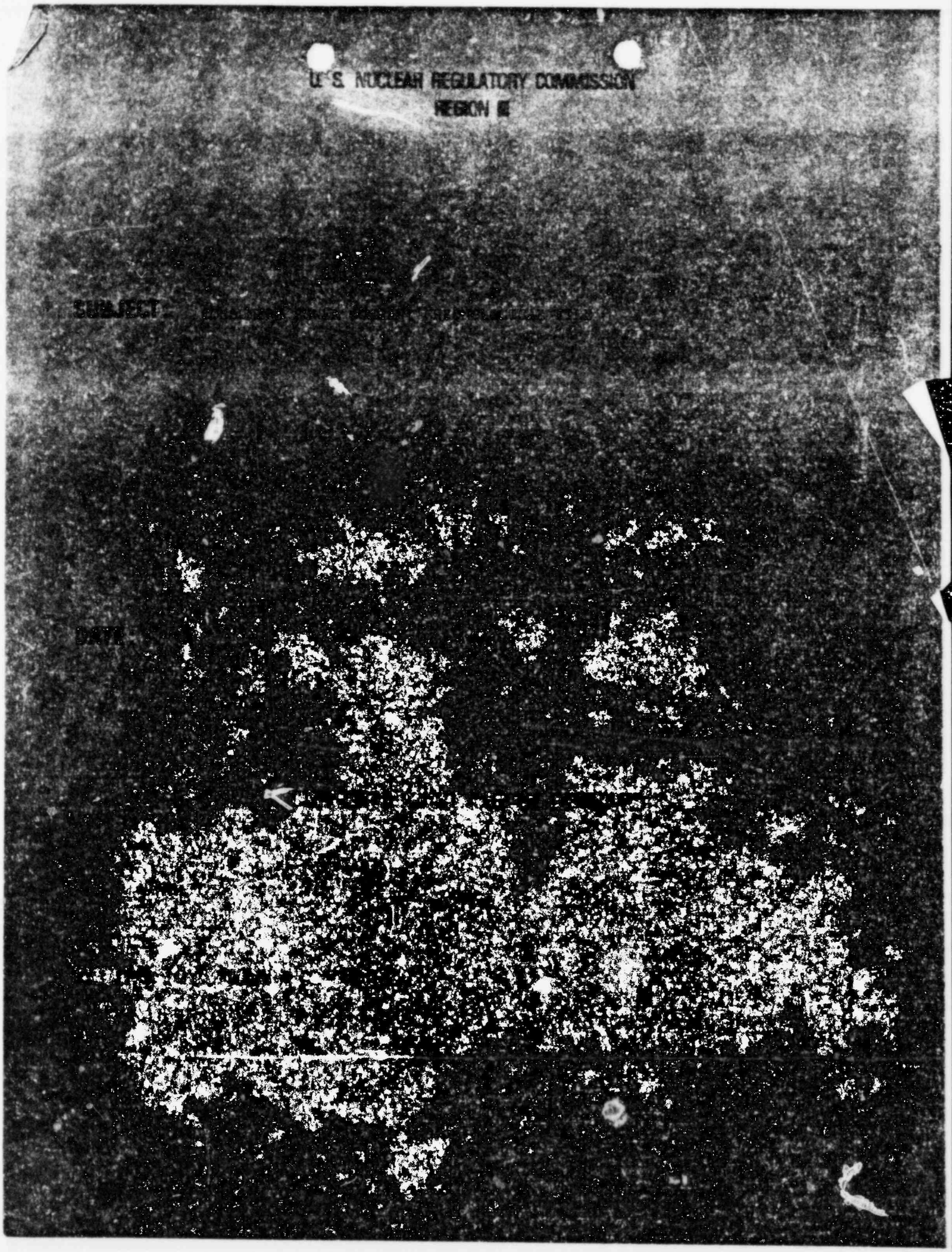
U. S. NUCLEAR REGULATORY COMMISSION
REGION III

SUBJECT

DATE



Consumers Power Company

Dean L Quamme
Site Manager
Midland Project

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December 28, 1983

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PAO		SCS ✓	
GA		ML	
F		File	ltr

orig + 3

Mr G A Hierzer
Bechtel Power Corporation
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MIDLAND ENERGY CENTER GWO 7020
CONSTRUCTION TRAINING RECORDS
File: 0400.2, B1.1.7, 0655 UFI: 99*08, 53*50*04, 06*02
Serial: CSC-7118

Attached is Stone & Webster's letter dated December 22, 1983 providing the results of their review of construction training records submitted to them by Bechtel. As indicated, the records for the listed non-manual personnel are satisfactory.

DLQ/DDJ/klp

cc: JGKeppler, NRC w/a
JJHarrison, NRC w/a
RJCook, NRC w/a
BHPeck, MEC w/a
RAWells, MPQAD w/a
NIReichel, MEC w/a

DEC 30 1983

8401050393

STONE & WEBSTER MICHIGAN, INC.

P.O. BOX 2325, BOSTON, MASSACHUSETTS 02107

Mr. D. L. Quamme
Consumers Power Company
Midland Nuclear Plant
3500 E. Miller Road
Midland, Michigan 48640

December 22, 1983
J.O. No. 14509
Serial No. SWMCP-006

Subject: Docket No. 50-329/330
Midland Plant - Units 1 and 2
Overview of the Construction
Completion Program
Serial No. SWMCP-006

RE: Construction Training Records

Training Records for Bechtel non-manual personnel have been reviewed by CIO to Procedure FPG-2.000 Rev. 6, Attachments "C" and "D", the Bechtel Corporate Policy letter on Training Records, dated December 12, 1983, and the portion of Rev. 1 of the training matrices attached to T. Valenzano and L. Curtis Inter-office Memorandum dated August 8, 1983, which identified those documents required for Status Assessment.

The training records for all of the people in the first two groups submitted to the CIO were reviewed. The last group submitted was reviewed utilizing a sampling method.

As a result of these evaluations, training records for the following Bechtel non-manual personnel are considered satisfactory.

Very truly yours,

for SW Baranow

S. W. Baranow

SWB/ka

Enclosures

cc:
JJHarrison, US NRC Glen Ellyn, IL
RJCook, US NRC Midland (site)
RAWells, CPCo Midland (site)
RBKelly, S&W

GROUP 1

BOBB. S.	371138	ARA27CFE
ZAGORIN.	361212	ARA27CFE

GROUP 2

LUHRING. J.	757418	SYS5EFE
HITT. G.	238932	SYS17EFE
HALE. L.	758041	SYS171FE
SCHOOLCRAFT. S.	327280	SYS171FE
GORDON. R.	429132	SYS9MFE
HUNTER. D.	327925	SYS9MFE
KELLY. M.	637854	SYS9WFE
BRYAN. D.	372256	SYS17WFE
DOUGHERTY. J.	779589	HGR32MFE
HICKS. G.	361345	HGR32MFE

GROUP 3

FELIX. J.	454591	ARA27CFE
JOHNSON. R.	905023	ARA27CFE
MANNING. F	22033 T & B	ARA27CFE
MAYHEW. G.	21240 T & B	ARA27CFE
NAKAMURA. N.	637874	ARA27CFE
PERRINE. L.	378524	ARA27CFE
ASHER. B.	758017	ARA26CAE & LFE
COOK. J.	862742	ARA26CFE
FOOTE. S.	2560	ARA26CFE
REULAND. M.	285272	ARA26CFE
THOMAS. M.	372863	ARA26CFE
VANOVERBERGE. K.	360868	ARA26CFE
LEWIS. J.	757937	ARA25CAE & LFE
ESPINOZA. L.	652024	ARA25CFE
YUAN. C.	371451	ARA25CFE
MORRISON. D.	361270	ARA25CFE
PAYNE. S.	429335	ARA25CFE
HAMM. J.	371766	ARA25CFE
FORDHAM. A.	21353 T & B	ARA25WFE
DICE. D.	373598	ARA27CFE
DYSON. G.	272625	ARA29CFE
PANZO. R.	360123	ARA29CFE
SHUKEY. A.	327769	ARA29CFE
WOODLEY. T.	361379	ARA29QR
ANDERSON. S.	361056	HGR32MFE
ASHLEY. T	224308	HGR32LFE
CHRISTENSEN. T.	372326	HGR32MFE
COOK. M.	446004	ARA26CFE

GROUP 3

LOWE, E.	EG & G	HGR32MFE
RAMIREZ, H.	286960	HGR32MFE
BUTZLER, W.	373218	HGR33MFE
JONES, R.	372532	HGR32MFE
CLARKE, R. E.	372558	HGR32MFE
MITCHELL, L.	939471	HGR32WFE
KURLAND, K.	324377	HGR32WFE
NECAISE, J.	241208	HGR32WFE
STULGIS, P.	324351	HGR32WFE
KING, C. T.	990633	HGR32WFE
COPPLE, B.	371592	HGR32WFE
KRESS, F.	612143	SYS12EFE
HATTAWAY, J.	286858	SYS06WFE
TIDMORE, L.	862912	SYS13EFE
MOORE, D.	220822	SYS08MFE
PARKER, D.	241183	SYS18WFE
BLUBAUGH, S.	595074	SYS061FE
VANDERWEELE, J. T.	GC9016	SYS121FE

Consumers Power Company

J A Mooney
Executive Manager
Midland Project Office

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

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A/RA		DRMSP	
RC		DRMA	
PAO		SCS	
SGA		ML	
ENF		File	

December 22, 1983

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

MIDLAND ENERGY CENTER
AUXILIARY BUILDING JACKING CRITERIA
FILE 0485.16 SERIAL 22317

REFERENCE: OCTOBER 24, 1983 LETTER FROM J A MOONEY
TO J J HARRISON, SERIAL CSC-6960

On December 15, 1983, there was a conference call between Consumers Power Company and the NRC to discuss NRC concerns relative to the observed upward movements and jacking of Reserve Capacity Loads (RCL) for the Auxiliary Building. Subsequently, on December 16, 1983, R Landsman called J A Mooney and suggested, for CP Co consideration, that the following interim action/guidelines for maintenance of building elevation be employed until the proposed January 4-6, 1984 meeting between the NRC and CP Co to discuss these issues:

1. All instrumentation data to be baselined to August, 1982, when the instrumentation system became operational. (The instrumentation data is presently baselined to December, 1982, which corresponds with the initial excavation under the Turbine Building.)

2. For downward movement, the limits for Δ_1, the North-South differential settlement after compensating for rigid body motion, would remain as stated in SSER Table 2.7.

3. For upward movement, Δ_1 should not exceed 0.050 inches.

4. Δ_2, the East-West differential settlement between the Electrical Penetration Area (EPA) and Control Tower after compensating for rigid body motion, should be held between 0.0 to 0.050 inches upward movement.

5. If at any time Δ_1 and Δ_2 exceed the guidelines given in (3) and (4) above, the elevation of the building should be adjusted by jacking.

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DEC 30 1983

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6. Grillage jacking loads to maintain the building elevation within the guidelines of (2), (3) and (4) above, may be adjusted as necessary provided the jacking loads applied do not overstress the building.

7. The jacking loads for piers which do not support grillage beams remain as specified in SSER Number 2.

Subsequently, project personnel discussed these suggested action guidelines. The following is a summary of pertinent data and our conclusions regarding implementing these suggestions:

1. The present Δ_1 values, from August 1982 baseline, are as follows:

Location	Values Read From Graph to NRC in 12/16/83 Telecon	Values Later Computed From Raw Data
East EPA Tip	0.048 Inches Upward	0.042 Inches Upward
East Corner of Control Tower	0.021 Inches Downward	0.020 Inches Downward
West EPA Tip	0.026 Inches Upward	0.026 Inches Upward
West Corner of Control Tower	0.035 Inches Downward	0.035 Inches Downward

2. The present Δ_2 values, from August 1982 baseline, are as follows:

Location	Values Read From Graph to NRC in 12/16/83 Telecon	Values Later Computed From Raw Data
East EPA Tip	0.044 Inches Upward	0.041 Inches Upward
West EPA Tip	0.073 Inches Upward	0.075 Inches Upward

3. The upward Δ_1 value at the east EPA tip has almost reached the guideline. The upward Δ_1 values could increase further as the atmospheric temperature decreases.

4. The upward Δ_2 value at the west EPA tip exceeds the guideline. A further increase in Δ_2 values could occur as the atmospheric temperature decreases.

5. The jacking loads would have to be reduced for grillage 8 west to meet the suggested guidelines for Δ_2. Reducing the jacking load may induce incremental tension at the top of the west EPA structure and is therefore considered undesirable for the structure.

6. The temporary underpinning of the EPA portion of the Auxiliary Building is accomplished by sequentially excavating, installing, and jacking grillages

at piers 8, then 5 and then 2. The following briefly describes the design approach for this operation:

a. Initially apply predetermined design jacking loads, which are based on final tributary building loads shown as specified loads in the design documents. The building has been analyzed for these jacking loads and found to be structurally adequate.

b.(1) Subsequent to initial jacking and meeting the acceptance criteria for pier settlement, control differential (not overall) structural movement in the downward direction at the tip of the EPA by increasing and/or adjusting jacking loads.

(2) After the Grillage 8 cycle is complete and in advance of the excavations for each subsequent cycle, increase jacking loads to maintain active/positive control of the structure by preconditioning the soil support for the pier and distributing a portion of the increased load to the control tower.

(3) The limits of these increased jacking loads are shown in the design documents as RCL. The building has been analyzed for the above conditions and found to be structurally adequate.

(4) As the grillage at ` is jacked, loads on grillages at 8 and 5 are adjusted to their specified loads which are the final tributary building loads.

c. The application of loads results in upward differential movement of the structure as explained in the referenced letter.

All design and construction documents, which meet the SSER, are based on the above design approach.

7. A rereview of the design approach and subsequent revisions to the existing design and construction documents would be required to implement the suggested guidelines. Timely implementation of the suggested guidelines can only be accomplished by invoking Specification C-200 which is applicable for emergency conditions. We believe that implementation of Specification C-200, to accommodate the suggested guidelines, is not prudent.

These conclusions were communicated to R Landsman and J Harrison by J A Mooney in a subsequent telephone call of December 16, 1983.

In subsequent discussion with the NRC the following interim rejacking criteria for the grillages at 8 were developed: The rejacking criteria in response to the building movement will be triggered only by Δ_2 values as opposed to the present trigger values of 0.010 inches (absolute) in 48 hours. If Δ_2 decreases and is trending toward 0.010 inches upwards, rejacking will be instituted. Jacking loads will be increased such that the Δ_2 value does not exceed 0.050 inches upwards after lockoff.

We are continuing to evaluate the suggested guidelines for upward movement and will be prepared to fully address these issues at the January 4-6, 1984 meeting.

JAMooney

rp1283-0005a141

File

J A Mooney
Executive Manager
Midland Project Office

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

December 9, 1983

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
AUXILIARY BUILDING CRACK EVALUATIONS
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-7074

REFERENCE: Serial CSC-7063 dated December 6, 1983 and Serial CSC-6960 dated October 24, 1983.

The attached report, "Auxiliary Building Crack Evaluations", evaluates the changes in cracks after the initial jacking of Grillage 8 and concludes that few changes had occurred and in these cases the changes were within measurement tolerance of .005". This report also evaluates changes in selected cracks after rejacking of Grillage 8 and concludes that these changes were also within the measurement tolerance.

Dr. Mete Sozen of University of Illinois and Dr. A. E. Fiorato of Construction Technology Laboratories have reviewed the contents of this report, inspected cracks which in their opinion warranted their inspection and concurred with the conclusions of this report.

JAMooney

JAM/RMW/klw

Attachment

CC RJCook
DSHood

DEC 19 1983

OC1283-0003A-CN01

8312280379

BCC JWCook, P-26-336B
DBMiller, Midland (3)
TABuczwinski, Midland-207
JNLeech, P-24-507
DASommers, P-14-106 (For SER Related Issues)
DFLewis, Bechtel
DJVandeWalle, P-24-614B
MIMiller, IL&B, Chicago
FCWilliams, IL&B, Washington, DC
GALow, P-12-237A
NRC Correspondence File, P-24-517
UFI, P-24-517
BJWalraven, P-24-517
Hearings File, P-24-517
Reading File, P-24-517

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9/3/83
mi0583-0429a100

CONSUMERS POWER COMPANY
Midland Units 1 and 2
Docket No 50-329/50-330

Letter Serial CSC-7074 Dated December 9, 1983

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits letter serial CSC-7074 dated December 9, 1983 from R. M. Wheeler to J. J. Harrison.

CONSUMERS POWER COMPANY

By _____
J A Mooney
Executive Manager

Sworn and subscribed before me this 9th day of Dec, 1983.

Patricia A Puffer
Notary Public

PATRICIA A. PUFFER
Notary Public, Bay County, MI
My Commission Expires Mar. 4, 1986

My Commission Expires 3-4-86

BP1183-0000A-CN01

AUXILIARY BUILDING

CRACK MAPPING EVALUATIONS

FOR

GRILLAGE 8 INITIAL JACKING & REJACKING

AUXILIARY BUILDING CRACK MOVEMENT

PURPOSE

The purpose of this report is to evaluate the changes in cracks in critical Auxiliary Building walls and slabs between when the soil was removed beneath the East and West Electrical Penetration Areas (EPA), and when initial jacking load was transferred to both East and West 8 Grillage Beams. The crackmapping in these critical walls and slabs is required per the design specifications.

The changes in widths for selected cracks were also evaluated after rejacking. The cracks considered for this evaluation were those which were reported to have changed in width after initial jacking of Grillage 8.

An overall plan and elevation of the Auxiliary Building are given in Attachment A. The location of Grillage 8 is also shown on these sketches. Attachment B shows the dates of crackmapping, initial jacking of Grillage 8 and re-jacking of Grillage 8.

METHOD OF ANALYSIS

1. Each critical wall and slab was divided into several areas with unique area numbers, (e.g. ⟨18⟩).

2. All cracks which were reported to have increased or decreased in width and all reported new cracks were reviewed after initial jacking. These crack changes are shown in Attachment C.

3. All the cracks which changed in width and all new cracks found after initial jacking, were again measured after re-jackings of Grillage 8. Observed changes in the width of these cracks are given in Attachment D.

4. Crack width measurements at a given location have an estimated tolerance of ± .0025 inches. Therefore, readings taken at two different times for the same crack could easily differ by .005 inches.

5. The location, width and direction of cracks which changed were compared qualitatively with expected structural behavior during excavation, initial jacking and re-jackings.

6. The evaluation of cracks after the initial jacking event and the selected cracks after rejacking is tabulated in Attachment E.

7. Dr. Mete Sozen of the University of Illinois and Dr. A. E. Fiorato of Construction Technology Laboratory inspected cracks which in their opinion warranted field inspection. They also reviewed this report and concurred with the conclusions which follow.

CONCLUSION

A. For Grillage 8-Jacking

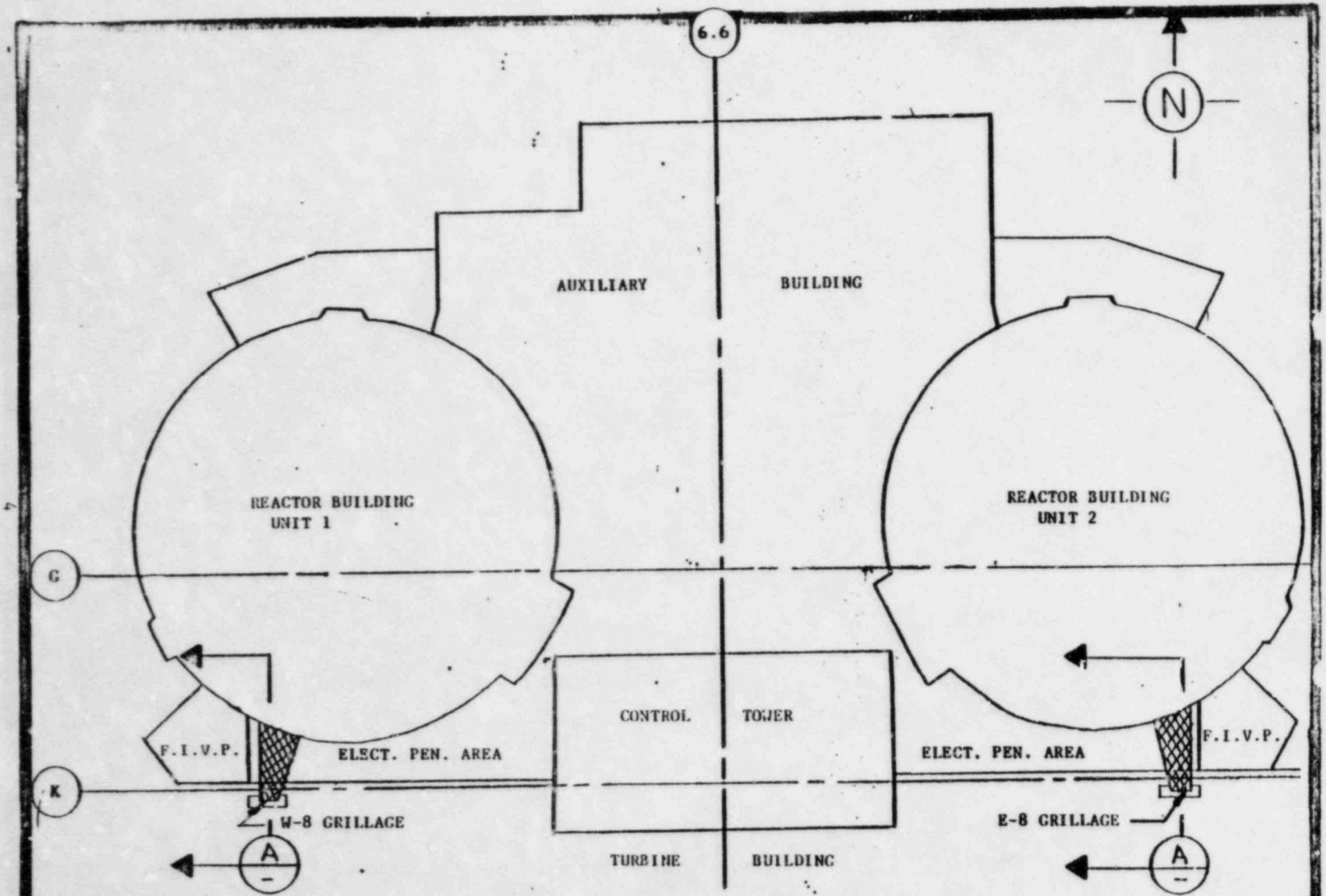
There are approximately 2,000 cracks which were monitored in the Auxiliary Building after initial Grillage 8 jacking. Evaluation of the crackmapping data has shown that only twenty-three (23) of these cracks changed in width (approximately 1%) while only twenty-one (21) new cracks were found (approximately 1% increase). The width changes which occurred were .005 inches or less except for two cases. In both of these cases the observed cracks were in the floor topping. After physical observation, it was judged that in these two cases, width changes were attributable to measurement dispersion. See Attachment E for summary of crack changes and evaluation of these changes. No alert or action level cracks were found during mapping.

It should be noted that crackmapping is intended to be used to identify a need for evaluation of the building. Alert and action levels for the crack widths are set forth to trigger this evaluation. The primary monitoring device is the building movement instrumentation. The strain instrumentation, is the secondary monitoring device.

The observed changes in crack patterns and widths are in general consistent with previous patterns that indicate volume change movements. The width changes are within the estimated tolerance limits of measurements. All of the crack widths are well below the alert limits, therefore need for special evaluation is not warranted.

B. For Grillage 8 Re-jacking

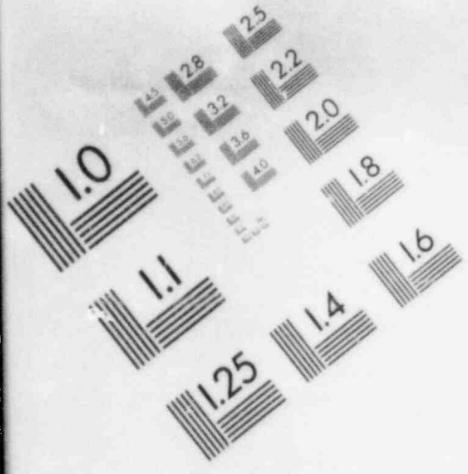
Width of cracks which had been observed to have changed during initial jacking, were measured after re-jacking. Evaluation of this data, indicates that all measured crack width changes are within the estimated tolerance of .005 inches. None of these cracks reached alert level.

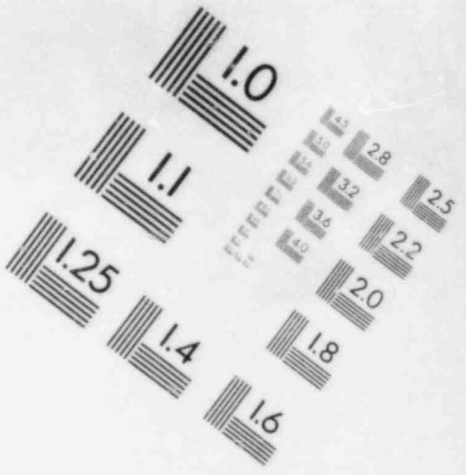


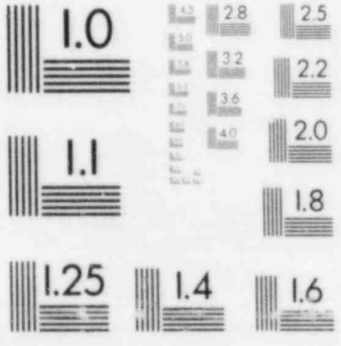
PLAN VIEW: LOCATION- EAST 8 AND WEST 8 TEMPORARY GRILLAGE BEAMS

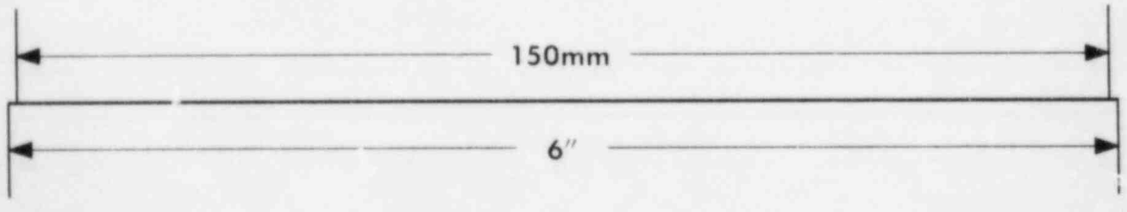
ATTACHMENT A PAGE 1 OF 2

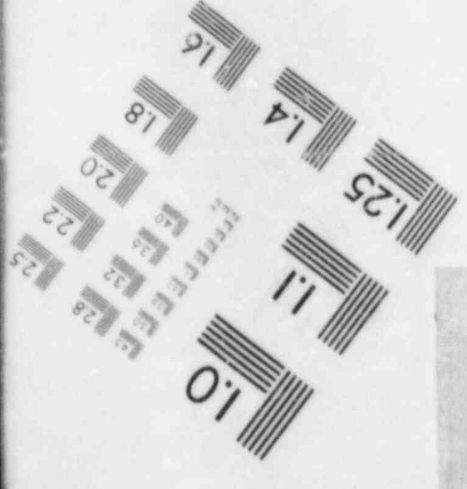
IMAGE EVALUATION
TEST TARGET (MT-3)

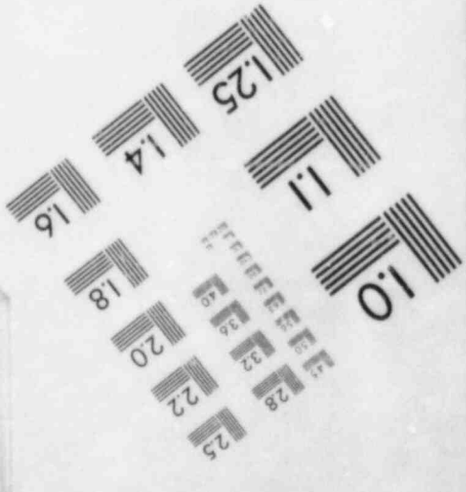


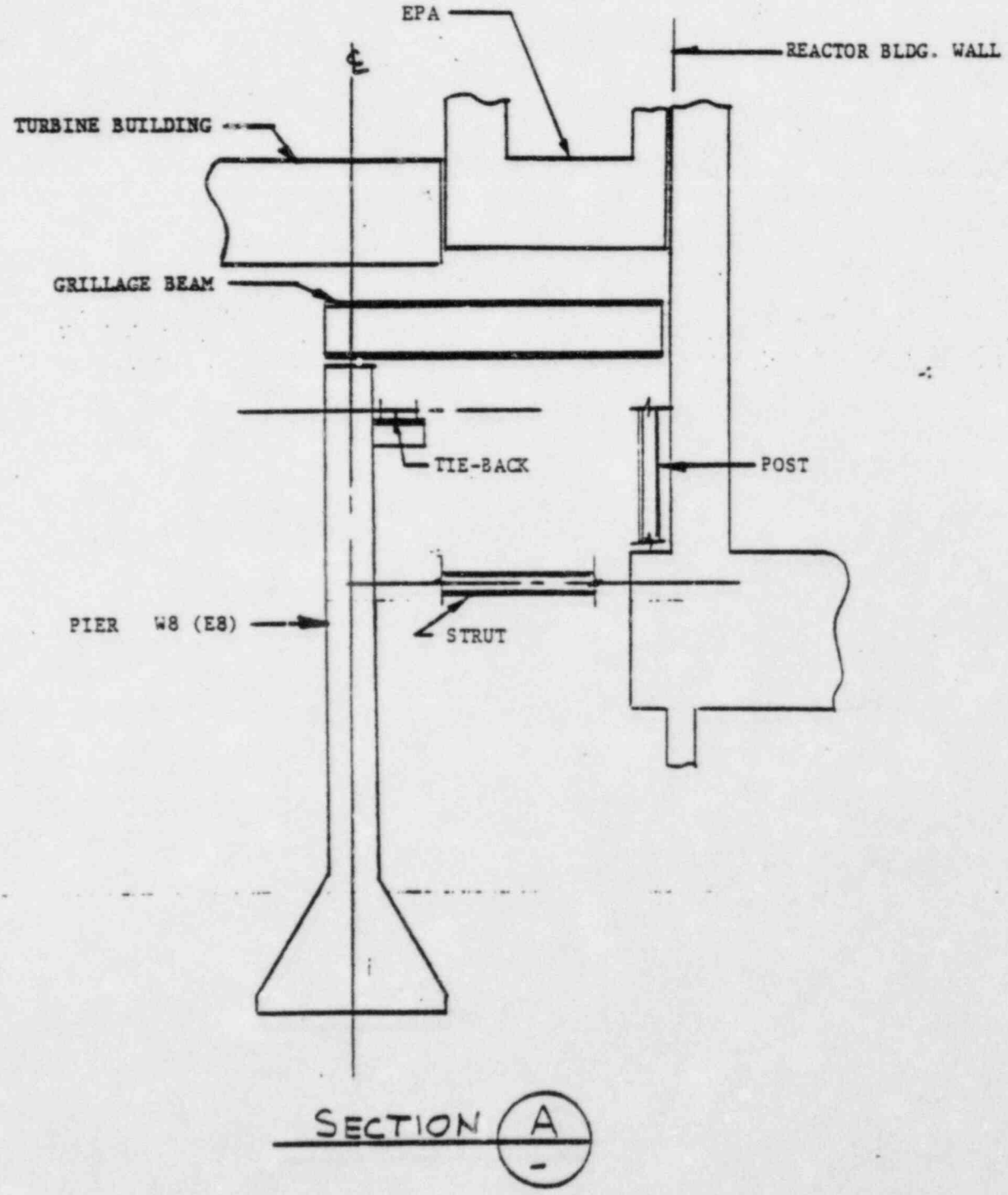




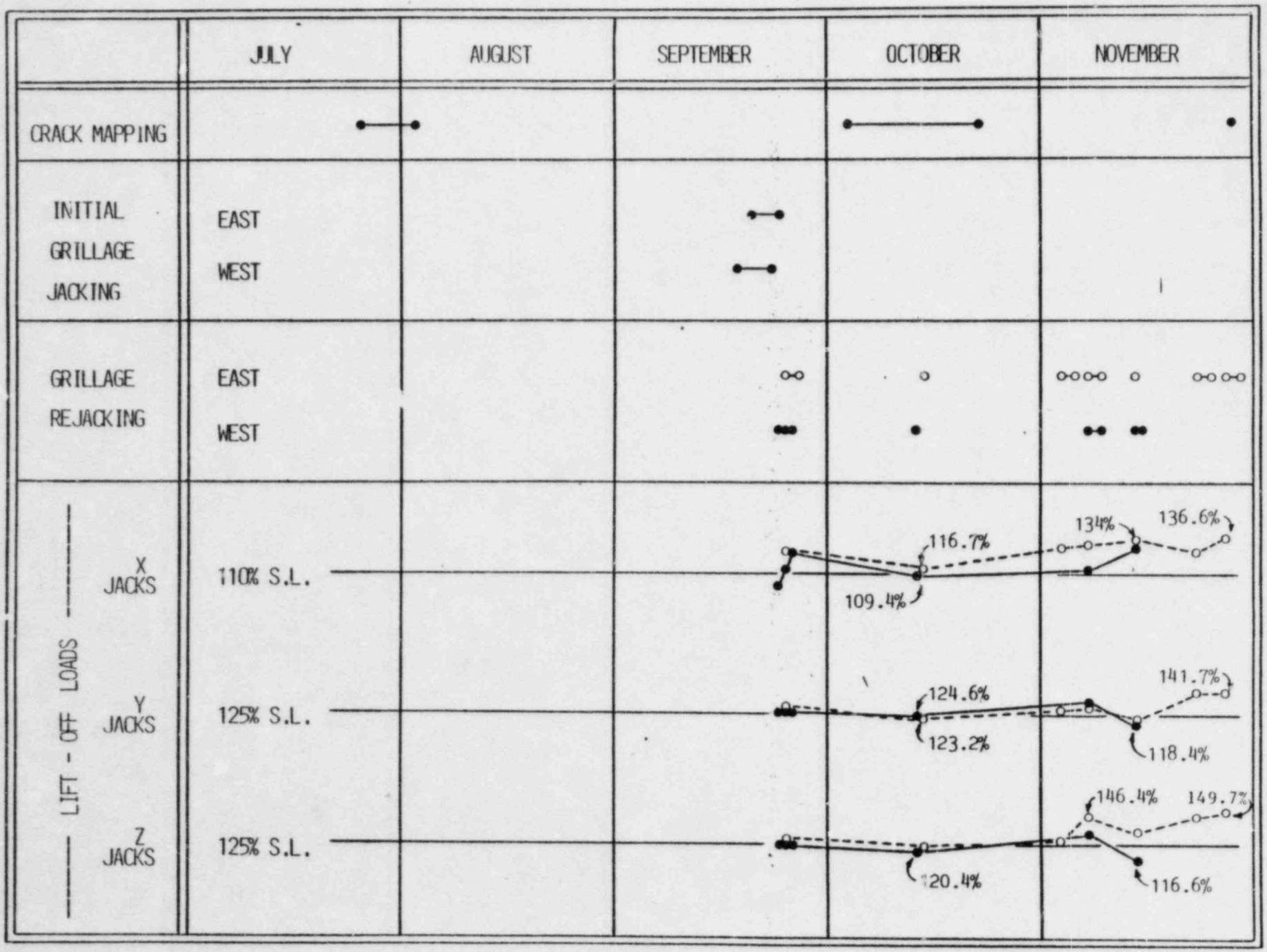




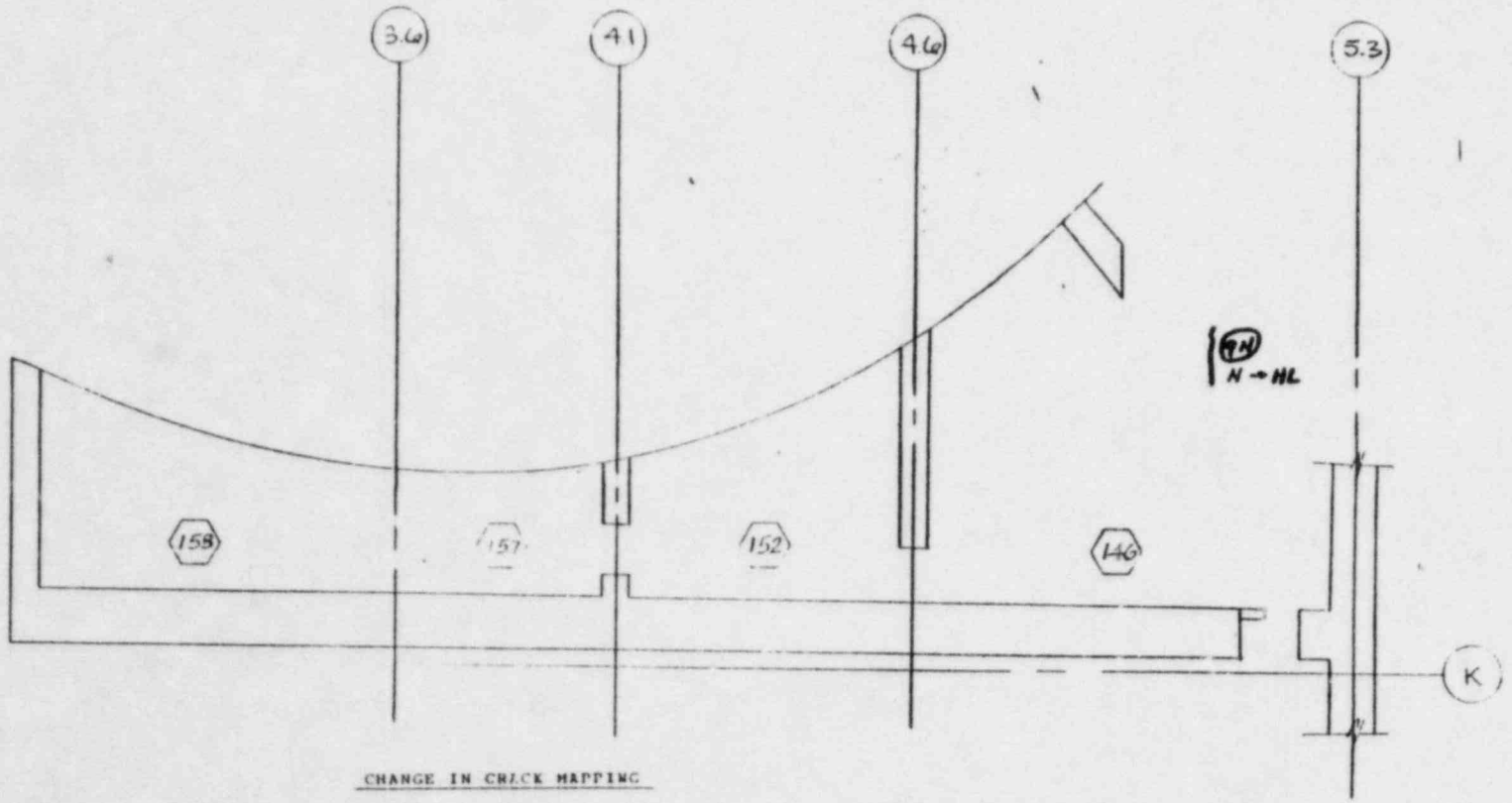



EPA
REACTOR BLDG. WALL
TURBINE BUILDING
GRILLAGE BEAM
TIE-BACK
POST
PIER W8 (E8)
STRUT

SECTION A



ATTACHMENT B PAGE 1 OF 1



CHANGE IN CRACK MAPPING

AUXILIARY BUILDING - WEST ELECTRICAL PENETRATION AREA AT ELEVATION 628'-6"

LEGEND:

N = New crack

HL = Hair-line

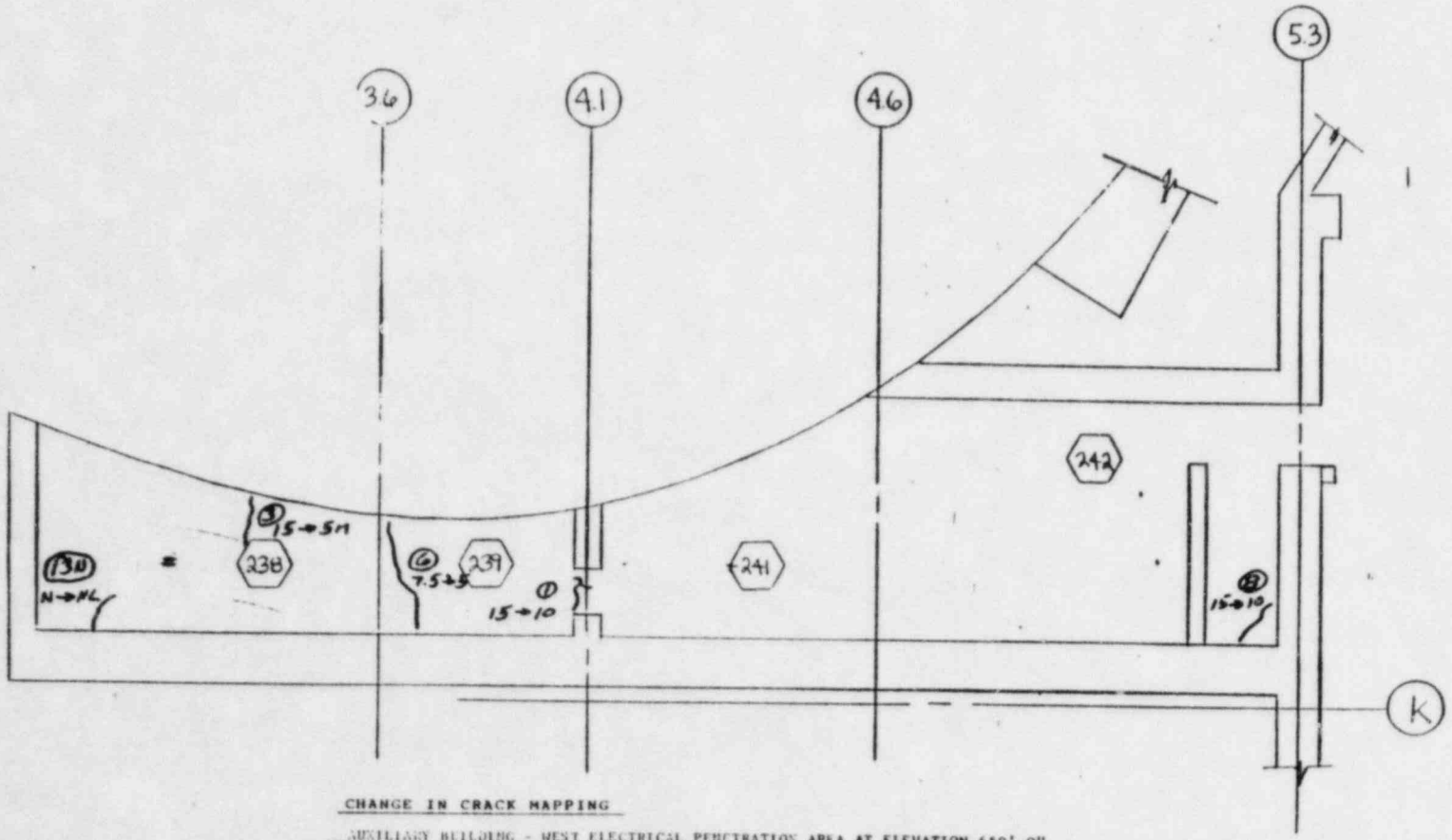
M = mil (.00. in.)

DATES MAPPED: 7/27/83 and 10/6/83

DATE GRILLAGE JACKED: 9/18/83 to 9/24/83

AFTER INITIAL JACKING AT E/W 8 GRILLAGES

Attachment C Page 10 of



CHANGE IN CRACK MAPPING

AUXILIARY BUILDING - WEST ELECTRICAL PENETRATION AREA AT ELEVATION 639'-0"

LEGEND:

N = New crack

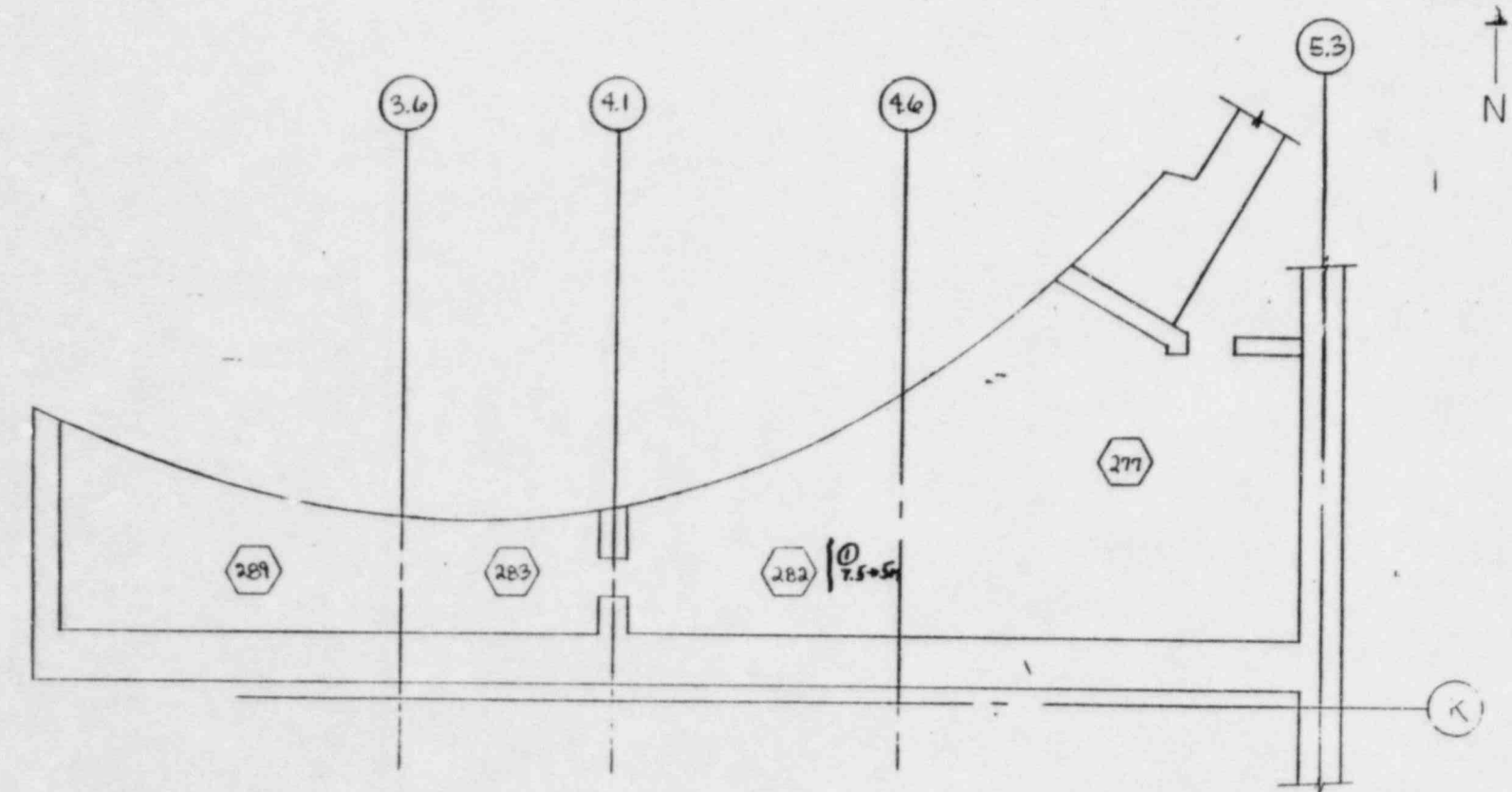
HL = Hair-line

M = mil (.001 in.)

DATES MAPPED: 7/27/83 and 10/7/83

DATE GRILLAGE JACKED: 9/18/83 to 9/24/83

AFTER INITIAL JACKING AT E/W 8 GRILLAGES



CHANGE IN CRACK MAPPING

AUXILIARY BUILDING - WEST ELECTRICAL PENETRATION AREA AT ELEVATION 674'-6"

LEGEND:

N = New crack

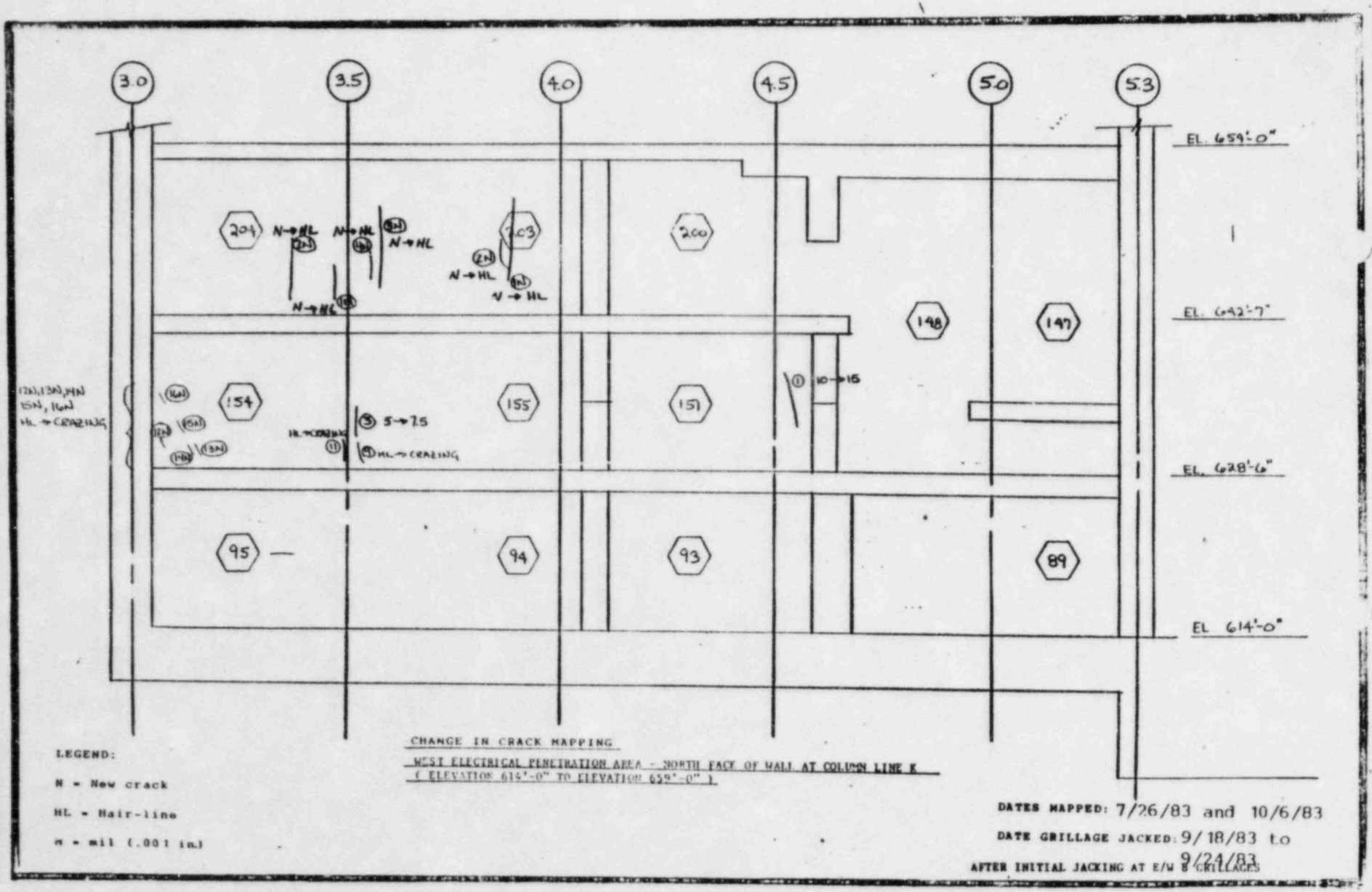
HL = Hair-line

M = mil (.001 in.)

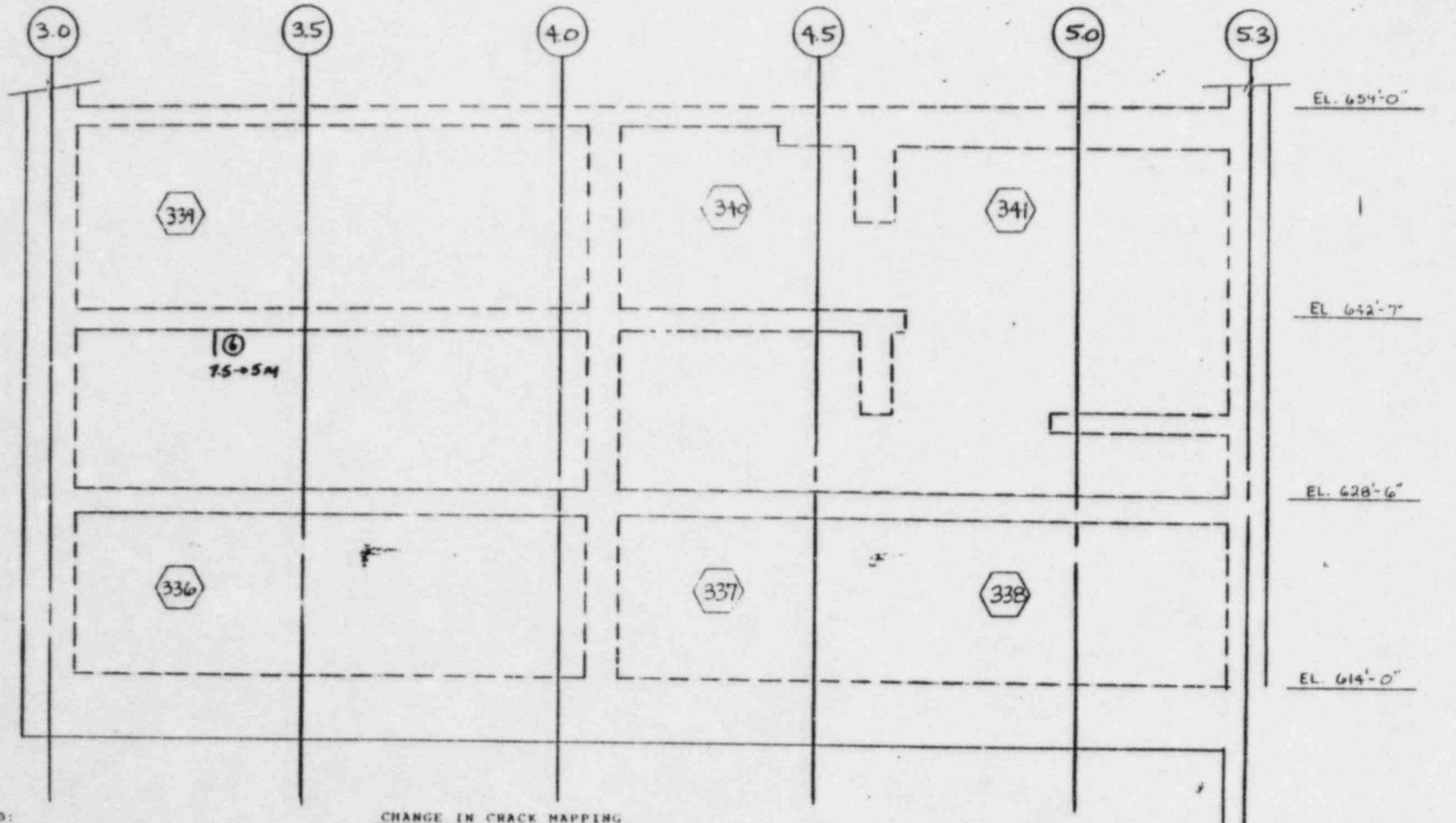
DATES MAPPED: 7/27/83 and 10/7/83

DATE GRILLAGE JACKED: 9/18/83 to 9/24/83

AFTER INITIAL JACKING AT E/W 8 GRILLAGES



Attachment Page 4 of 14



LEGEND:

N = New crack

HL = Hair-line

M = mil (.001 in.)

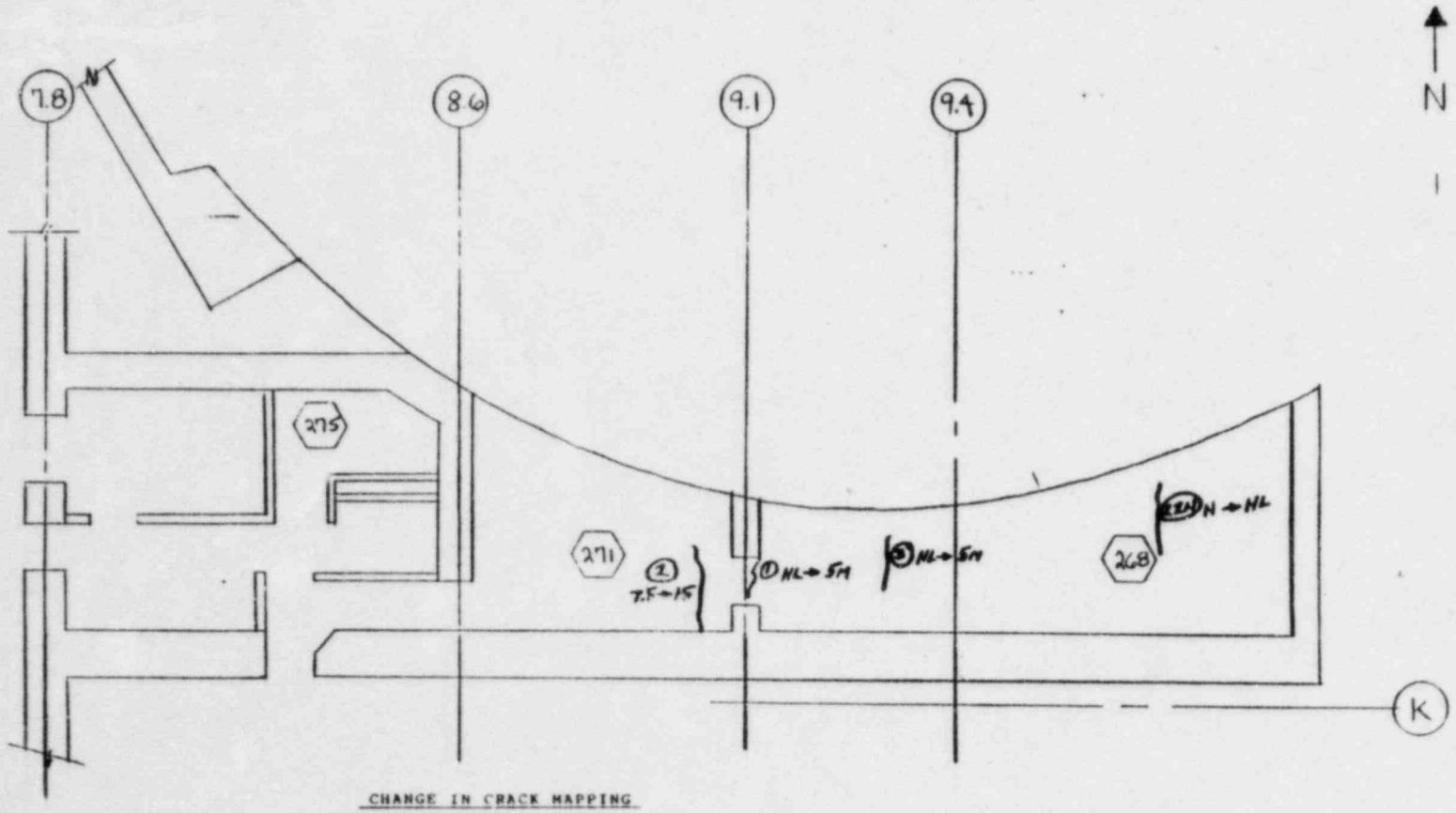
CHANGE IN CRACK MAPPING

WEST ELECTRICAL PENETRATION AREA - SOUTH FACE OF WALL AT COLUMN LINE E
(ELEVATION 614'-0" TO ELEVATION 654'-0")

DATES MAPPED: 7/28/83 and 10/6/83

DATE GRILLAGE JACKED: 9/18/83 to 9/24/83

AFTER INITIAL JACKING AT E/W 8 GRILLAGES



CHANGE IN CRACK MAPPING

AUXILIARY BUILDING - EAST ELECTRICAL PENETRATION AREA AT ELEVATION 659'-0"

LEGEND:

N = New crack

HL = Hair-line

M = mil (.001 in.)

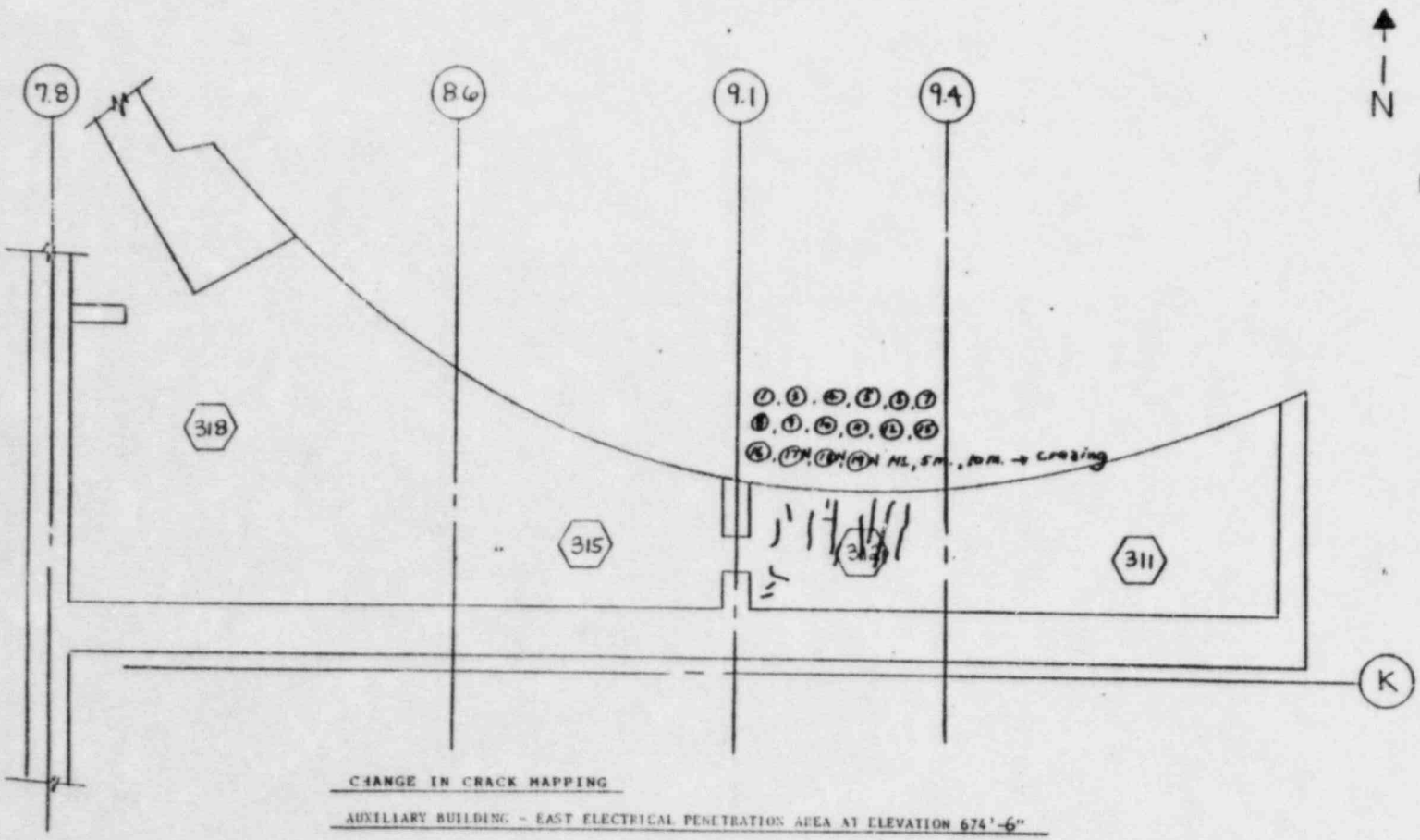
DATES MAPPED: 7/28/83 and 10/7/83

DATE GRILLAGE JACKED: 9/18/83 to 9/24/83

AFTER INITIAL JACKING AT E/W 8 GRILLAGES

12

Attachment C Page 6 of 14



CHANGE IN CRACK MAPPING

AUXILIARY BUILDING - EAST ELECTRICAL PENETRATION AREA AT ELEVATION 674'-6"

LEGEND:

N = New crack

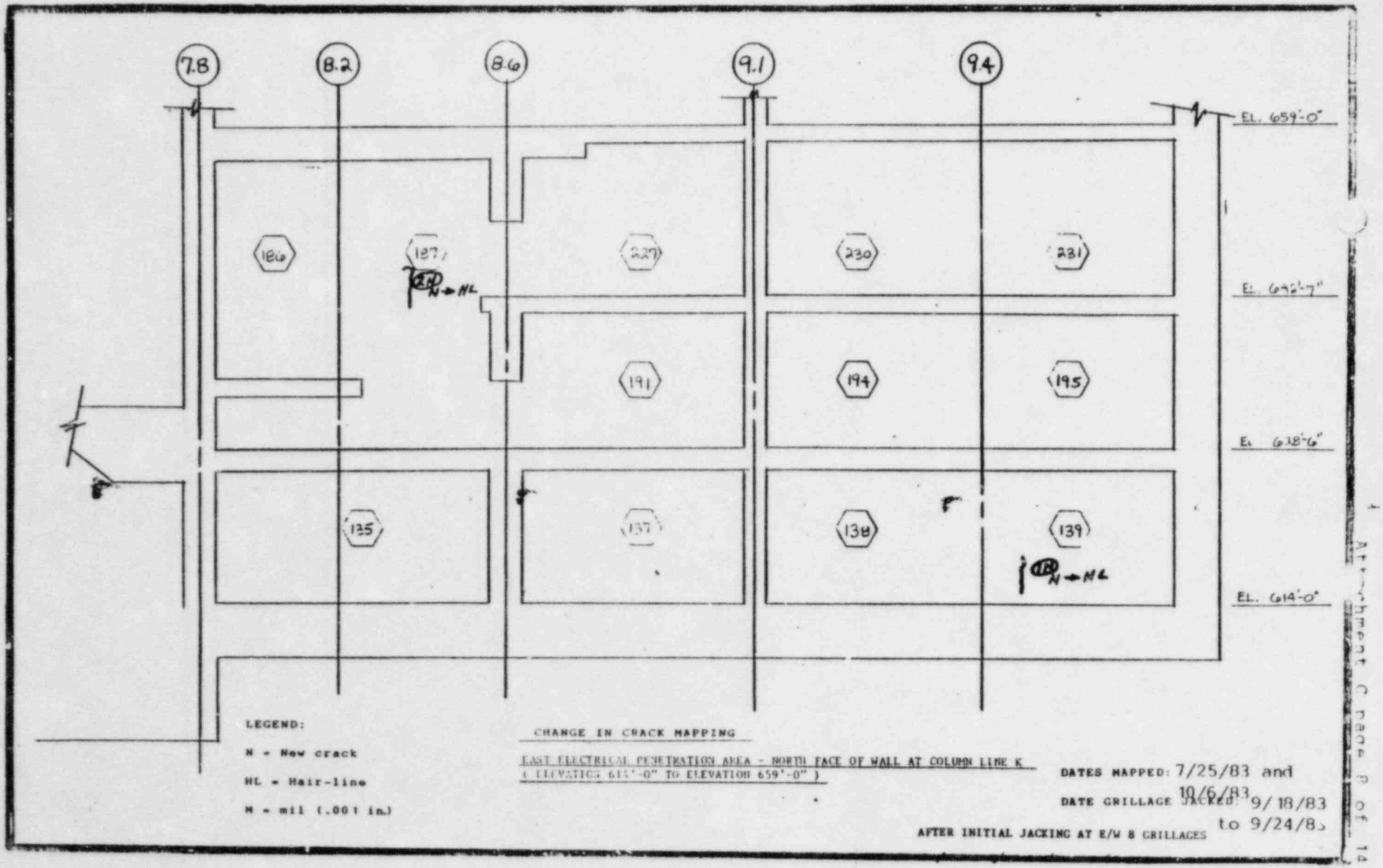
HL = Hair-line

M = mil (.001 in.)

DATES MAPPED: 7/28/83 and 10/4/83

DATE GRILLAGE JACKED: 9/18/83 to 9/24/83

AFTER INITIAL JACKING AT E/W 8 GRILLAGES



LEGEND:

N = New crack

HL = Hair-line

M = mil (.001 in.)

CHANGE IN CRACK MAPPING

EAST ELECTRICAL PENETRATION AREA - NORTH FACE OF WALL AT COLUMN LINE K
(ELEVATION 614'-0" TO ELEVATION 659'-0")

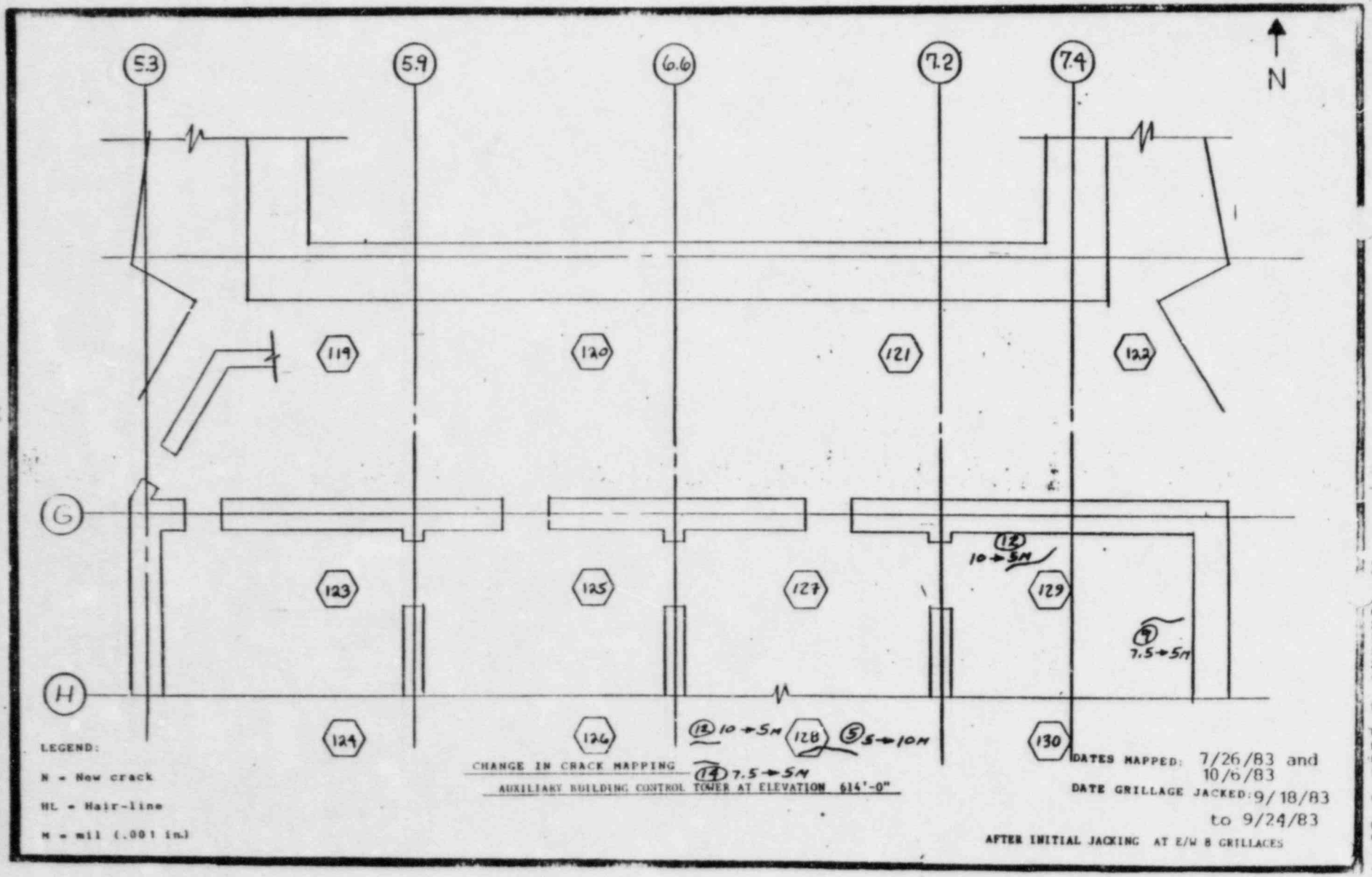
DATES MAPPED: 7/25/83 and 10/6/83

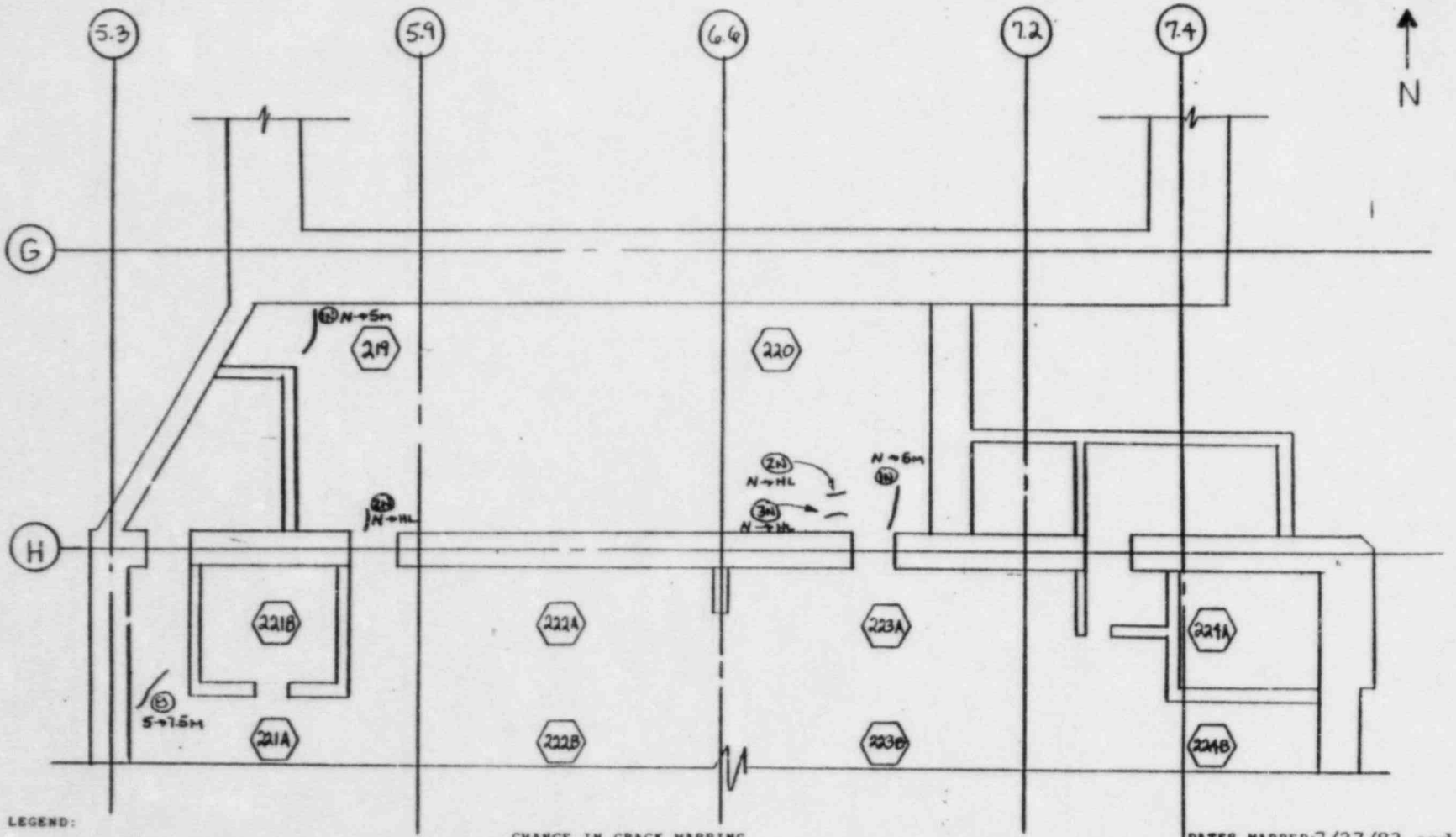
DATE GRILLAGE JACKED: 9/18/83 to 9/24/83

AFTER INITIAL JACKING AT E/W 8 GRILLAGES

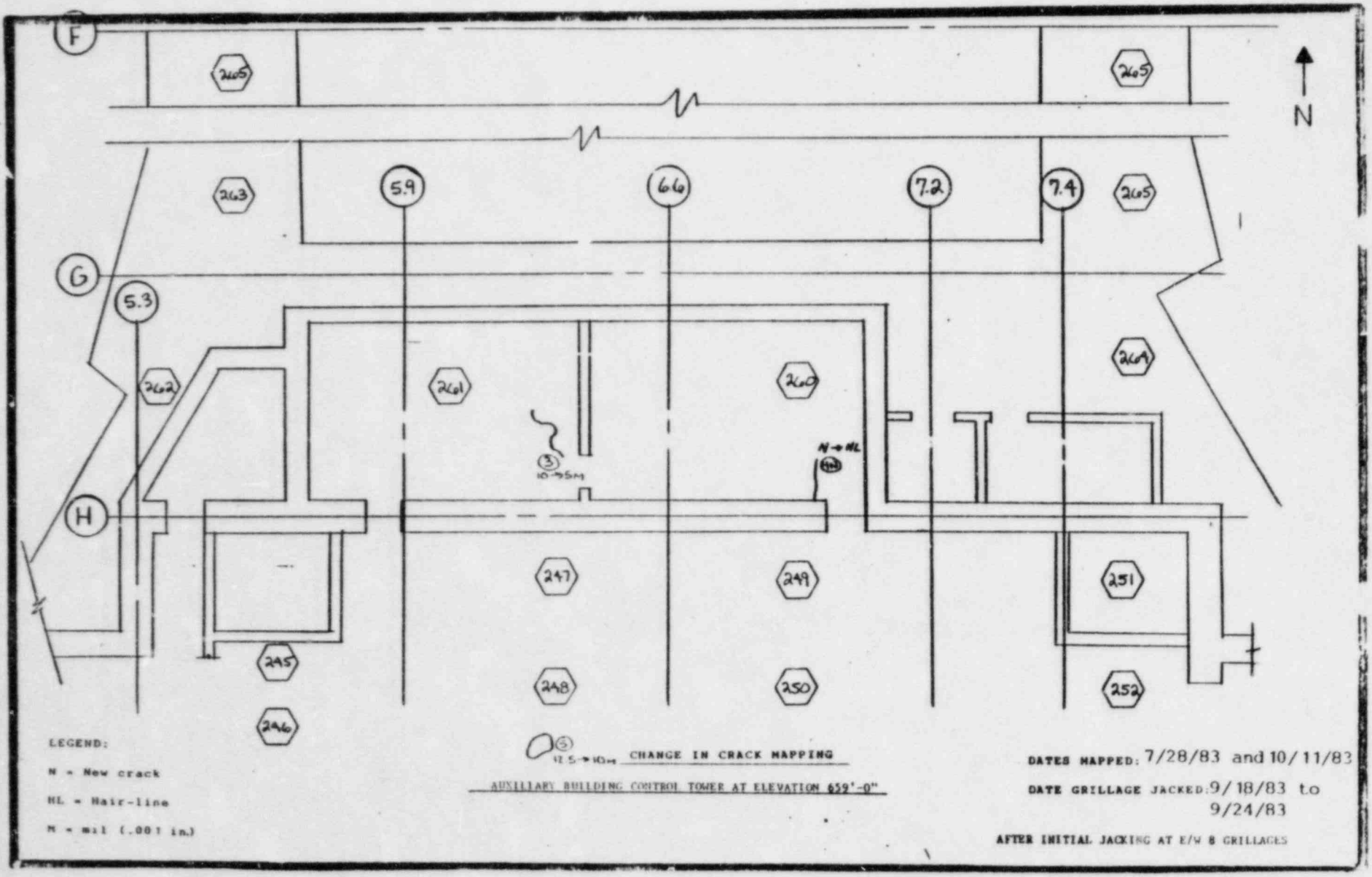
Attachment C Page 8 of 14

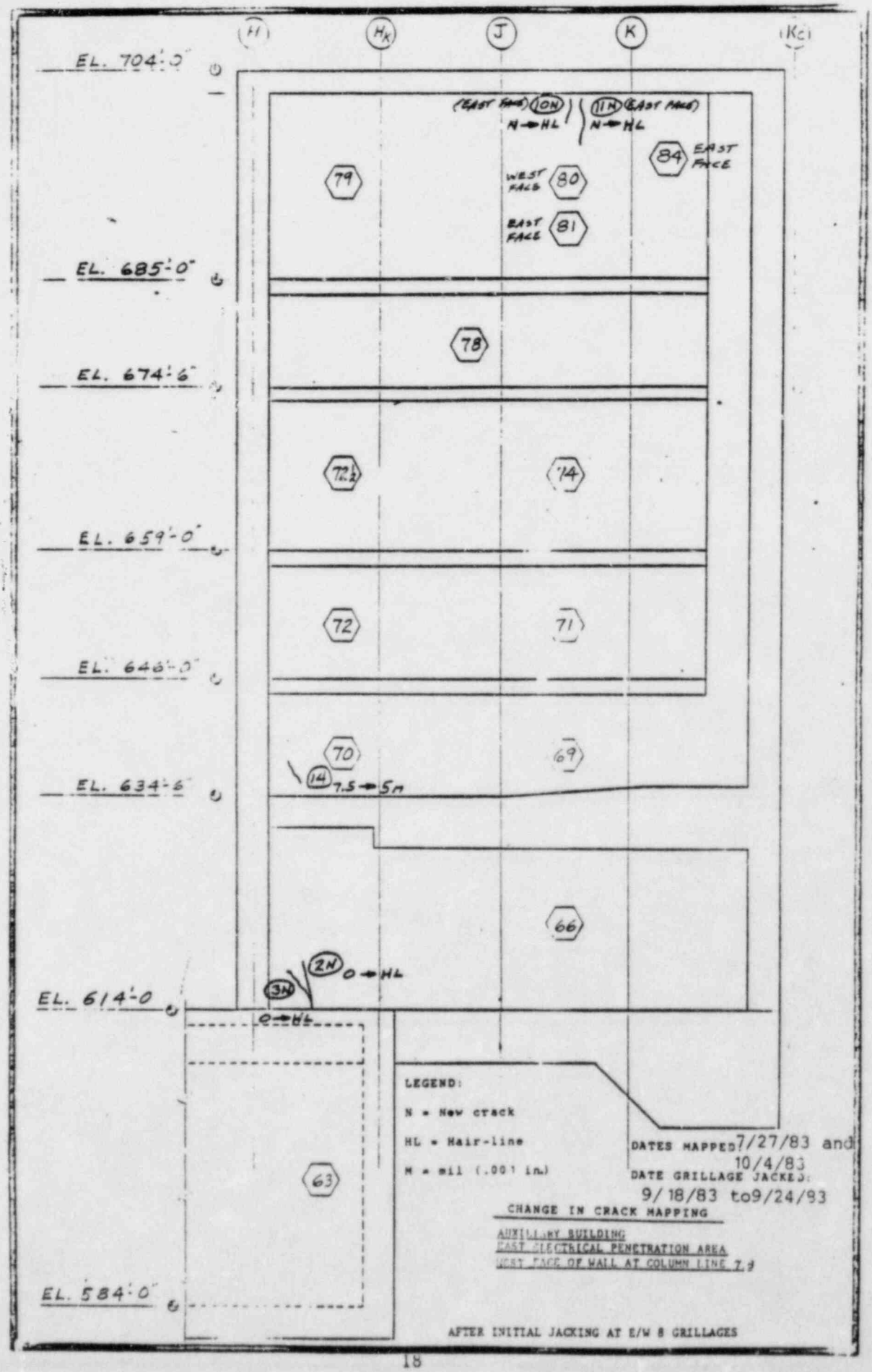
14

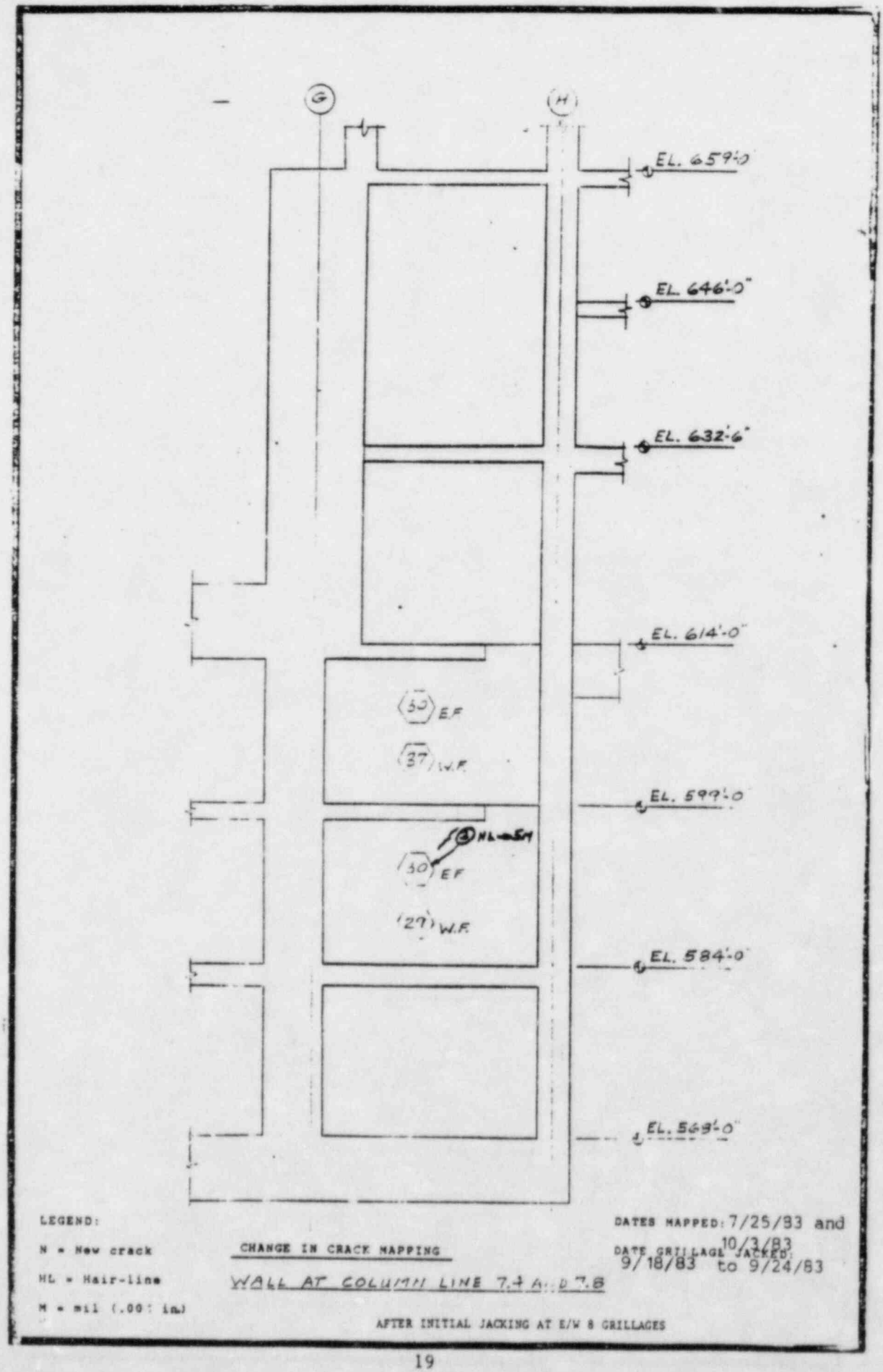

5.3
5.9
6.6
7.2
7.4
N
119
120
121
122
G
H
123
125
127
129
124
126
128
130
12 10→5M
9 7.5→5M
13 10→5M
5 5→10M
14 7.5→5M
LEGEND:
N = New crack
HL = Hair-line
M = mil (.001 in.)
CHANGE IN CRACK MAPPING
AUXILIARY BUILDING CONTROL TOWER AT ELEVATION 614'-0"
DATES MAPPED: 7/26/83 and 10/6/83
DATE GRILLAGE JACKED: 9/18/83 to 9/24/83
AFTER INITIAL JACKING AT E/W 8 GRILLACES



Attachment C page 10 of 14


F
G
H
5.3
5.9
6.6
7.2
7.4
N
265
263
262
261
260
269
247
249
251
245
248
250
252
246
3 10→5M
N→HL
LEGEND:
N = New crack
HL = Hair-line
M = mil (.001 in.)
3 12.5→10M CHANGE IN CRACK MAPPING
AUXILIARY BUILDING CONTROL TOWER AT ELEVATION 659'-0"
DATES MAPPED: 7/28/83 and 10/11/83
DATE GRILLAGE JACKED: 9/18/83 to 9/24/83
AFTER INITIAL JACKING AT E/W 8 GRILLAGES


(H)
(Hk)
J
K
(Kc)
EL. 704'-0"
EL. 685'-0"
EL. 674'-6"
EL. 659'-0"
EL. 646'-0"
EL. 634'-6"
EL. 614'-0"
EL. 584'-0"
(EAST FACE) 10N N→HL
11N (EAST FACE) N→HL
84 EAST FACE
79
WEST FACE 80
EAST FACE 81
78
72½
74
72
71
70
69
14 7.5→5M
66
2N 0→HL
3N 0→HL
63
LEGEND:
N = New crack
HL = Hair-line
M = mil (.001 in.)
DATES MAPPED: 7/27/83 and 10/4/83
DATE GRILLAGE JACKED: 9/18/83 to 9/24/83
CHANGE IN CRACK MAPPING
AUXILIARY BUILDING
EAST ELECTRICAL PENETRATION AREA
WEST FACE OF WALL AT COLUMN LINE 7
AFTER INITIAL JACKING AT E/W 8 GRILLAGES



LEGEND:

N = New crack

HL = Hair-line

M = mil (.001 in.)

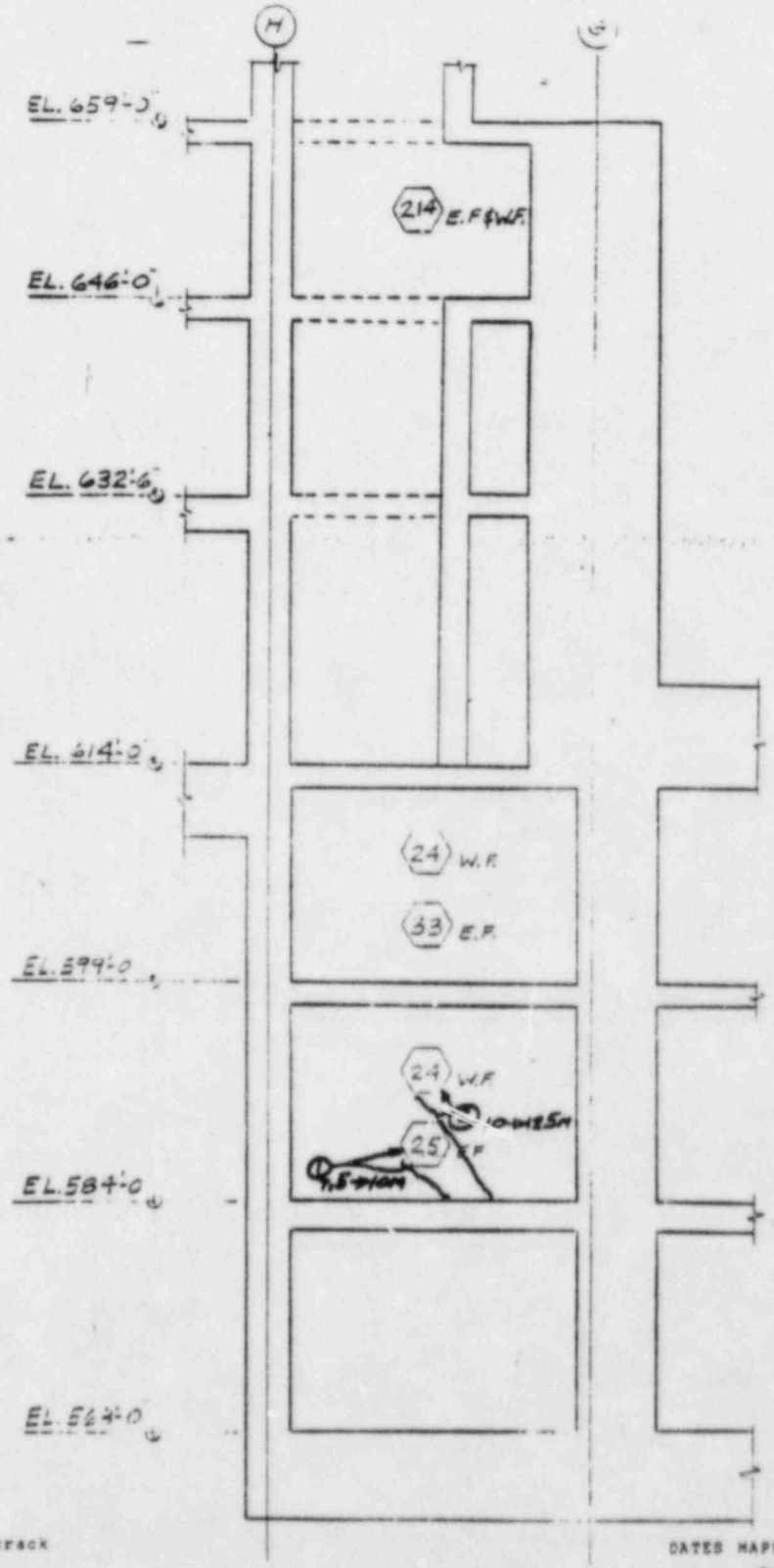
CHANGE IN CRACK MAPPING

WALL AT COLUMN LINE 7.4 AND 7.8

AFTER INITIAL JACKING AT E/W 8 GRILLAGES

DATES MAPPED: 7/25/83 and 10/3/83

DATE GRILLAGE JACKED: 9/18/83 to 9/24/83



LEGEND:

N = New crack

HL = Hair-line

M = mil (.001 in.)

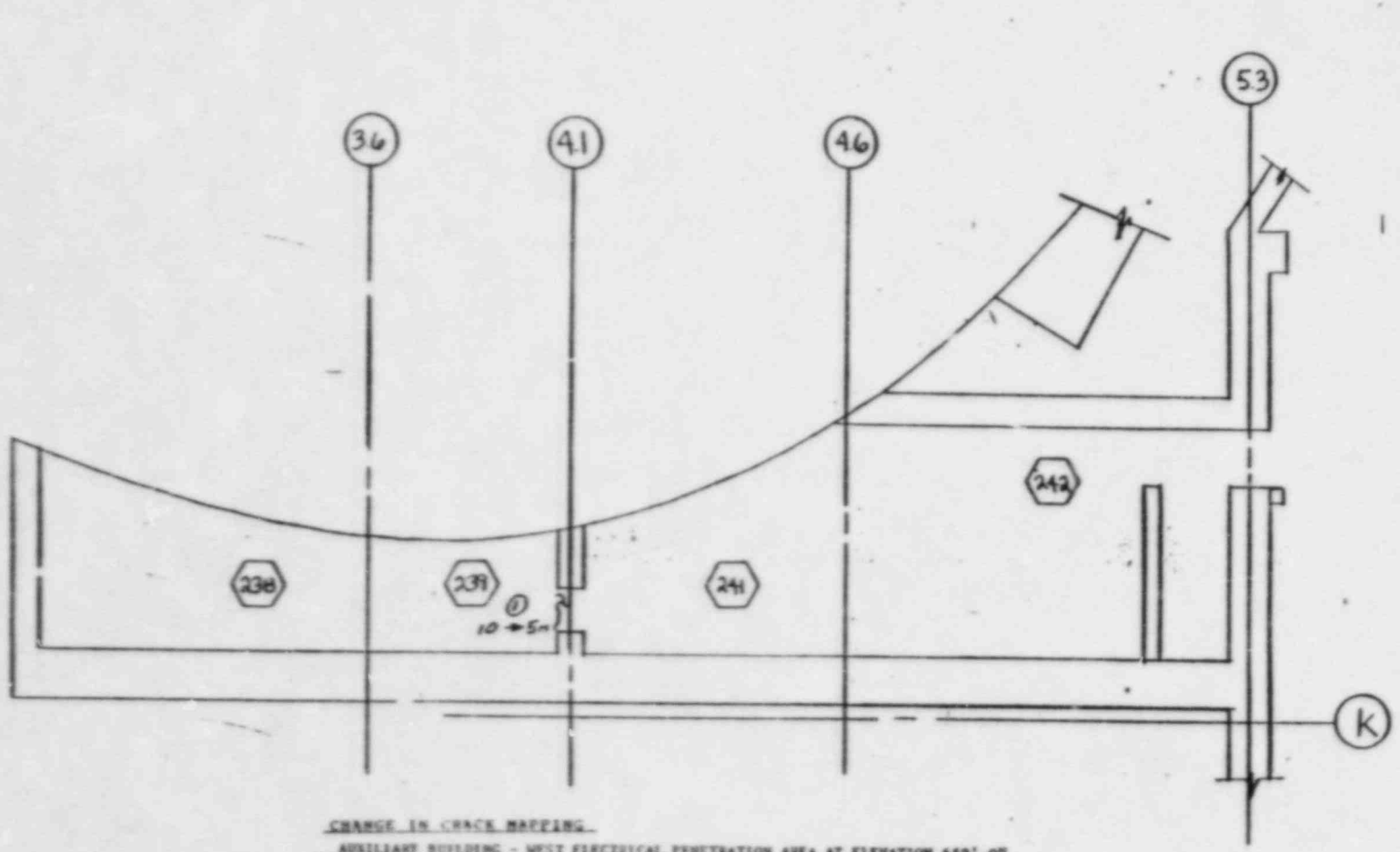
CHANGE IN CRACK MAPPING

WALL AT COLUMN LINE E.3 AND E.6

AFTER INITIAL JACKING AT E/W 8 GRILLAGES

DATES MAPPED: 7/25/83 and 10/3/83

DATE GRILLAGE JACKED: 9/18/83 to 9/24/83



CHANGE IN CRACK MAPPING

AUXILIARY BUILDING - WEST ELECTRICAL PENETRATION AREA AT ELEVATION 659'-0"

LEGEND:

N = New crack

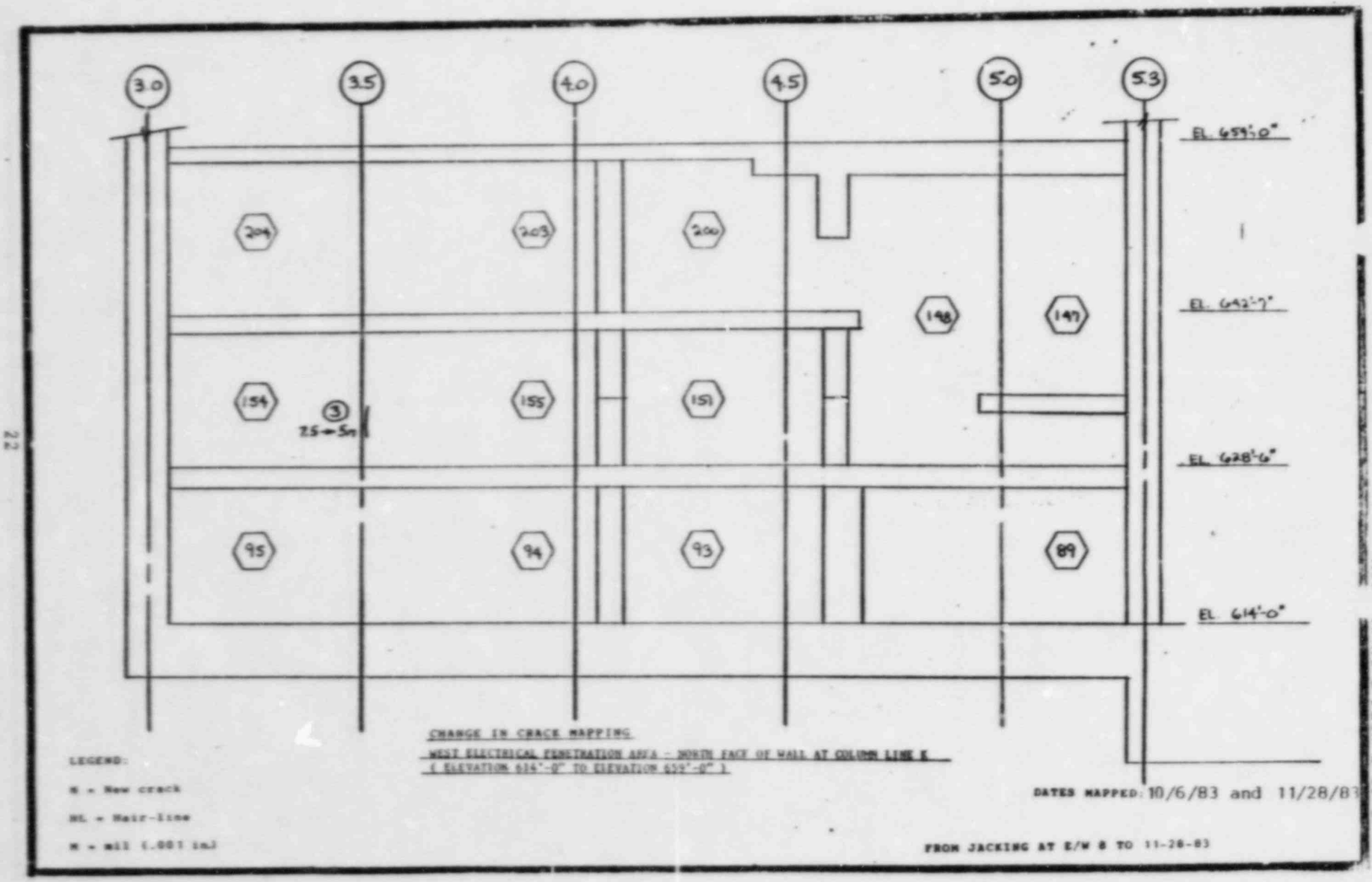
HL = Hair-line

M = mil (.001 in)

DATES MAPPED: 10/7/83 and 11/28/8

FROM JACKING AT E/W 8 TO 11-28-83

Att. ment D page 1 of 8



CHANGE IN CRACK MAPPING

WEST ELECTRICAL PENETRATION AREA - NORTH FACE OF WALL AT COLUMN LINE E
(ELEVATION 614'-0" TO ELEVATION 659'-0")

LEGEND:

N = New crack

HL = Hair-line

M = Mil (.001 in)

DATES MAPPED: 10/6/83 and 11/28/83

FROM JACKING AT E/W 8 TO 11-28-83

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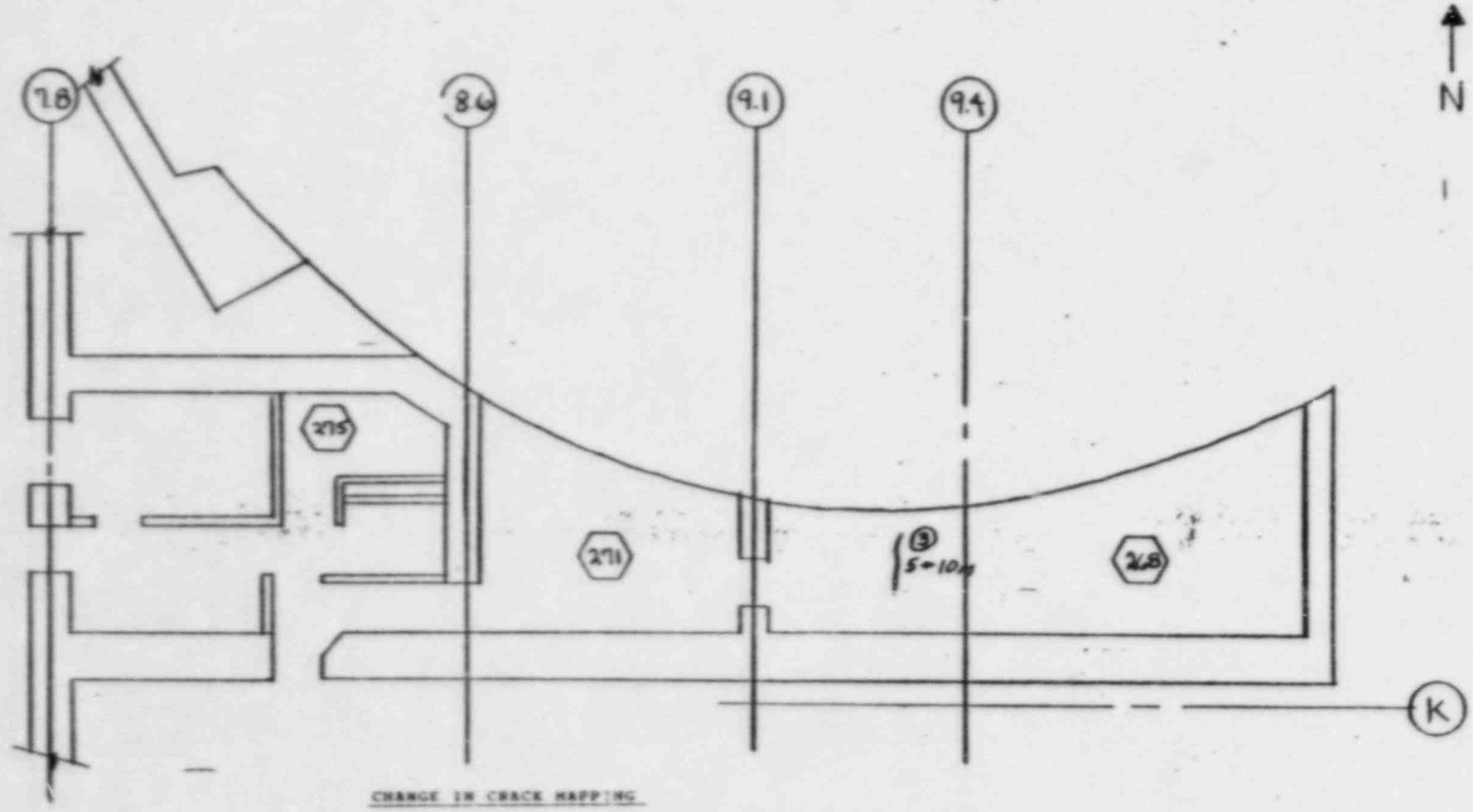
Attachment D page 2 of 8



CHANGE IN CRACK MAPPING

AUXILIARY BUILDING - EAST ELECTRICAL PENETRATION AREA AT ELEVATION 659'-0"

LEGEND:

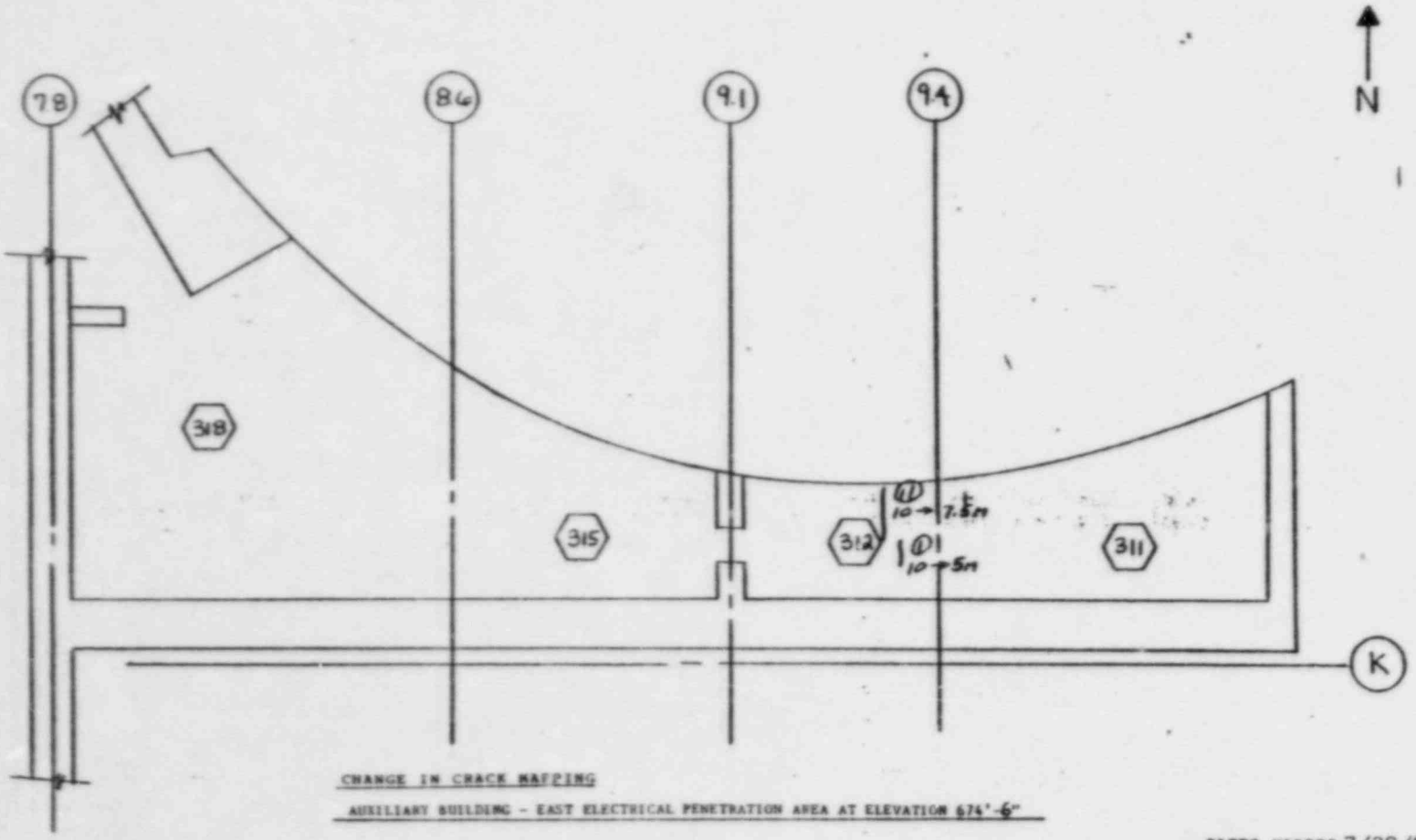
N = New crack

HL = Hair-line

M = mil (.001 in)

DATES MAPPED: 10/7/83 and 11/28/83

FROM JACKING AT E/W 8 TO 11-28-83



CHANGE IN CRACK MAPPING

AUXILIARY BUILDING - EAST ELECTRICAL PENETRATION AREA AT ELEVATION 674'-6"

LEGEND:

N = New crack

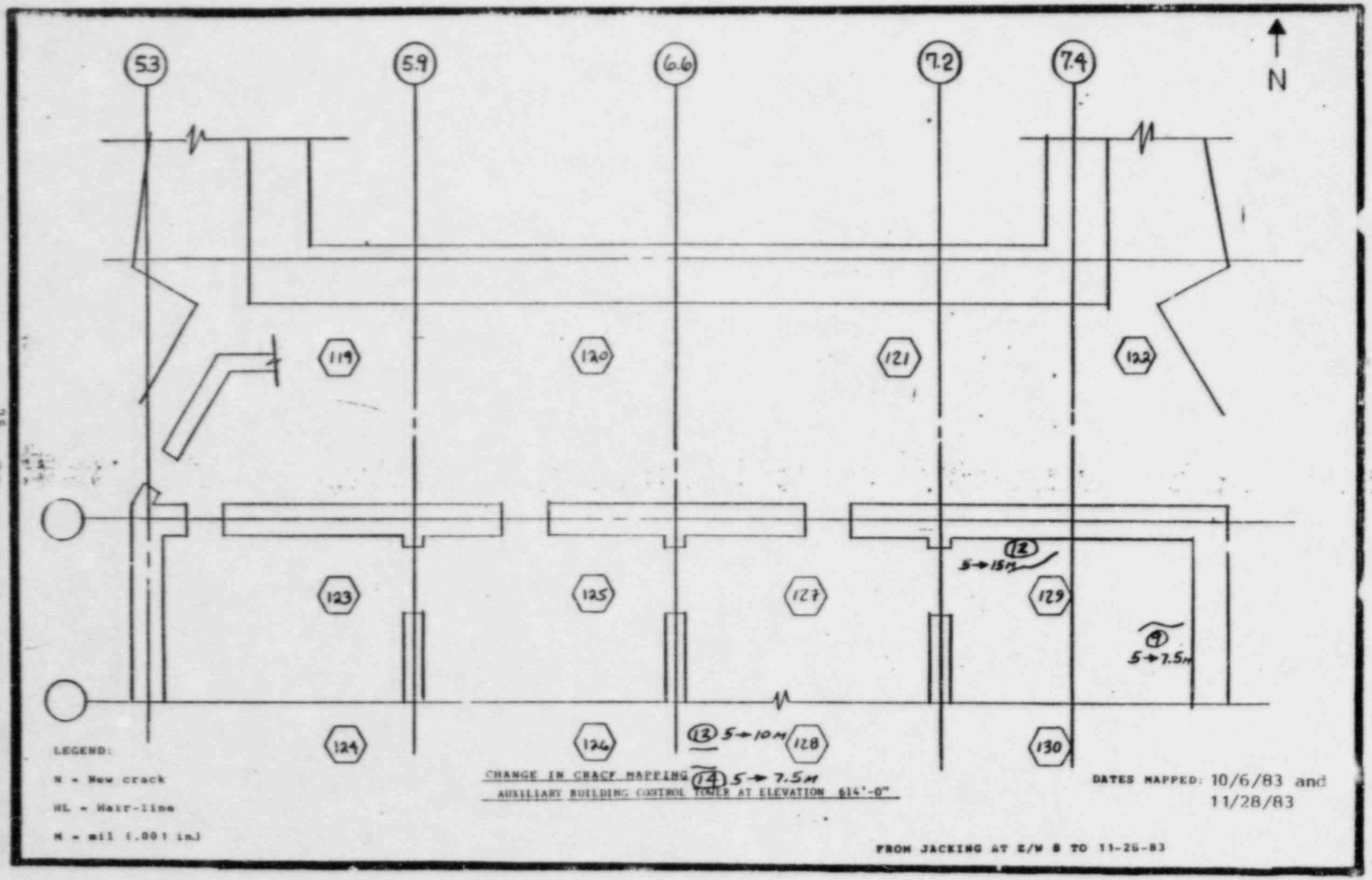
HL = Hair-line

M = mil (.001 in)

DATES MAPPED: 7/28/83 and 11/28/83

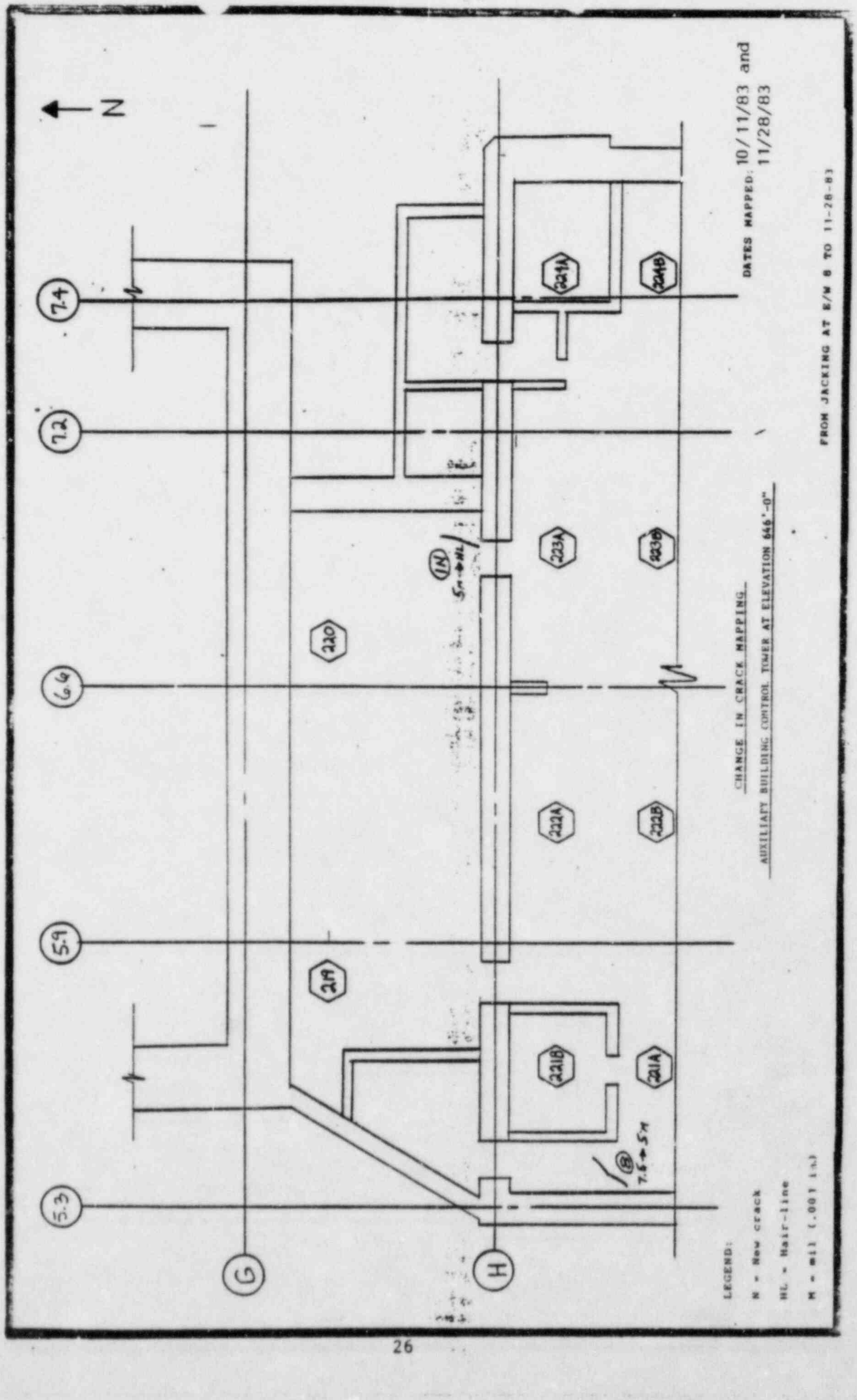
FROM JACKING AT E/W 8 TO 11-28-83

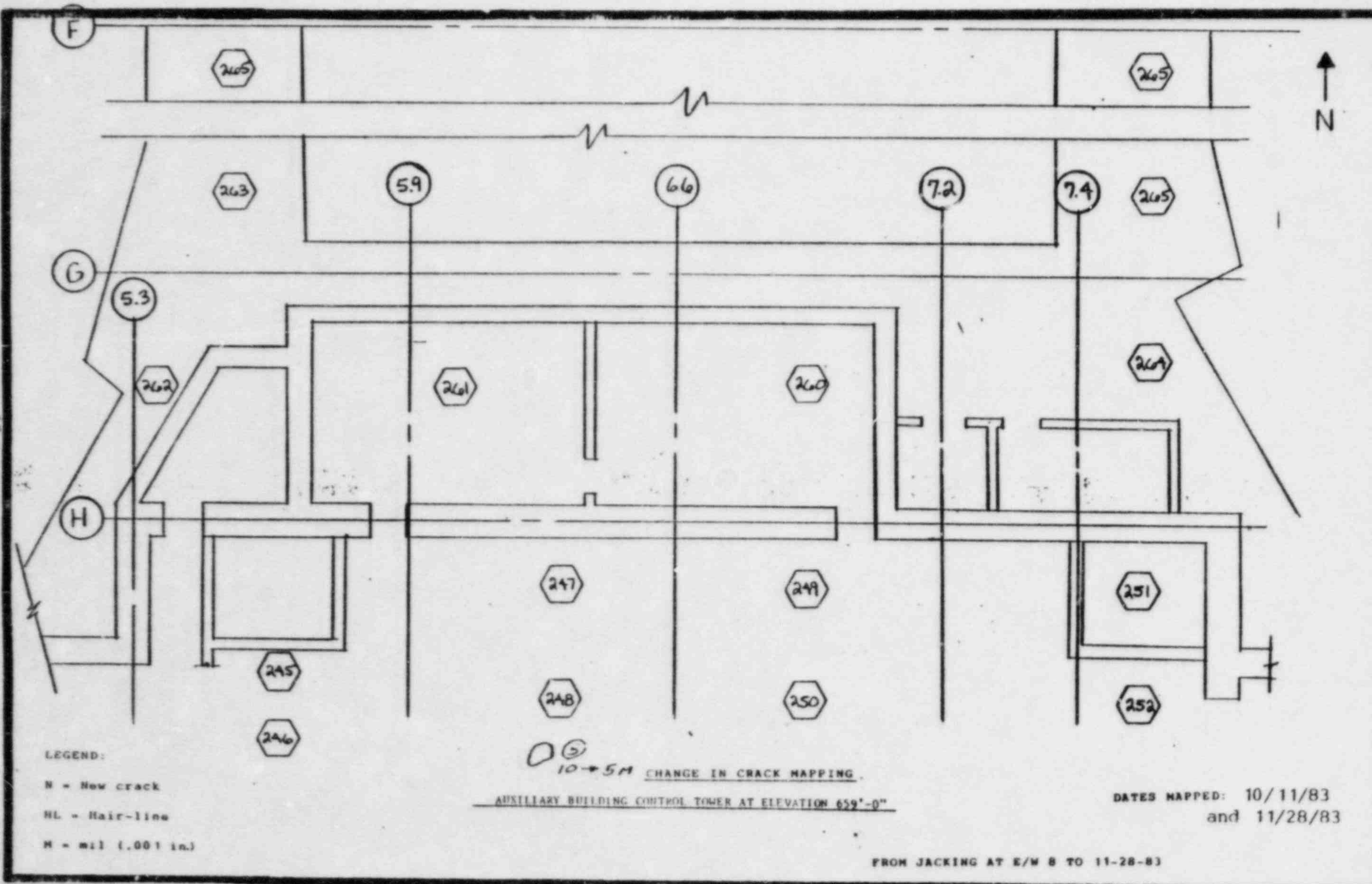
Attachment D page 4 of 8

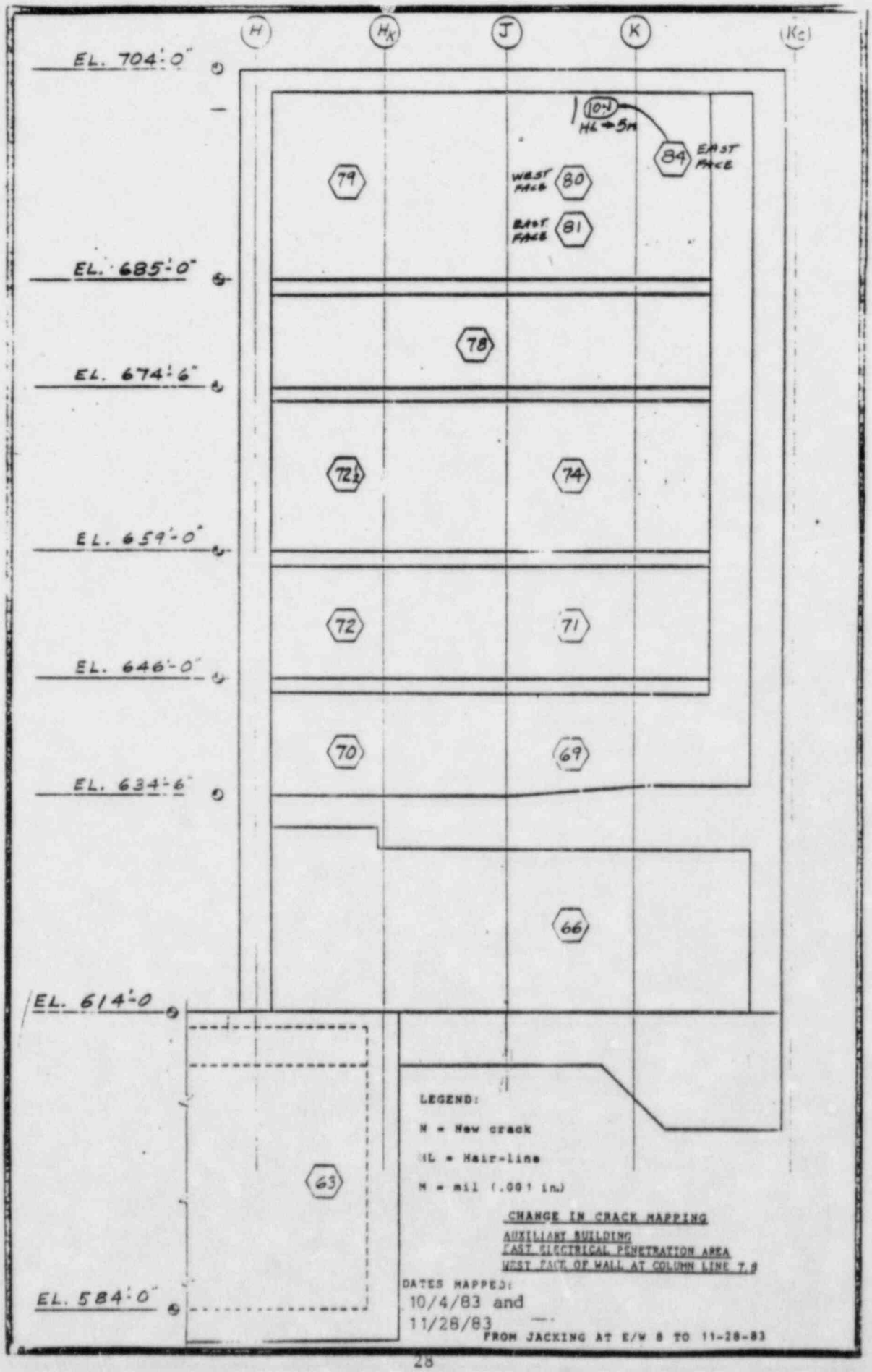


25

Attachment D page 5 of 8


N
DATES MAPPED: 10/11/83 and 11/28/83
FROM JACKING AT E/W 8 TO 11-28-83
CHANGE IN CRACK MAPPING
AUXILIARY BUILDING CONTROL TOWER AT ELEVATION 646'-0"
LEGEND:
N - New crack
HL - Hair-line
M - mil (.001 in.)
5.3
5.9
6.6
7.2
7.4
G
H
219
220
221A
221B
222A
222B
223A
223B
224A
224B
7.5 → 5M
5M → HL


N
F
G
H
5.3
5.9
6.6
7.2
7.4
265
265
263
265
264
262
261
260
247
249
251
245
248
250
252
246
LEGEND:
N - New crack
HL - Hair-line
M - mil (.001 in.)
10 → 5M CHANGE IN CRACK MAPPING
AUXILIARY BUILDING CONTROL TOWER AT ELEVATION 659'-0"
DATES MAPPED: 10/11/83
and 11/28/83
FROM JACKING AT E/W 8 TO 11-28-83


H
HK
J
K
KL
EL. 704'-0"
EL. 685'-0"
EL. 674'-6"
EL. 659'-0"
EL. 646'-0"
EL. 634'-6"
EL. 614'-0
EL. 584'-0"
10-N
HL → SM
84
EAST FACE
79
WEST FACE
80
EAST FACE
81
78
72½
74
72
71
70
69
66
63
LEGEND:
N = New crack
HL = Hair-line
M = mil (.001 in.)
CHANGE IN CRACK MAPPING
AUXILIARY BUILDING
EAST ELECTRICAL PENETRATION AREA
WEST FACE OF WALL AT COLUMN LINE 7.8
DATES MAPPED:
10/4/83 and
11/28/83
FROM JACKING AT E/W 8 TO 11-28-83

SUMMARY OF AUXILIARY BUILDING CRACK CHANGES

LOCATION	AREA	CRACK I.D. NO	CRACK MEASURMENTS (1 MIL=.001 in.)						EVALUATION
			WIDTH CHANGE AFTER INITIAL JACKING (MILS)			WIDTH CHANGE AFTER REJACKING (MILS)			
			FROM	TO	>5 MILS	FROM	TO	>5 MILS	
West EPA Slab @ 628' 6"	146	9N	N	HL	No				Within Tolerance.
West EPA slab @ 659' 0"	238	*3	15	5	Yes				Crack #3 in area 238 is in floor topping with poorly defined worn off edges which could have lead to measurement dispersion. All other cracks within tolerance.
	238	*13N	N	HL	No				
	239	*1	15	10	No	10	5	No	
	239	*6	7.5	5	No				
	242	*8	15	10	No				
West EPA Slab @ 674' 6"	282	1	7.5	5	No				Within Tolerance.
West EPA North face of wall @ Col. Line K 614'-0" to 659'-0"	151	1	10	15	No				Both cracks within tolerance.
	154	3	5	7.5	No	7.5	5	No	
	203	*1N	N	HL	No				Cracks were reexamined and traces of paint within the crack indicated that it had formed before underpinning operation.
	203	*2N	N	HL	No				
	203	*3N	N	HL	No				
	203	*4N	N	HL	No				
	204	*1N	N	HL	No				
	204	*2N	N	HL	No				
South face of wall.	339	6	7.5	5	No				Within Tolerance.
East EPA Slab @659'-0"	268	*1	HL	5	No				Crack #2 in area 271 is in floor topping with poorly defined worn off edges which could have lead to measurement dispersion. All other cracks within tolerance.
		*3	HL	5	No	5	10	No	
		*22N	N	HL	No				
	271	*2	7.5	15	Yes				
East EPA Slab @674'6"	312	1	10	Crazing	N/A	10	5	No	Cracks were noted as crazing when mapped after initial jacking. Valves from 7/28/83 to 11/28/83 were within tolerance.
		11	10	Crazing	N/A	10	7.5	No	
East EPA North face of wall @ Col. Line K 614'-0" to 659'-0"	187	2N	N	HL	No				Both cracks within tolerance.
	139	1N	N	HL	No				
Control Tower West face of wall @ Col. Line 7.8	66	2N	N	HL	No				All cracks within tolerance.
		3N	N	HL	No				
	70	14	7.5	5	No				

SUMMARY OF AUXILIARY BUILDING CRACK CHANGES

LOCATION	AREA	CRACK I.D. NO.	CRACK MEASUREMENTS (1 MIL=.001 in)						EVALUATION
			WIDTH CHANGE AFTER INITIAL JACKING (MILS)			WIDTH CHANGE AFTER REJACKING (MILS)			
			FROM	TO	5 MILS	FROM	TO	5 MILS	
Control Tower East face of Wall @ Col. Line 7.8	84	10N ~~41N~~	N N	HL HL	No No	HL	5	No	Both cracks within tolerance.
Control Tower Slab @614'-0"	128	5	5	10	No				Crack #12 in area 129 is in floor topping with poorly defined worn off edges which could have lead to measurement dispersion. All other cracks within tolerance.
		12	10	5	No	5	10	No	
		14	7.5	5	No	5	7.5	No	
	129	9	7.5	5	No	5	7.5	No	
		12	10	5	No	5	15	Yes	
Control tower Slab @646'-0"	221A	8	5	7.5	No	7.5	5	No	Within Tolerance.
Control tower Slab @659'-0"	248	5	12.5	10	No	10	5	No	Within Tolerance.
Aux. Bldg. Slab @646'-0"	219	1N	N	HL	No				All cracks within tolerance.
		2N	N	HL	No				
	220	1N	N	5	No	5	HL	No	
		2N	N	HL	No				
		3N	N	HL	No				
Aux. Bldg. Slab @659'-0"	260	4N	N	HL	No				Both cracks within tolerance.
	261	3	10	5	No				
Aux. Bldg. Wall @Col. Line 7.4 & 7.8	30	3	N	5	No				Within Tolerance.
Aux. Bldg. Wall @Col. Line 5.3 & 5.6	25	*1	7.5	10	No				Both cracks within tolerance.
	24	*2	10	12.5	No				
* Inspected by	Dr. A. E	Fiorato	(CTL)	and Dr.	Mete Sozen	(Univ.	of Ill)		

Attachment E
Page 2 of 3

SUMMARY OF CRACK CHANGES FOR

INITIAL JACKING AT E/W 8 GRILLAGE

DESCRIPTION	NEW	INCREASED	DECREASED
Total number of cracks.	21	10	13
Number of cracks greater than 0.005" change.	0	1	1

As shown above, relatively few cracks were observed to have changed in width during the introduction of the initial jacking loads for the Grillages. Of the reported twenty-one (21) new cracks after initial jacking, eight (8) were determined to have existed before start of underpinning based on subsequent inspection.

SUMMARY OF SELECTED CRACK CHANGES FOR REJACKING AT E/W 8 GRILLAGE

	INCREASED	DECREASED
Total number of crack changes.	6	7
Number of cracks greater than 0.005" change.	1	0

Consumers Power Company

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December 6, 1983

Mr J J Harrison
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MIDLAND ENERGY CENTER GWO 7020
CONCURRENCE FOR ADDITIONAL JACKING LOADS FOR THE EAST/8 GRILLAGE
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-7063
12*32

In the above referenced letter, it was clarified that 160% of the specified load is planned to be jacked, in 5% increments (over the locked off load) into grillage 8 (EPA jacks) prior to completing the excavation for grillage 5. The letter also stated that the load in grillage (EPA Jacks) will be reduced to the specified load (800 tons) as the load at grillage at 2 is applied.

At the time of the letter, the jacking load in grillage 8 (EPA jacks) had been locked off at 125% of specified load. (Percentages expressed hereafter are percentages of specified load.) In a September 29, 1983 telecon, Dr. R. Landsman informed CPCo not to institute additional reserve capacity load above 125% without NRC concurrence.

On November 15, 1983, CPCo indicated in a conference call with the NRC (Dr. Landsman, J. Kane and others) that it would be necessary to increase the jacking loads for east 8 grillage to maintain the building elevation. East and West 8 grillage jacking and building elevation history was discussed. It was mentioned that with the NRC restriction on jacking additional reserve capacity load, frequent rejacking of the grillages may be necessary to comply with the design specification. It was explained that in one instance of rejacking of east 8 grillage, the lift-off loads experienced were 131.3% for the X jacks, 133.5% for the Y jacks and 145.4% for the Z jacks. (The X jacks support the Turbine Building, and the Y and Z jacks support the EPA.)

In a November 28, 1983 conference call with the NRC (Dr. Landsman and J. Kane), CPCo again requested permission to increase the jacking lock off loads for the east 8 grillage. Mr. Gould of Mergentime explained that the previously agreed limitation on lock off loads (X=110%, Y=125%, Z=125%) is hindering our ability to maintain the Auxiliary Building elevation. Specifically, the east 8 grillage had been recently rejacked twice over the Thanksgiving Holiday with the overall effect of losing building elevation.

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Mr. Gould indicated that the current adjusted jack loads for the east 8 grillage were X=115%, Y=141.7% and Z=149%. Mr. Gould indicated that the frequent rejacking on the east side may be due to smaller than necessary lock off loads. The triggering mechanism for the rejacking is related to the structure reaching a downward movement of 0.010 inch in a 48 hour period, as specified in the construction procedure. CPCo recommended the following actions:

1. Maintain current jack loads (X=115%, Y=141.7%, Z=149%) for the east 8 grillage/pier until the acceptance criteria of 10 mils in 48 hours is satisfied.

2. After the acceptance criteria is met, reduce the E8 grillage/pier loads to X=115%, Y=135%, Z=135% and then lock off X, Y and Z jacks.

Mr. Kane and Dr. Landsman indicated they concurred with the recommended actions. This letter serves as documentation for the agreement on the recommended action.

It was also indicated by Mr. Kane that he would like to resolve the issue in total through the following steps:

1. CPCo will complete its' evaluation of crack mapping and other data to determine the effects of jacking loads on the Auxiliary Building. Upon completion of this evaluation, CPCo will provide in writing, the conclusions of the effects of higher jacking loads on the Auxiliary Building to the NRC by December 9, 1983.

2. A meeting is tentatively scheduled for the week of December 19, 1983 (later changed to January 4, 1984 through January 6, 1984), to completely resolve the outstanding issues relative to increasing jacking loads. Discussions will include data and other information required to resolve the matter of jacking loads.

Although permission has been received to increase lock off loads for the East 8 grillage as outlined above, it should be recognized that the increased jacking loads presently authorized may not necessarily be sufficient to maintain the building elevation. If the jacking loads are not deemed sufficient due to unanticipated conditions, we may be requesting your concurrence for higher jacking loads. (It should be pointed out here that the grillage at 8 including pier and foundation capacity has been designed for 2000T load which provides for any unanticipated conditions.) We thank you for your cooperation on this matter.

J A Mooney

JAM/RMW/klw

sent to DRMA 12/7/83

Consumers Power Company

J A Mooney
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December 2, 1983

Mr J J Harrison
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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.

JAMooney

JAM/RMW/klw

Attachment

DEC 7 1983

8312120346

CRACK MAPPING MONITORING STATUS

DATE	ITEM	CORRECTIVE ACTION	SCHEDULED RESOLUTION DATE
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	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	Review of crack mapping process indicated that QC/QA inspections and overview were incomplete 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

DATE	ITEM	CORRECTIVE ACTION	SCHEDULED RESOLUTION DATE
11-09-83	Initiate inspection process of crack mapping to bring up to date.		
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.	
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 Supevisor to be replaced	11-23-83

DATE	ITEM	CORRECTIVE ACTION	SCHEDULED RESOLUTION DATE
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.	

DATE	ITEM	CORRECTIVE ACTION	SCHEDULED RESOLUTION DATE
11-28-83	WJE Site Engineering Lead brought on site full time	Site Engineering Lead assigned full time to review monitoring activities and all data.	
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 MPQAD Soils.	

sent to DMB 12/5

Consumers Power Company

J A Mooney
Executive Manager
Midland Project Office

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November 29, 1983

Mr J J Harrison
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MIDLAND ENERGY CENTER GWO 7020
INSTRUMENTATION DATA FOR SERVICE WATER
AND AUXILIARY BUILDING UNDERPINNING
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-7037
42*20

Pursuant to the NRC/CPCo conference call of 11/15/83, we are providing various instrumentation data for your review. Enclosed please find the following:

1. Auxiliary building instrumentation schematics
2. Auxiliary building jacking log
3. Ambient temperature
4. Auxiliary building settlement plots from June, 1983 through November, 1983
5. Auxiliary building extensometer plots from June, 1983 through November, 1983
6. Auxiliary building strain gauge plots from June, 1983 through November, 1983
7. Carlson meter readings for Pier E/W 8
8. Service water pump structure instrumentation schematic
9. Service water pump structure settlement plots from August, 1983 through November, 1983
10. Service water pump structure extensometers from August, 1983 through November, 1983
11. Auxiliary and service water building construction events
12. Service water pump structure piezometers level graphs through November, 1983
13. Auxiliary building underpinning monitoring one year cycle plots
14. Auxiliary building settlement plots August, 1982 to June, 1983
15. Auxiliary building extensometer plots from August, 1982 to June, 1983
16. Auxiliary building strain gauge plots from August, 1982 to June, 1983

Should you have any questions on the data please direct them to the CPCo Site Management personnel.

JAMooney

JAM/RMW/klw

Attachments

DEC 5 1983

8312090185

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9/3/83
mi0583-0429a100

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TABuczwinski, Midland-207
JNLeech, P-24-506
DASommers, P-14-106
DFLewis, Bechtel
FJLevandoski, B&W
PPSteptoe, IL&B, Chicago
FCWilliams, IL&B, Washington
GALow, P-12-237A
NRC Correspondence File, P-24-517
LGraber, LIS
UFI, P-24-517
BJWalraven, P-24-517
Hearings File, P-24-517
DJVandeWalle, P-24-614B
LAWells, MPQAD Midland
JWCook, P-26-336B
SHHowell, M-1180B

CONSUMERS POWER COMPANY
Midland Units 1 and 2
Docket No 50-329/50-330

Letter Serial CSC-7037 Dated November 29, 1983

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits letter Serial CSC-7037, dated November 29, 1983.

CONSUMERS POWER COMPANY

By J A Mooney
J A Mooney
Executive Manager

Sworn and subscribed before me this 29th day of Nov, 1983.

Patricia A Luffer
Notary Public

PATRICIA A. [illegible]
Notary Public, Bay County, [illegible]
My Commission Expires Mar. 4, 19[illegible]

My Commission Expires 3-4-86

BP1183-0001A-CN01

sent to DMB 12/5/83

Consumers Power Company

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File		File	

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November 22, 1983

Mr J J Harrison
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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

DEC 5 1983

8312090182

sent to DMB 12/2/83

Consumers Power Company

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PRINCIPAL STAFF

November 18, 1983

Mr J J Harrison
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MIDLAND ENERGY CENTER GWO 7020
AFFIRMATION OF LETTERS CSC-6960, DATED 10/24/83 AND
CSC-6978, DATED 11/4/83.
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-7015

CPCo recently discussed with NRC Region III and NRR the method for which technical information is forwarded to the staff for review. CPCo took an action to review recent letters to NRC to determine if the information contained within the letters should be sworn and affirmed. We have concluded that our letters serial CSC-6960, dated October 24, 1983 and serial CSC-6978, dated November 4, 1983, should be sworn and affirmed.

The attached have been signed and are to be transmitted to correct the documentation associated with the above referenced letters.

JAMooney

JAM/RMW/klw

Attachments

DEC 2 1983

8312060253

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DASommers, P-14-106
DFLewis, Bechtel
FJLevandoski, B&W
PPSteptoe, IL&B, Chicago
FCWilliams, IL&B, Washington
GALow, P-12-237A
NRC Correspondence File, P-24-517
LGraber, LIS
UFI, P-24-517
BJWalraven, P-24-517
Hearings File, P-24-517
DJVandeWalle, P-24-614B
RAWells, Midland
JWCook, P-26-336B
SHHowell, M-1180B

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CONSUMERS POWER COMPANY
Midland Units 1 and 2
Docket No 50-329/50-330

Letter Serial CSC-6978 Dated November 4, 1983,
and Serial CSC-6960 Dated October 24, 1983

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits letters Serial CSC-6978, dated November 4, 1983 and Serial CSC-6960, dated October 24, 1983.

CONSUMERS POWER COMPANY

By J A Mooney
J A Mooney
Executive Manager

Sworn and subscribed before me this 28th day of Nov, 1983.

Patricia A Puffer
Notary Public

PATRICIA A. PUFFER
Notary Public, Bay County, MI
My Commission Expires Mar. 4, 1986

My Commission Expires 3-4-86

BP1183-0000A-CN01-DUP

Consumers Power Company

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November 4, 1983

Mr J J Harrison
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MIDLAND ENERGY CENTER GWO 7020
SERVICE WATER PUMP STRUCTURE LOAD TRANSFER
File: 0485.16.2 UFI: 42*05*22*04 Serial: CSC-6978

The following item is not addressed in the Midland Safety Evaluation Report (including Supplements 1 and 2) concerning the service water pump structure load transfer (Section 3.8.3.2).

Before excavating pier pits 7 and 7A, piers 1 through 6 and 1A through 6A will be loaded to 125 percent of the Stage I loads (unless otherwise directed by the resident structural engineer). This will be done to maintain structure elevation during the excavation of pier pits 7 and 7A. These loads will be decreased as the jacking of piers 7 and 7A progresses so that when piers 7 and 7A are jacked above the Stage I loads, the temporary increase will be eliminated and piers 1 through 6 and 1A through 6A will again be at 100% of the Stage I loads. This will not adversely affect the structure because it simply redistributes the loads in the vicinity of the excavation to the other piers until piers 7 and 7A can be jacked. Other conditions more critical than this have already been analyzed.

If you have any concerns or comments regarding this subject, please contact this office.

DLQ/DES/klm

8311210380

Consumers Power Company

J A Mooney
Executive Manager
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October 24, 1983

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

Subject: Midland Energy Center GW07020
Auxiliary Building Underpinning
NRC Audit of September 14-15, 1983
and Subsequent Discussions
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6960
12*32

This letter summarizes the discussions during the subject audit. It also includes the applicants' responses to the open items resulting from the subject audit and the subsequent discussions.

Audit

During the NRC audit of September 14-15, 1983, the capacity of the Auxiliary Building for a soil modulus of 1500 ksf and differential settlement of one-half inch was reviewed and it was concluded that the building is structurally adequate.

During this audit, presentations were made and exhibits provided to the NRC. These exhibits are included as Attachment 1. Also, updated settlement plots of the Diesel Generator Building were provided and are included as Attachment 2.

The NRC also reviewed the design and details of the slab fix at Elevation 659 feet. Consumers will provide the final drawings of this fix as a work package to NRC Region III prior to implementation of this work.

Included in the audit were four additional points of discussion. These points and their responses are listed below.

1. Building stresses after lock-off of the permanent wall with regard to residual stresses and upward building movements during underpinning.

   Response: Attachment 3 provides response and concludes that the assumptions made, regarding existing stress, in the analytical models are justified and the calculated stresses resulting from these models are reasonable.

2. Request for an alteration to the soil consolidation acceptance criteria for the permanent underpinning wall included in our letter of June 9, 1983.

   Response: This request is withdrawn, the criteria will be as referenced in SSER Section 3.8.3.1, Pages 3-9.

3. Results of a local stress analysis of the EPA/Control Tower connection at Elevation 704.

   Response: The connection at Elevation 704 is being reviewed. The results of this review will be submitted to the NRC before removal of the temporary prestressing strands in the EPA.

4. Long term settlement values as defined in the previously submitted Technical Specifications.

   Response: These values are being reviewed and if necessary revised values will be submitted to the NRC by revision to the Technical Specifications.

Subsequent Discussion

1. Approximately how much upward movement of the existing structure (EPA and Control Tower) will be allowed during jacking operations?

2. How was the value (and conditions related to value) in Answer No. 1 determined?

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   Response: The sequence for jacking (temporary and permanent) is consistent with the SSER (Appendix I) except that during the initial jacking of Control Tower piers, CT 3/10 will be completed prior to CT 2/11. This information was provided to the NRC in the March 7-8, 1983, telephone conversation regarding access from the UAT.

4. When initial jacking of an independent pier or pier/grillage system is performed, what evaluations are made if AUM occurs?

   Response: Attachment 5 provides this response and shows that an adequate evaluation of the structure is performed prior to proceeding with further jacking.

5. Provide an explanation for jacking 160% of the specified load into the grillage at 8, as the reserve capacity load.

   Response: Sometime after jacking grillage at Pier 8, excavation for the grillage at Pier 5 will be performed. The loss of building support due to this excavation can result in additional load being transferred passively to the grillage at 8. This additional load can cause additional building movement due to pier settlement, grillage deflection, etc. In order to minimize this building movement, a reserve capacity load (RCL) in increments of 5% will be jacked into the grillage at 8 prior to excavation for grillage at 5. The load which is based on estimated loss of building support at 5 has been calculated to result in an increase in the load of 50% of the specified load (S.L.) at grillage 8. The S.L. is the design force defined in Paragraph 6.3.4b of Specification 7220-C-195. The building has been checked for, and found to be adequate, for 160% S.L. i.e., the total load in grillage at 8 when the grillage 5 area is undermined.

   Similarly a RCL will be jacked into the grillage at 5 before excavation for the grillage at 2. At this time the load at the grillage 8 will be maintained at 160% S.L. While loading the grillage at 2, the loads at grillages 5 and 8 are reduced to the S.L.

6. For grillage jacking at Pier 8, why was the 24 hour acceptance criteria changed to 125% of specified load instead of 110% of specified load.

   Response: Since it is planned to go to RCL, which is higher than 110% S.L., it was considered more conservative and prudent to satisfy the 24 hour acceptance criteria at 125% S.L., instead of reducing the load to 110% S.L. The 24 hour criteria will be again met when the RCL is jacked.

J A Mooney
Executive Manager
Midland Project Office

JAM/nj

MEC/D

Consumers Power Company

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

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/RA		DRMSP	
RC		DRMA	
FAO		SCS	
GA		ML	
NF		File	

Dean L Quamme
Site Manager
Midland Project

November 4, 1983

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
SERVICE WATER PUMP STRUCTURE LOAD TRANSFER
File: 0485.16.2 UFI: 42*05*22*04 Serial: CSC-6978

The following item is not addressed in the Midland Safety Evaluation Report (including Supplements 1 and 2) concerning the service water pump structure load transfer (Section 3.8.3.2).

Before excavating pier pits 7 and 7A, piers 1 through 6 and 1A through 6A will be loaded to 125 percent of the Stage I loads (unless otherwise directed by the resident structural engineer). This will be done to maintain structure elevation during the excavation of pier pits 7 and 7A. These loads will be decreased as the jacking of piers 7 and 7A progresses so that when piers 7 and 7A are jacked above the Stage I loads, the temporary increase will be eliminated and piers 1 through 6 and 1A through 6A will again be at 100% of the Stage I loads. This will not adversely affect the structure because it simply redistributes the loads in the vicinity of the excavation to the other piers until piers 7 and 7A can be jacked. Other conditions more critical than this have already been analyzed.

If you have any concerns or comments regarding this subject, please contact this office.

DLQ/DES/klm

~~(1) Warnick~~
(2) File

Consumers Power Company

James W Cook
Vice President - Projects, Engineering and Construction

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0453

PRINCIPAL STAFF		
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D/RA		DE
A/RA		DRMSP
PC		DRMA
PAO		SGS
SGA		ML
ENF		File

✓orig+3

October 28, 1983

Harold R Denton
Office of Nuclear Reactor Regulation
U S Nuclear Regulatory Commission
Washington, DC 20555

MIDLAND ENERGY CENTER
MIDLAND DOCKET NOS 50-329, 50-330
CONSTRUCTION COMPLETION SCHEDULE
FILE: 0652.1 SERIAL: 26237

This letter is in response to T M Novak's letter of November 4, 1983 regarding a follow up meeting with the Case Load Forecast Panel on the schedule for the completion of the Midland Nuclear Plant. As indicated to your staff during the summer, we had hoped to meet with them last July to continue the schedule discussions initiated in April. However, the plan we set forth and reviewed with the Case Load Forecast Panel in April is no longer valid. The impact of the Dow termination and the delays in the approval of the CCP has significantly changed many of the major schedule assumptions in that plan. As a result, we do not believe that it is useful for either your staff or our own to participate in additional schedule reviews until we complete the new project plan now under preparation.

It is our intent to issue a new Unit 2 schedule shortly after the first of the year. This new schedule will incorporate a number of developments and information that were not able to be incoporated in our prior plan. In addition to the actual construction activities still to be completed, our new schedule will be able to incorporate a model of the actual CCP activities which have been developed in considerably more detail since the prior plan was released. In addition, now that the CCP has been released, we have an actual starting point from which to proceed and we will have the benefit from the results of preliminary walkdowns to more accurately identify the quantity of work in specific areas. In addition, the new plan will incorporate the conclusions of our work in decoupling the construction of Unit 1 from Unit 2 as a result of the Dow termination. We have also developed additional information and data on the test program portion of the schedule as a result of our discussions with your staff last spring. However, even that information will be modified somewhat in our new schedule. While our new schedule cannot resolve all of the uncertainties associated with our to-go activities, I believe it is a significant enough change that would warrant postponing a further Case Load Forecast Panel meeting until this new schedule is announced.

NOV 4 1983

OC1083-0074A-MP04

8311020429

The above discussion indicates the basis for our recommendation to defer further Case Load Forecast Panel meetings until our new schedule work is completed. This letter documents the discussions I have had on this subject with Mr Novak and Ms Adensam during the past two weeks. We are anxious to provide the staff with any information they may need as soon as it is available and, if necessary, we can provide a partial interim briefing if that will assist the staff in their immediate planning needs.

We will await your direction on how to proceed in bringing this matter to a conclusion.

James W. Cook

JWC/JNL/dlm

CC RJCook, Midland Resident Inspector
JGKeppler, Administrator, Region III

CONSUMERS POWER COMPANY
Midland Units 1 and 2
Docket No 50-329, 50-330

Letter Serial 26237 Dated October 28, 1983

At the request of the Commission and pursuant to the Atomic Energy Acts of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits information concerning project scheduling matters.

CONSUMERS POWER COMPANY

By /s/ J W Cook
J W Cook, Vice President
Projects, Engineering & Construction

Sworn and subscribed before me this 28 day of October, 1983

/s/ Barbara P Townsend
Notary Public
Jackson County, Michigan

My Commission Expires September 8, 1984

~~(1) Warnick~~
(2) File

Consumers Power Company

J A Mooney
Executive Manager
Midland Project Office

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

PRINCIPAL STAFF			
RA		DPRP	
D/RA		DE	
A/RA		DRMSP	
PAO		DATA	
SPA		ENS	
SGA		ML	
TIF		File	

letter only ✓

✓ orig + 3 letter

letter only

attachments sent to SCS (R. Landsman) has

October 24, 1983

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

Subject: Midland Energy Center GWO7020
Auxiliary Building Underpinning
NRC Audit of September 14-15, 1983
and Subsequent Discussions
File: 0485.16 UFI: 42*05*22*04 12*32 Serial: CSC-6960

This letter summarizes the discussions during the subject audit. It also includes the applicants' responses to the open items resulting from the subject audit and the subsequent discussions.

Audit

During the NRC audit of September 14-15, 1983, the capacity of the Auxiliary Building for a soil modulus of 1500 ksf and differential settlement of one-half inch was reviewed and it was concluded that the building is structurally adequate.

During this audit, presentations were made and exhibits provided to the NRC. These exhibits are included as Attachment 1. Also, updated settlement plots of the Diesel Generator Building were provided and are included as Attachment 2.

The NRC also reviewed the design and details of the slab fix at Elevation 659 feet. Consumers will provide the final drawings of this fix as a work package to NRC Region III prior to implementation of this work.

Included in the audit were four additional points of discussion. These points and their responses are listed below.

1. Building stresses after lock-off of the permanent wall with regard to residual stresses and upward building movements during underpinning.

   Response: Attachment 3 provides response and concludes that the assumptions made, regarding existing stress, in the analytical models are justified and the calculated stresses resulting from these models are reasonable.

NOV 4 1983

~~8312060263~~

2. Request for an alteration to the soil consolidation acceptance criteria for the permanent underpinning wall included in our letter of June 9, 1983.

   Response: This request is withdrawn, the criteria will be as referenced in SSER Section 3.8.3.1, Pages 3-9.

3. Results of a local stress analysis of the EPA/Control Tower connection at Elevation 704.

   Response: The connection at Elevation 704 is being reviewed. The results of this review will be submitted to the NRC before removal of the temporary prestressing strands in the EPA.

4. Long term settlement values as defined in the previously submitted Technical Specifications.

   Response: These values are being reviewed and if necessary revised values will be submitted to the NRC by revision to the Technical Specifications.

Subsequent Discussion

1. Approximately how much upward movement of the existing structure (EPA and Control Tower) will be allowed during jacking operations?

2. How was the value (and conditions related to value) in Answer No. 1 determined?

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J A Mooney
Executive Manager
Midland Project Office

JAM/nj

MEC/b

Response prepared 10/21
mailed 10/21/83

PRINCIPAL STAFF			
RA	✓		
D/RA			
A/RA			
PC			
PAO		SCS	✓ orig + 3
SGA		ML	
ENF		File	✓

Consumers Power Company

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

October 20, 1983

Mr John J Harrison
Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND ENERGY CENTER
MIDLAND DOCKET NOS 50-329 and 50-330
CONSTRUCTION COMPLETION PROGRAM
RELEASE OF PHASE 1 ACTIVITIES
File: 0655 UFI: 99*08 Serial: CSM-0694

References: 1) Letter to Mr J G Keppler dated August 26, 1983 from Mr J W Cook regarding Construction Completion Program

2) Letter to Mr J W Cook dated October 6, 1983 from Mr Richard C DeYoung regarding Confirmatory Order for Modification of Construction Permits for the Midland Plant

The initiation of status assessment and verification of completed work (Phase 1 of the Construction Completion Program) requires a release from NRC as defined in References 1 and 2. This is to inform you that Consumers Power Company has completed its preparation and required Management Reviews for Phase 1 and is requesting NRC release to initiate Phase 1 in a portion of the plant defined herein. The Construction Implementation Overview (CIO) has released their hold points on Phase 1 activities. (See Attachments)

We have planned an initial implementation of Phase 1 that is restricted to specific areas of the plant as defined in Attachment 2. The initial activities will be restricted to five modules which represent approximately 10 percent of the total number of modules covered by the CCP. During the initial effort, all team activities and elements of the Quality Verification Program (QVP) will be exercised in a slow, controlled manner. Frequent internal review and assessment will be carried out to ensure all objectives and commitments of the CCP are being met during this initial effort. Full NRC release for Phase 1 will be requested after this initial effort has demonstrated effective implementation of the CCP. We are prepared to support any additional reviews above those already conducted on our procedures and training that the NRC may require.

Dean L Quamme
Dean L Quamme
Site Manager

DLQ/pp

OCT 21 1983

8310270171

CC: OL/OM Service List
DSHood, US NRC
RJCook, Midland Resident Inspector

BCC: SHHowell, P26-336B
TABuczwinski, Midland-207
JNLeech, P24-507
DFLewis, Bechtel
DJVandeWalle, P24-614B
GALow, P12-237A
NRC Correspondence File, P24-517
UFI, P24-517
BJWalraven, P24-517
Hearings File, P24-517
RAWells, Midland
RJErhardt, P14-113A
Stan Baranow, S&W (CIO)

ATTACHMENT #1

S&W#2

CONSUMERS POWER CO.

STONE & WEBSTER MICHIGAN, INC.

RECEIVED

P.O. Box 2325, Boston, Massachusetts 02107

OCT 12 1983

Site Mgr.

Midland Project

Mr. J. G. Keppler, Administrator, Region III
Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

October 12, 1983
J.O. No. 14509
NRC File #83-10-12

RE: DOCKET NO. 50-329/330
MIDLAND PLANT - UNITS 1 AND 2
OVERVIEW OF THE CONSTRUCTION COMPLETION PROGRAM

The purpose of this letter is to indicate the status of CIO approval of QVP, BHO and Status Assessment.

QVP was conditionally approved by CIO letter, NRC File #83-06-17 dated June 17, 1983. The conditions were satisfied as reported in weekly reports No's 5 and 6. Status Assessment was conditionally approved by CIO letter, NRC File #83-06-30 dated June 30, 1983 and the conditions were satisfied as reported in weekly report No. 12.

BHO and CIO reported 5 observations resulting from the Management Review Committee meeting on May 18, 1983. These observations were satisfactorily responded to in CPCo letter, Serial CSM-0656 dated July 1, 1983. CIO weekly report No. 4 dated July 12, 1983 closes this item.

CIO considers QVP, BHO and Status Assessment ready for implementation.

CIO requires NIRs #002. 003, 004 and 005 to be dispositioned prior to assignment of the referenced 45 MPQAD personnel to QVP. A "Hold Point," has been established against the use of the 45 personnel to perform QVP.

CIO report No. 16 identifies the review of "Vendor Equipment Program" as a Hold Point to Phase II of CCP.

Very truly yours,

S. W. Baranow
Program Manager

SWB/ka

cc: JJHarrison, US NRC, Glen Ellyn, IL
RCook, US NRC Midland (site)
DBMiller Jr., CPCo Midland (site)
RBKelly, S&W
APAmoruso, S&W
CORichardson, S&W

8310270176

ATTACHMENT #2

MODULES REQUESTED FOR RELEASE

340 - Balance of Unit #2 Containment

102 - Unit #2 Pipeway & Valve Galleries

120 - Elevation 584 Auxiliary Building

410 - Elevation 614 Unit #2 Turbine Building

800 - Service Water Building

NOTE: Drawings describing the modules are attached.

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Ms Lynne Bernabei
Government Accountability Project
1901 Q Street, NW
Washington, DC 20009

9/3/83
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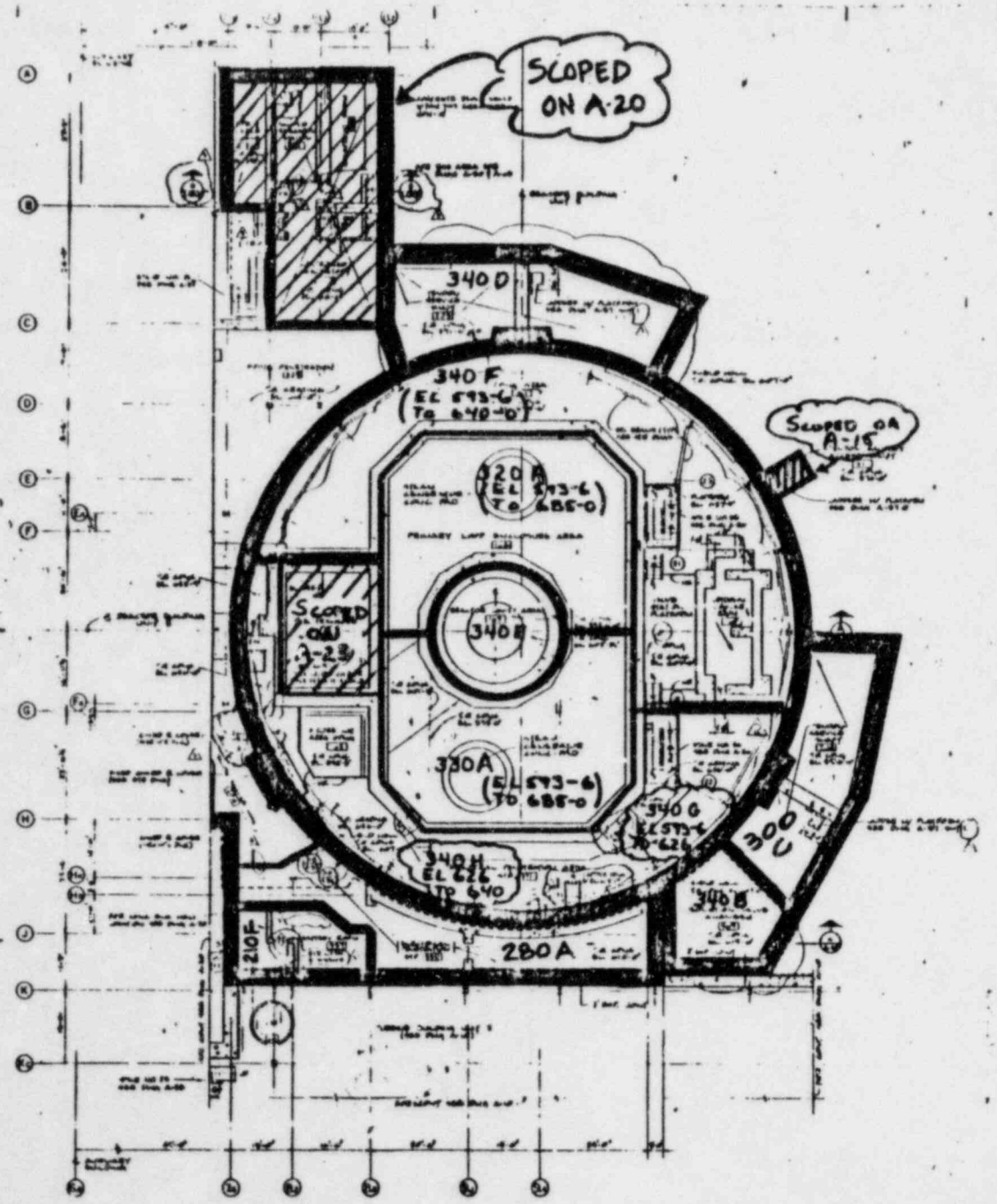
ATMS #

MI0983-0002A-MP04
IBM 5520



FLOOR PLAN EL. 614'-0" & 626'-0" (EAST AREA)

N

Q-LIST ITEMS

30X

AREA/FACILITY SCOPED DRAWINGS

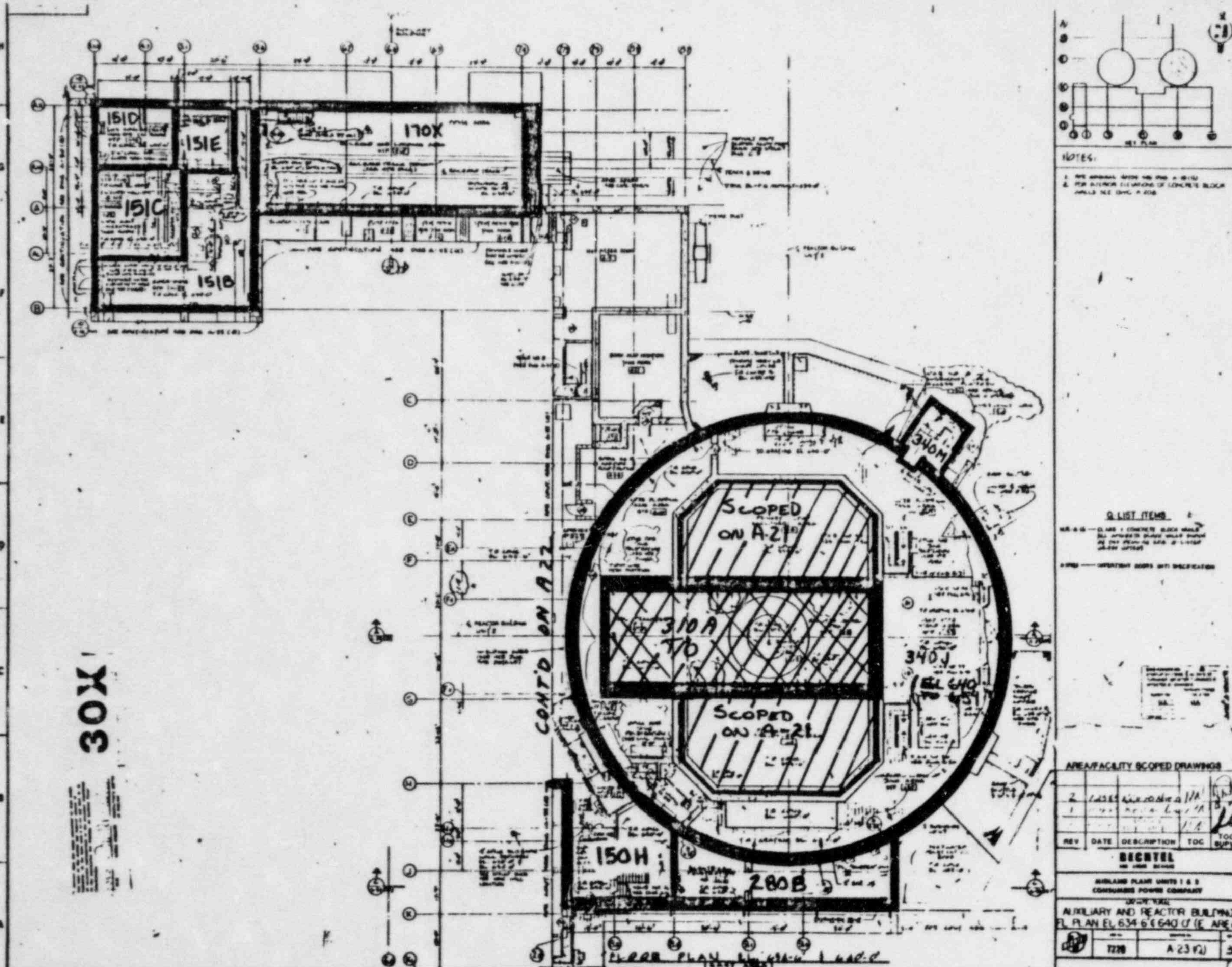
REV	DATE	DESCRIPTION	TOC	TOC PAGE
				16

BECHTEL

MIDLAND PLANT UNITS 1 & 2
CONSUMERS POWER COMPANY

AUXILIARY AND REACTOR BUILDING
FL PLAN FI 614'-0" & 626'-0" (E AREA)

	7220	A-21(Q)	5



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151E
170X
151C
151B
340M
SCOPED ON A-21
310A T/O
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EL 640
SCOPED ON A-21
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Q LIST ITEMS
AREA/FACILITY SCOPED DRAWINGS
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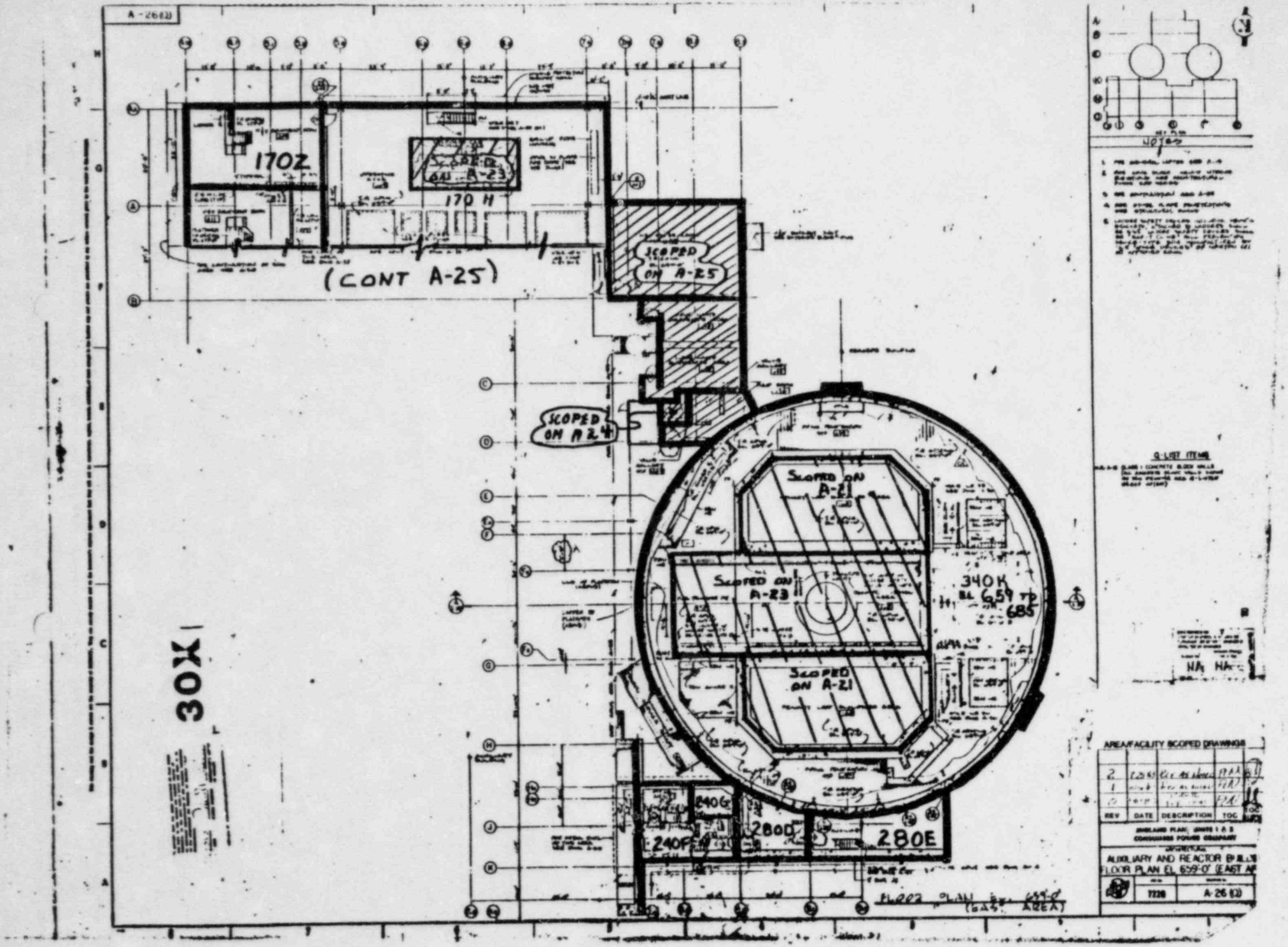
BECHTEL
MIDLAND PLANT UNITS 1 & 2
CONSUMERS POWER COMPANY
AUXILIARY AND REACTOR BUILDING
FL PLAN EL 634-6 & 640-0 (E AREA)
7220
A-23 (Q)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NOTES
Q-LIST ITEMS
AREA/FACILITY SCOPED DRAWINGS
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DESCRIPTION
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AUXILIARY AND REACTOR BUILDING
FLOOR PLAN EL 659'-0" (EAST AREA)
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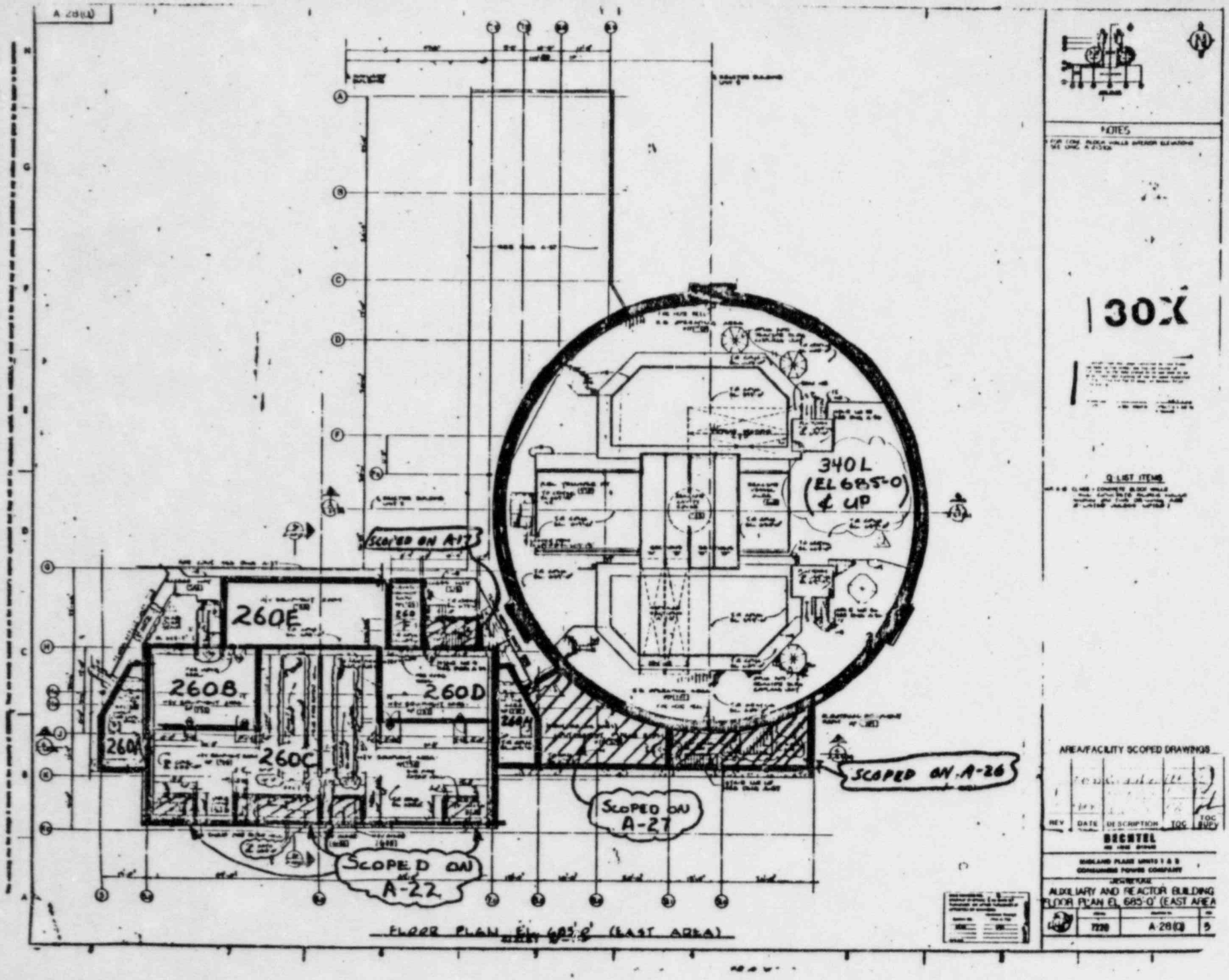
A-26(2)



FLOOR PLAN EL 685'-0" (EAST AREA)

NOTES

Q LIST ITEMS

AREA/FACILITY SCOPED DRAWINGS

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BECHTEL

MIDLAND PLANT UNITS 1 & 2
CONSUMERS POWER COMPANY

AUXILIARY AND REACTOR BUILDING
FLOOR PLAN EL 685'-0" (EAST AREA

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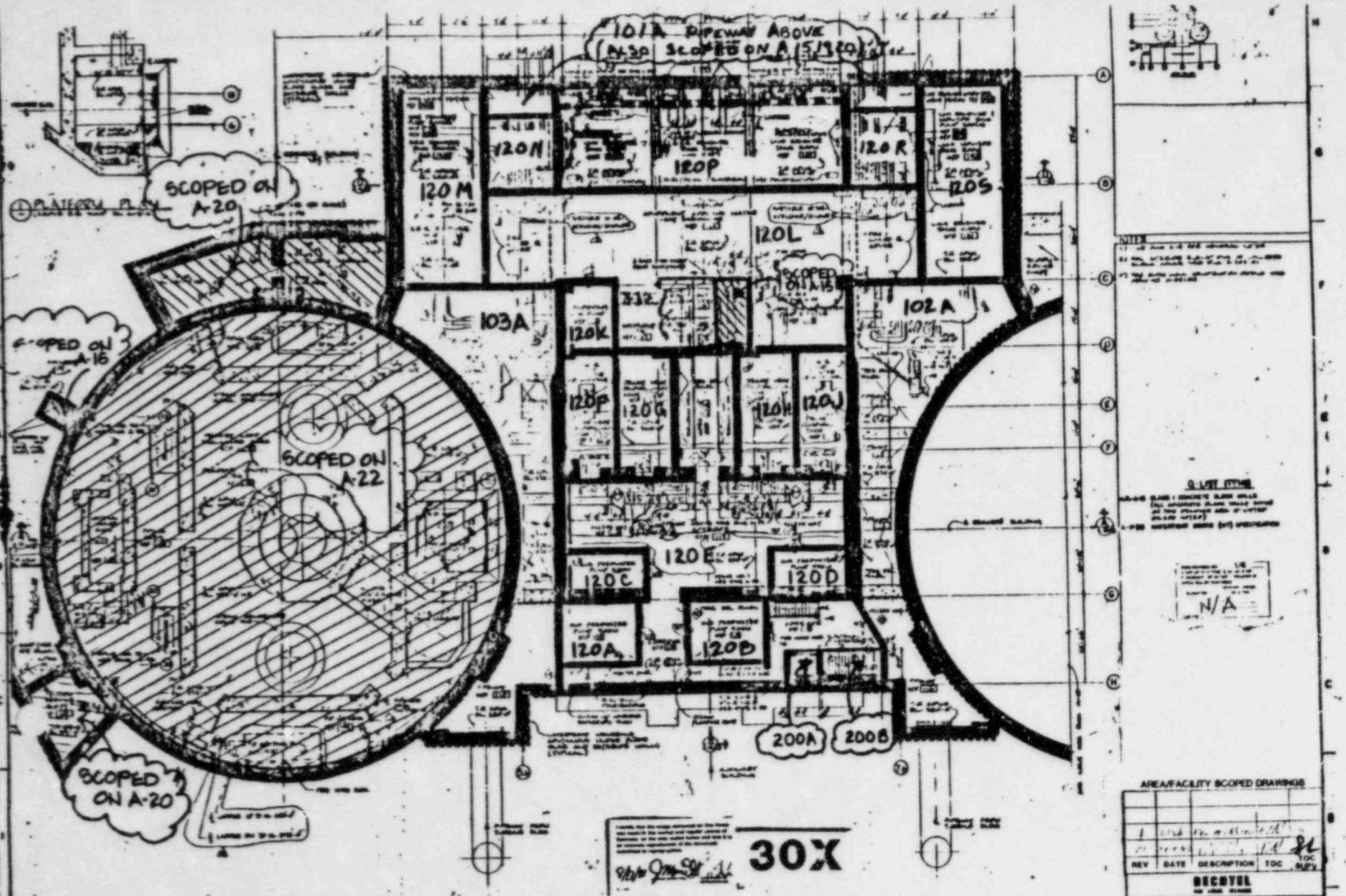
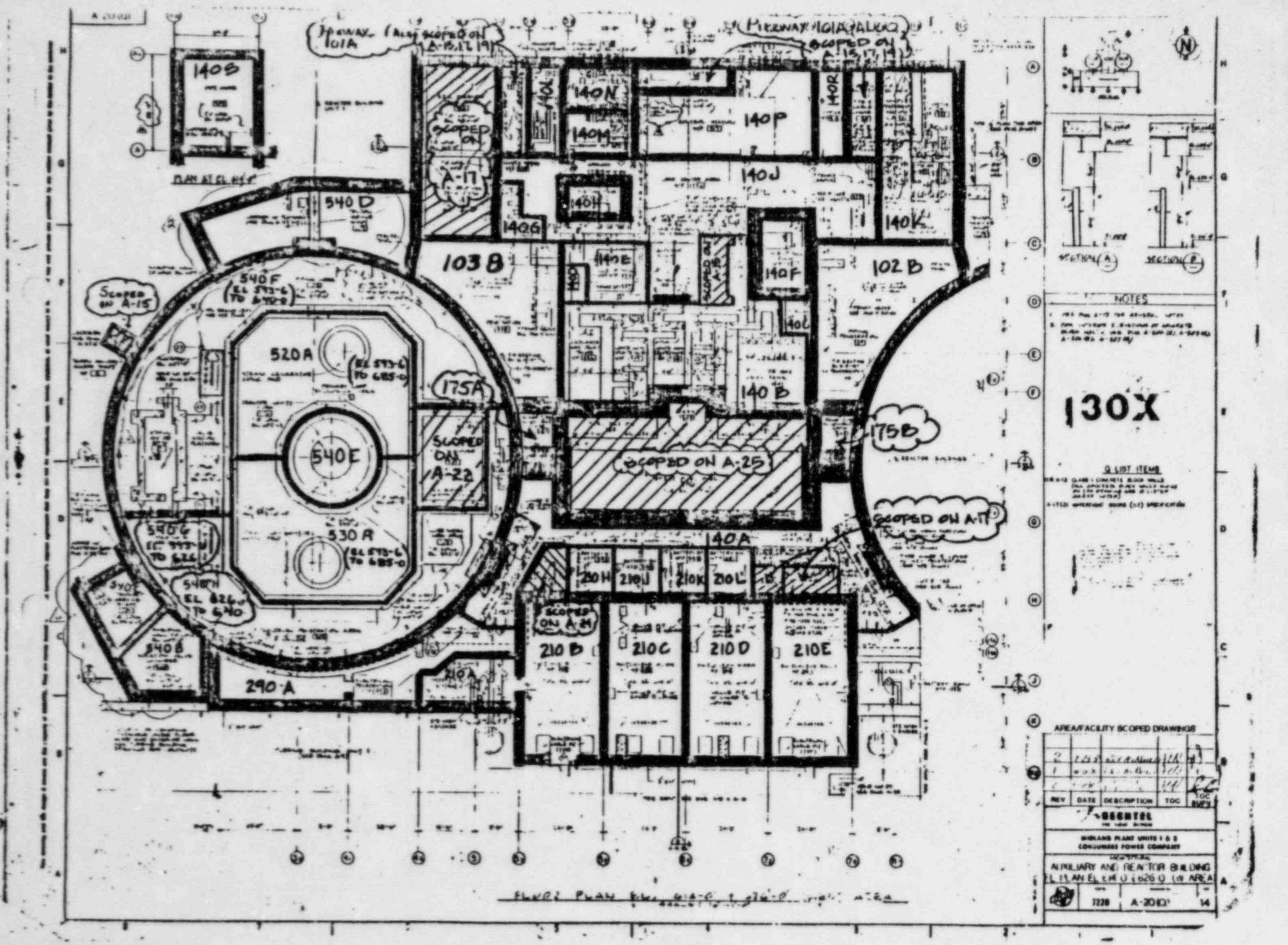


FLOOR PLAN EL 584'-0" (WEST AREA)



130X
140S
PLAN AT EL 649'
540D
540F (EL 593-6 TO 642-0)
Scoped on A-15
520A (EL 593-6 TO 685-0)
175A
540E
530A (EL 593-6 TO 685-0)
SCOPED ON A-22
540G (EL 593-6 TO 626)
540H EL 626 TO 640
540B
290-A
210A
103B
140G
140H
140L
140N
140M
140P
140R
140J
140K
140E
140F
140C
140B
102B
175B
SCOPED ON A-25
SCOPED ON A-17
40A
210H
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SCOPED ON A-21
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MIDLAND PLANT UNITS 1 & 2
CONSUMERS POWER COMPANY
AUXILIARY AND REACTOR BUILDING
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A-20(Q)
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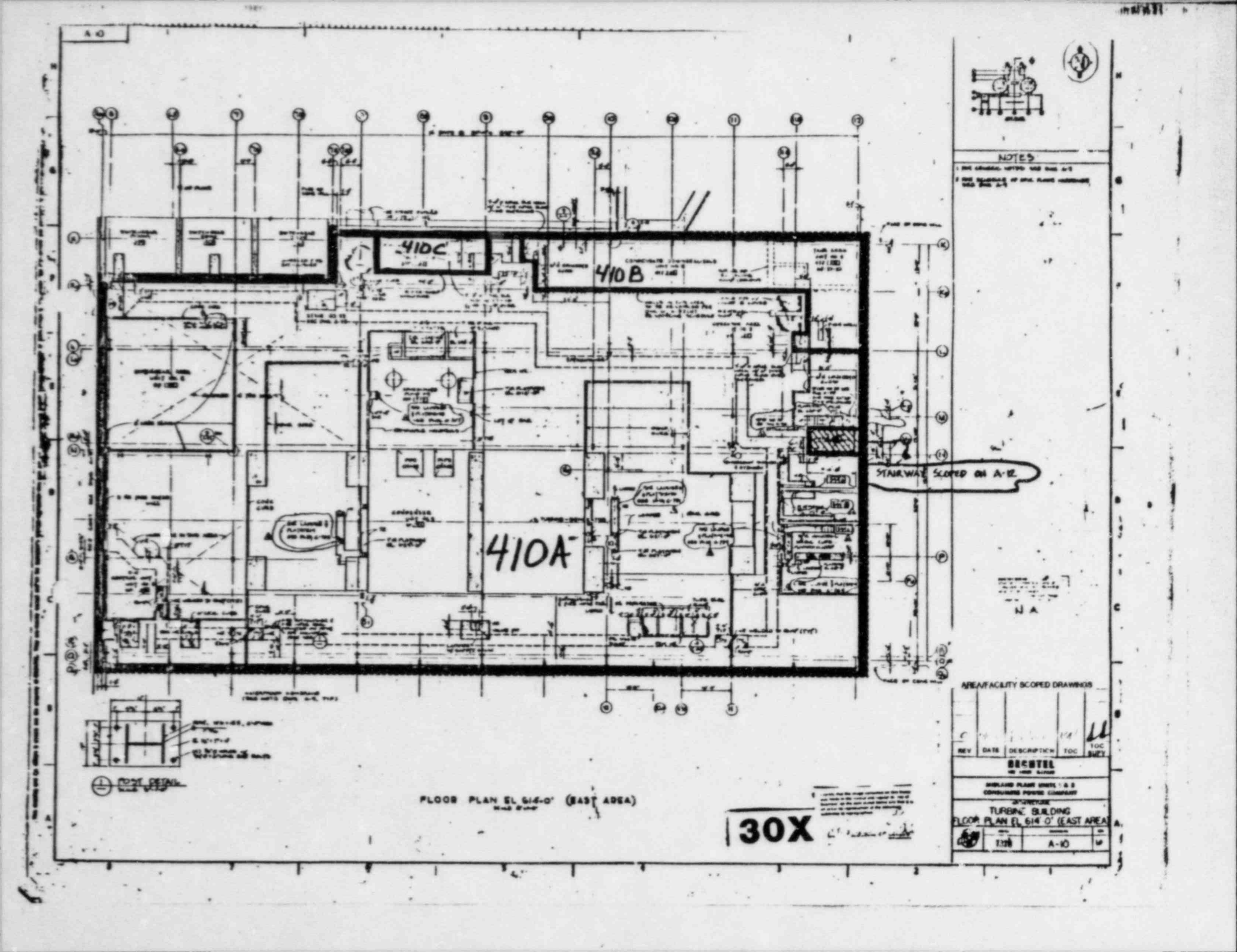
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REV
DATE
DESCRIPTION
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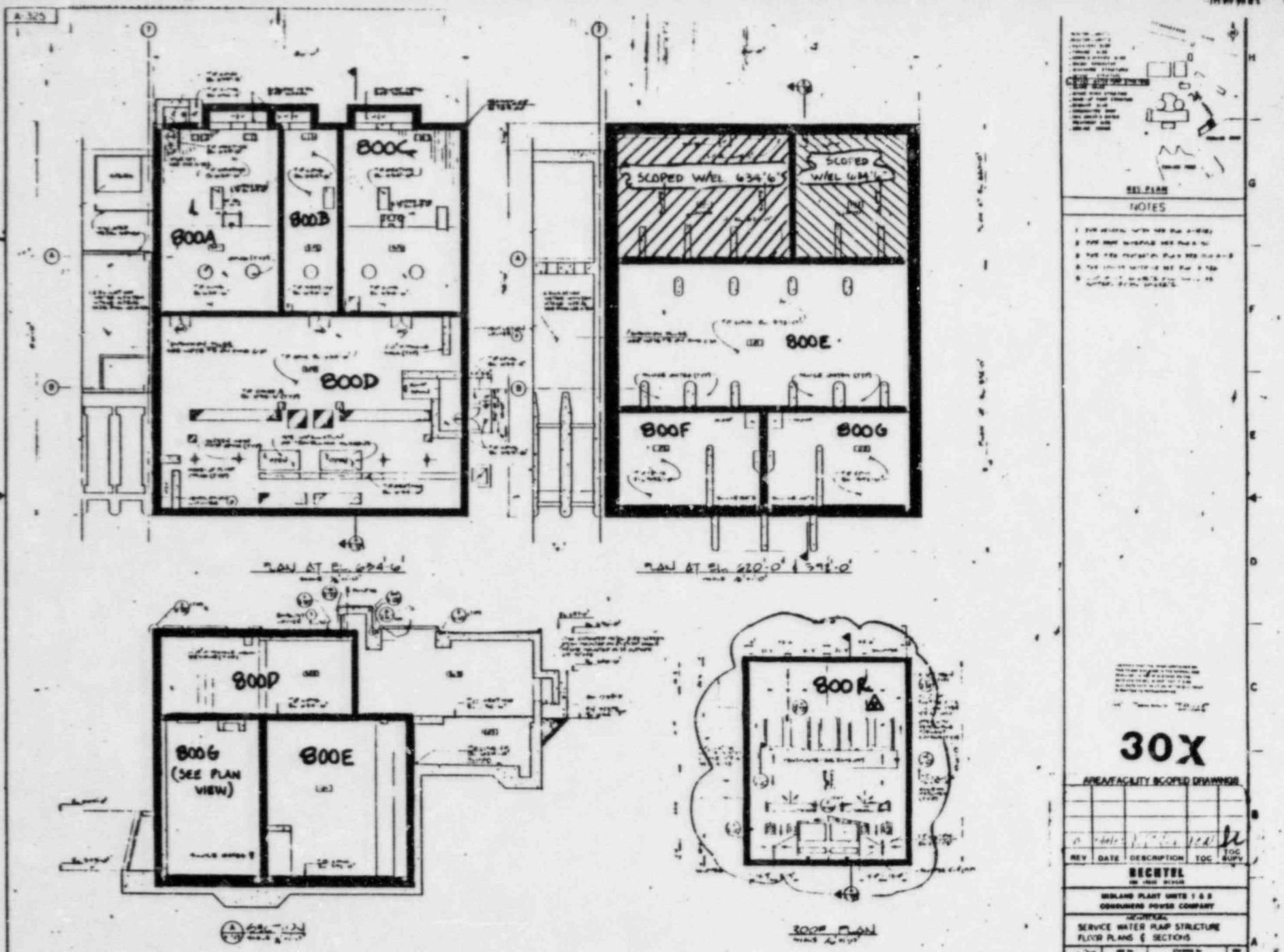
TOC REV'D
BECHTEL
MIDLAND PLANT UNITS 1 & 2
CONSUMERS POWER COMPANY
TURBINE BUILDING
FLOOR PLAN EL 614'-0" (EAST AREA)
A-10
FLOOR PLAN EL 614'-0" (EAST AREA)
30X


A-325
800A
800B
800C
800D
800E
800F
800G
SLOPED WALL 634'6"
SLOPED WALL 634'6"
PLAN AT EL. 624'6"
PLAN AT EL. 620'0" & 598'0"
800D
800G
(SEE PLAN VIEW)
800E
800K
300# PLAN
REF. PLAN
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30X
AREA/FACILITY SCOPED DRAWINGS
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DATE
DESCRIPTION
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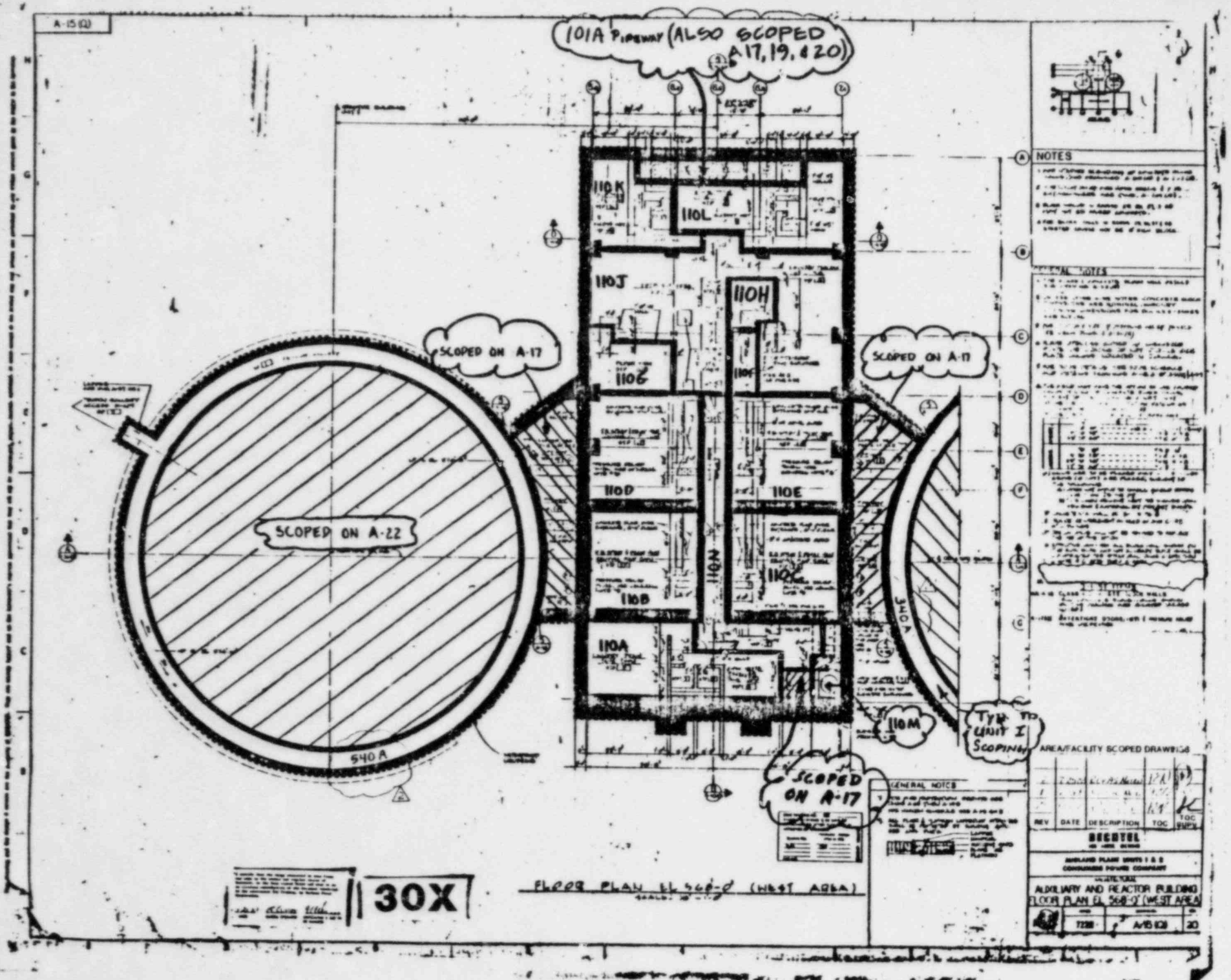
TOC SUPV
BECHTEL
MIDLAND PLANT UNITS 1 & 2
CONSUMERS POWER COMPANY
SERVICE WATER PUMP STRUCTURE
FLOOR PLANS & SECTIONS
7220
A-325
5


101A PIPEWAY (ALSO SCOPED A17, 19, & 20)
110K
110L
110J
110H
110G
110F
110D
110E
110C
110B
110A
110N
110M
SCOPED ON A-17
SCOPED ON A-17
SCOPED ON A-22
540A
340A
TYP UNIT 1 SCOPING
SCOPED ON A-17
NOTES
GENERAL NOTES
AREA/FACILITY SCOPED DRAWINGS
REV
DATE
DESCRIPTION
TOC
BECHTEL
AUXILIARY AND REACTOR BUILDING
FLOOR PLAN EL 568'-0" (WEST AREA)
30X
FLOOR PLAN EL 568'-0" (WEST AREA)

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8660

PRINCIPAL STAFF			
RA		DPRP	
D/RA		DE	
A/RA		DPMSP	
RC		DRMA	
PAO		SCS	
GA		ML	
IE		File	

October 14, 1983

Mr R A Hartfield
Chief, Management Information Branch
Office of Management and Program Analysis
U S Nuclear Regulatory Commission
Washington, DC 20555

MIDLAND ENERGY CENTER GWO 7020
NRC SCHEDULE
File: 0652 UFI: 53*54 Serial: CSC-6954

In lieu of submitting a yellowbook update for the third quarter 1983 we elect to discuss herein the current construction status of the Midland Project.

On December 2, 1982, essentially all Q related construction work on the project ceased pending resolution of recognized quality related problems. Since then, a concerted effort towards developing the Midland Project Construction Completion Plan has been expended. As a result, on October 6, 1983 we received a NRC Board Order to the Midland Construction Permit to complete the project in accordance with the CCP. The schedule for completing the project under this new concept is currently under development and will not be finalized until release of work under the CCP is received and some experience is gained. Consequently, we request approval to postpone a yellowbook update until a definitive schedule can be developed. A prompt submittal will be made at that time.

Please advise if the above does not meet with your approval.

DBM/DDJ/klp

cc: Mr James G Keppler, Regional Director, Region III
Mr J J Harrison, Midland Project Inspector, Region III
Mr Frederick C Williams, Isham, Lincoln and Beale, Washington
Mr Phil Steptoe, Isham, Lincoln and Beale, Chicago

OCT 21 1983

8310250058

sent to DMB 9/12/83

Bechtel Power Corporation

777 East Eisenhower Parkway
Ann Arbor, Michigan

Mail Address: P.O. Box 1000, Ann Arbor, Michigan 48106

PRINCIPAL STAFF			
RA		ENF	
D/RA		SCS	✓ orig +3
A/RA		PAO	
DPRP		SLO	
DRMA		RC	
DRMSP			
DE			
NL			
OL		FILE	

September 8, 1983

Mr. James G. Keppler
Regional Administrator
U.S. Nuclear Regulatory Commission Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Dear ~~Mr. Keppler:~~ Jim

Subject: Quality

Per our conversation the other day, I am enclosing a write-up on the Quality Improvement Program currently in existence in the Ann Arbor Power Division. This program was initially developed for the Midland project and was expanded to the total division shortly after implementation on Midland.

We would anticipate implementing a similar program on the Zimmer project and would appreciate any questions or comments you may have.

Yours truly,

Howard

Howard W. Wahl
Vice President
and General Manager

HWW/msh

Attachment

SEP 12 1983

8309150244

ANN ARBOR POWER DIVISION - QUALITY IMPROVEMENT PROGRAM

Several years ago, a new emphasis was placed on the subject of quality within the Ann Arbor Power Division - not quality assurance, quality control or quality engineering, but the quality of accomplishment in the assignments of every Ann Arbor employee. A video tape introduction of the program featuring Howard Wahl, Ann Arbor's General Manager and the program's sponsor, was used to acquaint employees not only with the basic idea of the program but management's backing of it.

The program is based on several basic principles related to the work of each employee. These include:

a) a division management belief that personnel wish to do their jobs correctly the first time.

b) a recognition that to do this the employee must be provided with clear and visible job requirements and workable tools and methods.

c) a commitment by management that such requirements and methods will be provided and that the employee will be given a chance, and encouraged, to point out areas needing change or improvement.

d) encouragement of an attitude wherein the employee will work in conformance to the given requirements or cause the requirements to be officially changed.

e) an expectancy that a program based on those principles should lead to a higher frequency of work done correctly the first time and a lower frequency of necessary error correction and associated costs.

This program is being called "Quality Improvement". Its prime purpose is to create an attitude and atmosphere in which excellence and correctness are the norm rather than the goal. Its success should also have a positive contribution on productivity improvement. It is a program designed to also increase AAPD's competitiveness in the marketplace.

The program operates within the present structure of the division which is organized into teams of small work groups established to communicate ideas, designs, and methods to achieve the best results. A new organization or new work function has not been created. Instead, the present organization is now equipped with concepts and a program by which it can perform its various work functions using quality improvement principles.

To implement the program, the employee has been asked to practice five concepts:

a) a clear definition of quality being conformance to requirements, a definition used by Steve Bechtel, Jr., in a 1977 management memo.

b) a concept that too much time is spent looking for errors and not enough time is spent preventing them.

c) a concept that errors occur because requirements are not clear, not because people do not want to do a good job.

d) a standard to be applied by every employee in which every job is expected to be done right the first time.

e) a realization that work can be measured by quality as well as by quantity.

These concepts allow establishment of a program which applies to every organization, not just Construction, Engineering, and Procurement. Included are such organizations as Accounting, Office Services, Data Processing, etc.

Five implementation programs are used to initiate and maintain the Quality Improvement Program. These include:

a) Training - a program designed to communicate the concepts to all employees.

b) Promotion - a program designed to provide continual visibility and awareness.

c) Employee Feedback - a program designed to encourage open communication from the employees to their supervisors as to problems, hindrances or recommendations in quality improvement.

d) Quality Measurement - a program designed to encourage measurements and goals related to quality improvement.

e) Recognition - a program designed to recognize extra-ordinary performances by employees in support of the QIP program.

Each of the programs has been assigned a senior management sponsor to aid in program development and to provide management monitoring. The sponsors are part of a Senior Management Steering Group reporting directly to the General Manager.

A basic two-hour training session was developed and approved by AAPD Senior Management and was given to all employees in early 1982.

Promotion has been a continuing effort; some of them are monthly articles in the Ann Arbor Bechtel News, posters strategically located throughout the Division, noon-time presentations, etc.

To-date over 84 employees' suggestions (out of 153 formally submitted) have been put into effect. These range from color-coding microfilm aperture cards to facilitate distribution, to changing our banking practices to reduce our average daily balance.

The work groups have developed over 100 measurements of areas within their groups which could be improved. These areas of self-measurement range from "percent of document pages processed that are error free and on time," to "quality of drawings/calculations as measured against a checklist of attributes."

We have presented 144 bronze, 47 silver, and 6 gold awards to AAPD employees under the recognition program. These awards are in recognition for the employees contribution to the quality of operations of AAPD.

A Quality Improvement Program directed at employees of both Bechtel and Consumers Power was initiated for the Midland Project in late 1981. The remainder of the division participates in the general division program. Visitors to AAPD will see visible evidence of the program in the way of displayed policies, posters, and slogans. More than that, they should expect to hear over and over again the key phrase, "Let's do it right the first time."

ANN ARBOR POWER DIVISION INSTRUCTION

SUBJECT: Division Quality Improvement Program

PURPOSE: This instruction defines the organization and responsibilities for implementing the AAPD Quality Improvement Program.

BACKGROUND:

This instruction establishes a quality improvement program to promote, implement, and maintain a plan for achievement and improvement of quality within AAPD. It is pertinent to all division employees and all assignments. Quality assurance activities, as described in AAPDIs 7.1 and 7.2, are not modified by this instruction.

The AAPD Quality Improvement Policy is as follows:

> TO IMPROVE QUALITY, WE SHALL PROVIDE CLEARLY STATED REQUIREMENTS, EXPECTING EACH PERSON TO DO THE JOB RIGHT THE FIRST TIME IN ACCORDANCE WITH SUCH REQUIREMENTS OR CAUSE THE REQUIREMENTS TO BE OFFICIALLY CHANGED.

DEFINITIONS:

Quality is conformance to requirements.

Improvement of quality is an increase in the frequency at which work is done correctly the first time.

BASIS:

Quality is achieved when work is done correctly the first time, negating the need for repeating the activity. Individuals may achieve quality by following established requirements, and through teamwork, including controlled coordination among discipline groups.

The Quality Improvement Program is based on the following principles:

1. It is believed that personnel wish to do their job correctly the first time.

2. Necessary attributes of doing jobs correctly the first time include "attention to detail," "clear and visible job requirements," and "workable tools and methods."

3. Each employee must be aware of his/her role in any improvement program for that program to succeed. Teamwork, in which efforts may have to be coordinated with other employees, is also necessary.

4. A successful quality improvement program must include certain concepts:

    1) A clear definition of quality being conformance to requirements rather than indefinite terms such as good, bad, etc.

    2) Too much time is spent looking for errors and not enough time is spent preventing them.

    3) A majority of errors occur because requirements are not clear, not because people do not want to do a good job.

    4) The only standard we should accept for ourselves is that of doing each job right the first time. In other words, do it once, know it's right.

    5) A willingness to measure work by quality as well as quantity.

5. All requirements, tools, and methods are subject to review for improvement.

INSTRUCTION:

The AAPD Quality Improvement Program is sponsored by the general manager creating an interdepartmental steering group with responsibility for maintaining a program that promotes achievement and improvement of quality by all employees in all assignments. Typical organization is shown in Figure 1.

Primary membership of the Steering Group for the AAPD Quality Improvement Program will consist of the following managers:

a) Division Project Operations and Services

b) Division Engineering

c) Division Construction

d) Division Quality Assurance

e) Division Controller/Commercial Manager

f) Division Procurement

g) Division Services

h) Division Administrative Services

The steering group will conceive, develop, and implement four programs in response to the quality improvement policy. These shall be programs for Training, Promotion, Feedback, and Quality Measurement as further defined in this instruction. The programs shall be designed to reach each employee and maintain a positive attitude towards achievement and improvement of quality regardless of assignments. A quality improvement program manager reporting to the steering group shall be selected to provide overall management of program activities. Each program shall be assigned a senior management sponsor from within the steering group. The sponsors and the program manager must be submitted to the general manager for approval.

A description and plan for implementation and maintenance shall be prepared for each required program. Each shall contain the following attributes:

1) clear definition of program

2) detailed implementation plan

3) clear description of personnel involvement

4) an integrated method of measuring program effectiveness

RESPONSIBILITIES:

1. Steering Group

   a) Provide guidance and direction to the program manager and his team regarding the implementation and maintenance of the quality improvement program

   b) Review, approve, and authorize implementation of programs

   c) Monitor activities and effectiveness of programs

   d) Provide input as may be required to the general manager on activity and effectiveness of overall program

2. Program Sponsors

   a) Participate with program manager in development of program descriptions to be implemented under authority of the steering group

   b) Provide management guidance to program manager as required

   c) Monitor program activities to assure steering group of implementation, maintenance, and effectiveness in accordance with original program description

3. Program Manager

   a) Organize and manage the implementation of programs as authorized by the steering group

   b) Periodically report program status to steering committee, and carry out all administrative activities required for effective operations of the quality improvement program

4. Requirements of Training Program

   a) An initial training program shall communicate the quality policy and concepts.

   b) An orientation program shall communicate the policy and concepts to new employees.

   c) Followup training materials shall maintain emphasis on the quality policy, elaborate on concepts where proven needed, and complement work of Employee Feedback and/or Quality Measurement Programs.

5. Requirements of Promotion Program

   a) An initial promotional program shall complement the training program developed above. The program shall consist of appropriate visual aids, publicity, noontime presentations, or other methods necessary to create awareness of the quality improvement plan.

   b) A promotional program shall maintain awareness on quality improvement after initial training and promotion.

6. Requirements of Employee Feedback Program

   a) A feedback program shall allow employees to participate in the quality improvement plan by communicating through their normal organizational structure such things as:

      1) hindrances to doing jobs right the first time

      2) examples when jobs are not being done right the first time

      3) suggestions on doing jobs right the first time

      4) difficulties caused by given requirements or methods

b) A plan shall complement the employee feedback program in which employees are recognized for significant contribution to the program.

7. Requirements of Quality Measurement Program

a) A program shall make results of the quality improvement plan evident to management and employees by selected quantitative measurements. Factors to be considered shall include:

1) identification of significant items, directly pertinent to quality improvement, which can be quantitatively measured

2) setting of goals for quality improvements connected with the above significant items

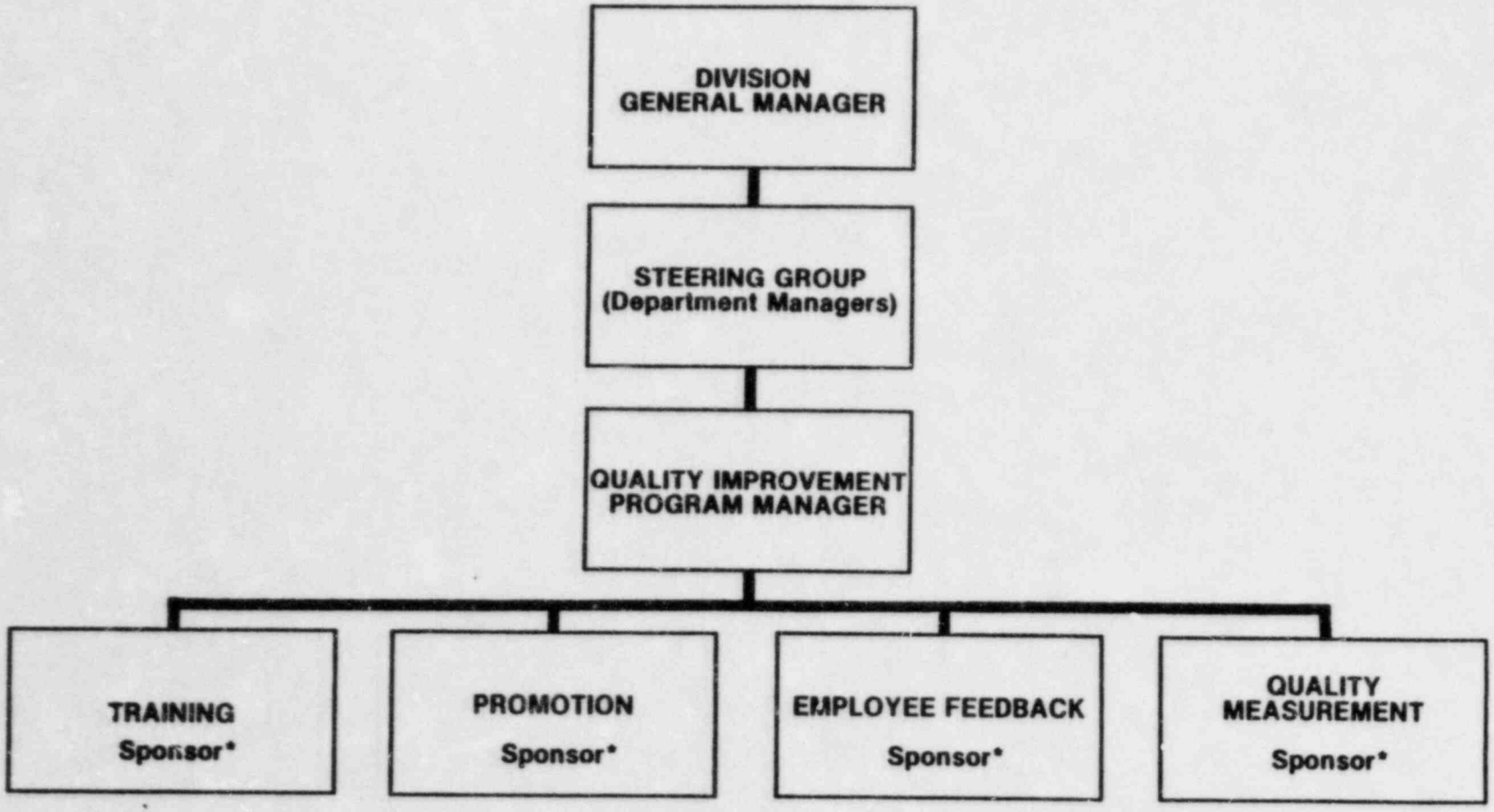
3) visibility of goals, measurements, and achievements

b) A plan shall complement the quality measurement program in which employees are recognized for significant contribution to the program.

SPONSOR: General Manager

H.W. Wahl

QUALITY IMPROVEMENT PROGRAM ORGANIZATION



*SELECTED FROM STEERING GROUP

G 2345

ANN ARBOR POWER DIVISION

NOMINATION FOR QUALITY ACHIEVEMENT RECOGNITION

Silver

I wish to nominate an individual/group for quality achievement recognition honors and award. I recognize that the Ann Arbor Power Division is trying to identify those individuals or groups who, in the judgment of their peers and supervisors, best represent those characteristics of quality performance and attitudes that can make our division the standard of quality in the power industry.

Individual or Group Nominee: GUY JEAN-PHILIPPE

Individual or Group Function: DESIGNER

Criterion Met: (Refer to back of this page for standards.)

One ☑ Two ☐ Three ☑ Four ☐ Five ☐

Why Nominee Should Be Recognized GUY HAS RECIEVED HIS INITIAL QUALITY ACHIEVEMENT RECOGNITION IN SEPT. OF 1982 FOR OUTSTANDING PERFORMANCE IN CONSISTANTLY DISPLAYING QUALITY STANDARDS AND SUGGESTING CHANGES THAT CONTRIBUTE TO THE GROUPS EFFECTIVENESS. THIS OUTSTANDING PERFORMANCE HAS CONTINUED FOR OVER A YEAR AND HE IS ACCREDITED TO PRODUCING A DRAWING CHECKLIST WHICH COMBINED HIS HIGH STANDARDS IN DESIGN AND KNOWLEDGE OF ENGINEERING PROCEEDURES. THIS LIST HAS ENABLED BOTH DESIGNERS AND DRAFTERS TO BE IN COMPLIANCE WITH COMPANY DESIGN AND TECHNICAL POLICIES BEFORE THE RELEASE OF DWG.'S FOR ISSUE, AND HAS RESULTED IN A REDUCTION OF DWG.'S BEING RETURNED TO THE DESIGNER FOR FURTHER CORRECTIONS, ALSO REDUCING TIME SPENT ON EACH DWG.

Nominator's Signature [signature] Date 5-4-83 MHB

Supervisor's Signature [signature] J Kovach Date 5-6-83

Project, Department or Category II

Manager's Signature [signature] Date 5/9/83 Yes

Quality Improvement Recognition

Committee Concurrence ____________ Date ____________
(Silver and Gold Awards Only)

Honors Selected:

☐ Bronze Award ☒ Silver Award ☐ Gold Award

Copies of Approved Nominations to:

Nominee	Project Manager
Nominator	QIP Manager
Approving Manager	Nominee Personnel File

AAPD-0255-1 8/82

BECHTEL
ANN ARBOR

MEMORANDUM

TO L. ADAMSON DWG. NO. SH. REV.

FROM DATE 19

DRAWING CHECKLIST

BEFORE SENDING DRAWING FOR FINAL CHECK THE FOLLOWING WAS DONE

- ☐ MEMO, DRVCL, DCAR EXEMPTION & DRR ATTACHED
- ☐ DWG. ISSUE WARNING ATTACHED TO STICK PRINT
- ☐ ALL DOCUMENTS ON 'MAPPER' INCORP. ON DWG.
- ☐ START-UP STICKER BACK CIRCLED, SIGNED & INCLUDES ALL R.W.S. #'s
- ☐ CHECK FOR HOLD CIRCLES & LOOPS, RECORD IN 'HOLD BOOK' OR CLEAR
- ☐ ALL ITEMS IN CHG. LIST ARE BACK CIRCLED/ALL BACK CIRCLED ITEMS AR IN CHG. LIST OR LISTED IN REV. BLOCK.
- ☐ ALL DCN'S, FCN'S & FCR'S INCORP. AND BLUE LINED
- ☐ ALL MARKS ON STICKPRINT BLUE LINED
- ☐ ELECTRICAL STICKER NEAR TITLE BLOCK
- ☐ SCG MARKED ON PULL BACK MEMO/ABOVE REV. BLOCK
- ☐ DOCUMENTS WITH INFO. CONTINUED ON ASSOCIATED DWG.'S, ARE ATTACHED OR INFO. & DOCUMENT # RECORDED ON ASSOC. DWG
- ☐ ALL CHG.'S MADE ON DWG., OTHER THAN INFO. ON DCN'S, FCN'S FCR'S, HAVE LEAD DOC. LISTED ON DCAR EXEMP. FORM
- ☐ ALL DCN'S, FCN'S & FCR'S CORRECTLY INCORP.
- ☐ ALL DRAWING MARKINGS CORRECTLY INCORP.
- ☐ ALL INSTRUMENT LOCATION SHEETS COMPLETED
- ☐ CHECK FOR OUTSTANDING DWG. RELEASE RECORDS
- ☐ DWG. WITHIN 2 WEEKS OF REQUIRED ISSUE DATE
- ☐ DWG. SIGNED BY, AT LEAST, EVERYONE WHO SIGNED DRVCL
- ☐ ALL UN-NOTED 'P' SHTS ARE SENT WITH DWG.

AAO-521

ANN ARBOR POWER DIVISION

NOMINATION FOR QUALITY ACHIEVEMENT RECOGNITION

I wish to nominate an individual/group for quality achievement recognition honors and award. I recognize that the Ann Arbor Power Division is trying to identify those individuals or groups who, in the judgment of their peers and supervisors, best represent those characteristics of quality performance and attitudes that can make our division the standard of quality in the power industry.

Individual or Group Nominee: John C. Dominy

Individual or Group Function: Senior Designer for Control Systems responsible for construction interface activities and drawings

Criterion Met: (Refer to back of this page for standards.)
One ☒ Two ☒ Three ☐ Four ☐ Five ☐

Why Nominee Should Be Recognized John constantly performs his work at a high degree of quality. The preciseness and accuracy of his work makes his work an example for others performing simular tasks. John has prepared an installation specification which simplifies the calculations for and installation of sensor tubing for electronic instruments. John is singularly responsible for the supervision, layout, and preparation and issuance of all the installation details (approximately 40 multisheet drawings) for the Palisades Plant 1983 refueling outage. Considering the unexpected increase of installation details required for the HVAC modifications within the same time frame, John accomplished this task in an unusually short period of time. This extensive effort is an example of Johns dedication to his job; the quality and accuracy of his work; and the performance of his job "RIGHT" and on schedule.

Nominator's Signature [signatures] Date 12 Apr 83

Supervisor's Signature Dominick [signature] Date 12 Apr 83

Project, Department or Category II
Manager's Signature J. I. [signature] Date 4/15/83

Quality Improvement Recognition

Committee Concurrence ______ Date ______
(Silver and Gold Awards Only)

Honors Selected:

☐ Bronze Award ☒ Silver Award ☐ Gold Award

[signature] 6/20/83
M H B [signature] 6/20/83
presentation
H [signature] 6/29/83

Copies of Approved Nominations to:

Nominee
Nominator
Approving Manager
Project Manager
QIP Manager
Nominee Personnel File

AAPD-0256-1 8/82

Engr - Startup

ANN ARBOR POWER DIVISION

NOMINATIO FOR QUALITY ACHIEVEMENT COGNITION

I wish to nominate an individual/group for quality achievement recognition honors and award. I recognize that the Ann Arbor Power Division is trying to identify those individuals or groups who, in the judgment of their peers and supervisors, best represent those characteristics of quality performance and attitudes that can make our division the standard of quality in the power industry.

Individual or Group Nominee: Robert Perkins

Individual or Group Function: Assistant to engineering startup coordinator

Criterion Met: (Refer to back of this page for standards.)

One ☒ Two ☒ Three ☐ Four ☐ Five ☐

Why Nominee Should Be Recognized Bob consistently supports the efforts of startup by resolving engineering problems related to startup in a timely manner. His insistence on the correctness and timely solution to problems to support completion and turnover of startup systems leads to early and correct system completion.

Nominator's Signature [signature] Date 4/15/83 More info EWL

Supervisor's Signature [signature] Date 4/15/83

Project, Department or Category II

Manager's Signature ______ Date ______ more info 8/7

Quality Improvement Recognition

Committee Concurrence ______ Date ______ Yes EWA

(Silver and Gold Awards Only)

Honors Selected:

☑ Bronze Award ☐ Silver Award ☐ Gold Award

Copies of Approved Nominations to:

Nominee	Project Manager
Nominator	QIP Manager
Approving Manager	Nominee Personnel File

AAPD-0255-1 8/82

108936

Bechtel Power Corporation

Inter-office Memorandum

To	Distribution	Date	March 21, 1983
Subject	Midland Plant Units 1 and 2 Bechtel Job 7220 QUALITY IMPROVEMENT ACHIEVEMENT AWARDS	From	J.A. Rutgers
		Of	Project Management
Copies to	Copy Distribution	At	Ann Arbor

It is with pleasure that I announce the award of the Quality Achievement Badges to the following individuals for their quality improvement achievements.

Name	Group	Achievement
Gold		
F. Shepard	Procurement	Exceptionally outstanding performance in negotiating bid evaluations and achieving zero commercial defects in vendor purchase orders
Silver		
C. Hubert	Nuclear	Outstanding performance in devising a group procedure for efficiently processing P&ID revisions
Bronze		
R. Atencio	Mechanical	Outstanding performance in incorporating 100 outstanding change documents in compliance with new EDP requirements
B. Burdick	Nuclear	Outstanding performance in reviewing engineering field changes and design change documentation
J.A. Clements	Nuclear	Outstanding performance in implementing and providing leadership for an effective discipline quality improvement program

0693c

Name	Group	Achievement
M. Deegan	Administrative Services	Outstanding performance in providing timely and accurate secretarial support for a nuclear quality assurance manual revision
N. Eidsmoe	Engineering	Outstanding performance in ensuring that NCDs for the recent manpower forecast complied with stringent management requirements
D. Fredlund	Division Services	Outstanding performance in coordinating replanning efforts and establishing a new project plan for the Project/2 program
K. Koh	Civil	Outstanding performance in completing a quality and timely analysis for the ASLB testimony
J. Kovach	Electrical	Outstanding performance in implementing and providing leadership for an effective discipline quality improvement program
B. Ozender	Civil	Outstanding performance in analyzing and checking auxiliary building interior walls in compliance with schedule requirements
L. Proulx	Administrative Services	Outstanding performance in accurately inputting SDDR data into the MAPPER system under tight schedule requirements
G. Singh	Control Systems	Outstanding performance in implementing and providing leadership for an effective discipline quality improvement program

108936

S. Sobkowski	Civil	Outstanding performance in implementing and providing leadership for an effective discipline quality improvement program
W. Stevens	Engineering Planning	Outstanding performance in improving the quality of the Advanced Master Punchlist and overall group accuracy
G. Vasonis	Civil	Outstanding performance in completing a quality and timely analysis for the ASLB testimony
P. Wicker	Cost and Schedule	Outstanding performance in consistently producing quality work for the project replanning task force
E. Wong	Mechanical	Outstanding performance in incorporating overdue change documents to support an NRC audit

Please extend my personal congratulations to each recipient and my sincere thanks for their contribution toward completing the Midland plant on schedule and in a manner which meets regulatory requirements and assures successful operations.

I ask that you present the awards at an appropriate in-office ceremony and ensure that a copy of this memorandum is placed in each recipient's personnel record.

J.A. Rutgers

JAR/MNB/dlp*

Distribution:

M.N. Bakarich
R.M. Collins, Jr.
E.M. Hughes
S.K. Jain

0693c

Copy Distribution:

R. Atencio	C. Hubert	L. Proulx	G. Vasonis
B. Burdick	K. Koh	F. Shepard	P. Wicker
J.A. Clements	J. Kovach	G. Singh	E. Wong
M. Deegan	B. Oxender	S. Sobkowski	

Additional Distribution:

J.M. Anderson	B. Dhar	M.A. Hughes	E. Smith
T.G. Ballweg	A.J. Boos	M. Elgaaly	D.F. Lewis
N.W. Swanberg	D.J. Fredlund	J. Milandin	R.F. Tulloch
L.H. Curtis	R.C. Hollar	R. Silver	

Written Response Requested: No

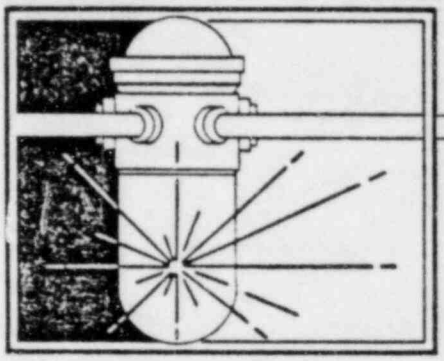
Com Use: NA

0693c

Rats and bugs page 7

Project in capital spotlight page 4

From the pro tour to Midland page 8



Midland REACTOR

Volume 8, No. 3 June-July 1983

Site managers re-affirm quality

MORNING HAS BROKEN – It's 6:55 a.m., and on a typical morning the Bay Metro bus has dropped its load of 16-17 passengers at receiving. The return trip starts at 4:10 p.m., and its about 30 minutes back to the starting point, downtown Bay City.

As the Midland Project enters a critical phase in the construction process — completion of the last 17 percent of the plant for the October, 1984 fuel load date set for Unit 2 —, both Bechtel Site Manager Gus Hierzer and Consumers Site Manager Don Miller re-affirm the importance of quality workmanship.

In a memorandum to all non-manual personnel, all foremen and all subcontractors, Hierzer noted that despite the creation of the Midland Project Quality Assurance Department (MPQAD) by CPCo., quality remains the responsibility of Bechtel's Construction Department.

"Doing each job right the first time (meeting requirements) is still the prime responsibility of construction personnel," Hierzer stated.

"We must work in a way that we know our work is right before it is submitted for official verification," he continued.

Hierzer noted that prior to the creation of MPQAD, the BPCo. quality control unit worked closely with construction. While MPQAD's presence on the Construction Completion Program (CCP) teams will continue the working relationship, the BPCo. site boss stated that the relationship will change in another respect.

(See Quality, page 5)

Dow Suit of CPCo.

Turning on a relationship of more than 18 years, Dow Chemical Company announced July 14 that it was pulling out of the Midland Nuclear Cogeneration Plant.

Dow's announcement that it wants out of the Midland project gives an ironic twist to the history of the facility.

For it was as a result of an idea forwarded by then-Dow President Herbert (Ted) Doan to then-CPCo. Chairman A.H. Aymond in 1965 that Consumers Power first considered and planned for a nuclear cogeneration facility at Midland. In fact, the land upon which the plant is being built was made available for purchase to CPCo. by Dow.

In successive moves, the chemical company filed suit against CPCo.,

(See Dow Suit, page 2)

Major work release given soils

"Rolling ten," hour shifts are now the order of the day in the Mergentime soils responsibility area — the underpinning of the EPA, feedwater isolation valve pits, and the control tower.

A major release of work for the soils in mid-June by Regulatory Commission Region III officials permitted the start of around the clock work by the soils organization.

The release authorized the first work on the installation of grillage beams which will support the electrical penetration areas between the containment buildings and the control tower.

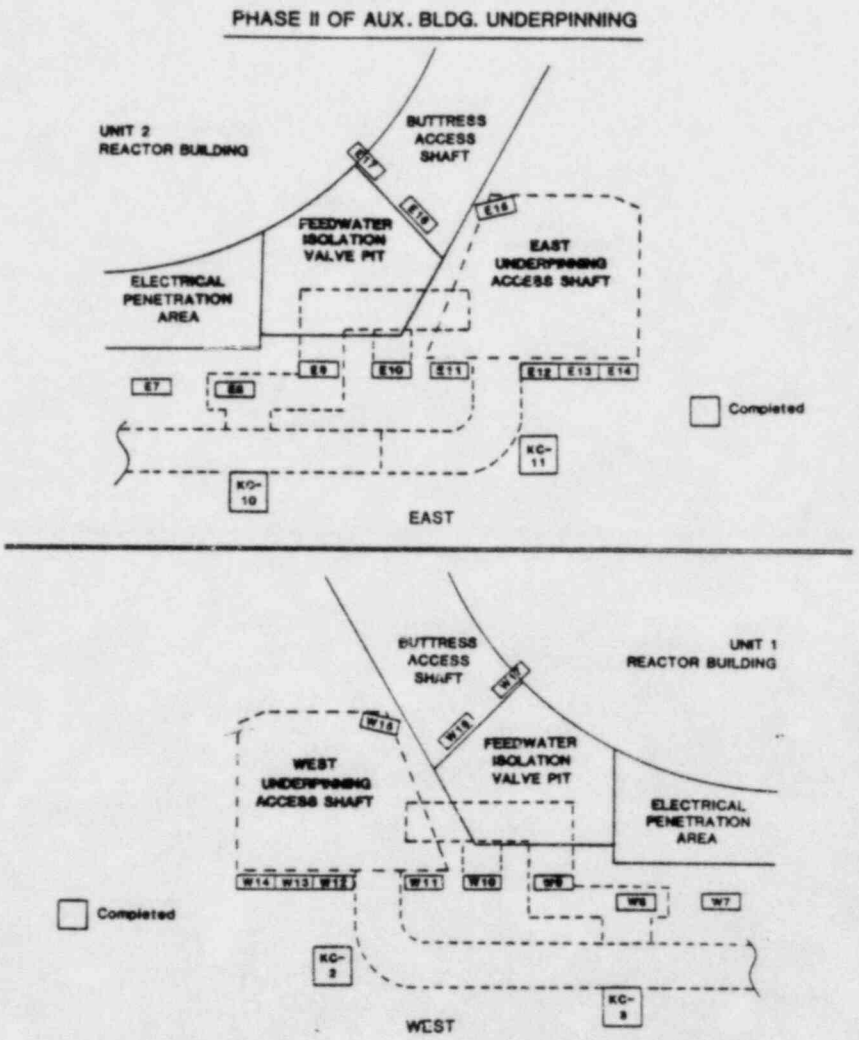
The beams will be installed from piers 8 east and west to the ledge of the containment buildings two and one, respectively.

Two more sets of grillage beams are called for in planning before the area can be excavated for the permanent foundation.

Piers 2, 5, and 8 east and west will eventually support four grillage beams each. The release authorized by the NRC permits the remedial soils organization to start work on the first eight of the eventual 24 beams to be installed.

Excavation to the containment building ledge and construction of the structure on top of piers 8 east and west to which the grillage beams will be connected is expected to take 10 weeks.

The soils work is a major pacing item towards fuel load in October, 1984.



soils progress to mid-July

CPCo. refutes Dow

continued from page one

announced its decision to the media and then notified the office of CPCo. Vice President James W. Cook.

In the suit Dow alleges that CPCo. deliberately misled the firm on the completion date of the plant. The suit seeks relief from an agreement dating to 1967 under which Dow agreed to purchase up to 4,000,000 pounds per hour of process steam.

Further, Dow sued CPCo. to recover the costs it estimates at $60 million for building the steam receiving facilities on Dow-Michigan Division Property.

Under the terms of a 1978 revision of the original contract, Dow could terminate the agreement if CPCo. did not deliver steam by December 31, 1984. On April 12, CPCo. Chairman John Selby announced the plant would not be finished in time to provide the steam by the 1984 deadline.

In its suit, Dow alleges that CPCo. was untruthful about soils problems and project schedule.

CPCo. Vice Chairman James B. Falahee issued a general denial of the allegations. Cook told a Midland Daily News reporter "we feel they are totally erroneous and totally deny we have done anything except manage the project prudently and live up to all of our contractural obligations."

Both Bechtel Project Manager John Rutgers and CPCo. Site Manager Don Miller vowed to continue work on the plant.

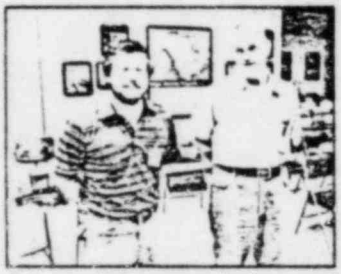
"The plan as of today is to complete the plant as a two unit plant. Bechtel Power has an obligation to finish the plant and I ask you to get behind that plan," Rutgers said July 15 to an assembly of workers for QIP awards.

Miller noted that he had completed three nuclear power plants in the East and expected to complete this one, with or without Dow's continued presence.

Quality Corner

June Awards – BPCo. awarded bronze awards to the individuals at the left. From left to right they are: Jim Mohney, John Mattioli, Darleen Randall, Jack Bureau, F. Kanchwala, Dawn Schulz, and Bob MacGlashan. Absent from the picture are Sandy Shirley, Dan Burnard, Dave Henricks, Ron Hienkle, Gerry Jones, Paul Milward, and Virender Solanki.

Nurse Mary Sue Potter accepted a group bronze award for all members of the site nursing corps.



Richard Coates (left) and Richard Sherman, electricians assigned to B & W by BPCo., were awarded bronze pins.

Bronze awards were also presented to Judy Davis, Mark St. Cyr, and Jodie Dore.

Silver QIP awards were presented to Jan Russell, electrical field engineering clerk and Mike Orr, MPQAD (QC) Mechanical.

QIPQIPQIPQIP

Resident Engineering presented bronze QIP awards to Dave Heron, Margaret Simpson, Wayne Wells, Jan Mazurak and Rich Ducham who gathered in the office of Dave Anderson (center) for the presentations.

MPQAD presented QIP awards to several individuals recently. Above Frank Mahala receives congratulations from MPQAD Executive Manager Roy A. Wells. Others receiving awards were: Ed Jones, Grant Germann, Ron Oberle, and Ron Field.

"Quality is built into the job – not inspected in"

Midland Project probed by Congre

Labor leaders from the national and local level told a Congressional Subcommittee that Midland employees are qualified and competent to perform their jobs properly and that they take great pride in their workmanship in constructing the plant properly. Labor officials testifying June 16 before the U.S. House Subcommittee on Energy and the Environment were: George Such, business manager for United Association Local 85; Joseph M. Cribben, legislative and research director of the United Association of Plumbers and Pipefitters; and Marshall Hicks, secretary-treasurer of the Utility Workers Union of America.

The subcommittee, chaired by U.S. Rep. Morris Udall, D-Arizona, also heard from John D. Selby, Consumers Power Chairman and President, and James W. Cook, Vice President for Projects, Engineering and Construction.

Such, speaking on behalf of the Michigan Construction and Building Trades Council, said, "Our highest priority and responsibility is to follow regulations and procedures properly to ensure that we are building a safe plant. Most of our construction force at Midland are local residents. They are not going to take shortcuts in building the plant that could impact on their safety and the safety of their families. The construction codes and regulations for building a nuclear plant are stricter and more detailed than for building any other type of electric generation plant. We see this daily in the performance of our jobs.

"The craftsmen follow strict Quality Control and Quality Assurance rules and regulations at the Midland Plant to ensure that Safety is not compromised. We have in place at the local union a program for our workers to tell their union leadership if they believe that safety and quality are being compromised. The business agent or Local President in turn can meet with the contractor or utility to make sure that any problems are corrected. The overwhelming attitude of our workers is that they believe that the quality of the Midland job is first-rate."

***Consumers Power Chairman** – and Chief Executive Officer, John D. Selby, (right) and James W. Cook, vice president for projects, engineering and construction, testified before the House Subcommittee on Energy and the Environment on June 16. Seated behind Selby and Cook, are Dennis M. Budzik, CPCo. licensing head and (right) William G. Henry, vice president and deputy general manager, AAPD-BPCo.*

"I want to reassure this committee that the Midland Nuclear Plant is being built safely," Such said. The craftsmen and women at the job-site would have it no other way. The union leadership of my local and other building trades local unions working at Midland also will have it no other way."

Cribben, whose office is at UA headquarters in Washington, D.C., said he was appearing with the approval of general president Marvin J. Beode of the UA and Robert A. Georgine of the AFL-CIO Building and Construction Trades Department.

He told the Udall subcommittee that:

"Training our people in the skills necessary to qualify them for their work is one of the principal obligations of the union at both international union and local union levels.

"Our training programs are sponsored, supervised and financed jointly by management and labor, under the careful scrutiny of the U.S. Department of Labor's Bureau of Apprenticeship Training."

"The training programs are financed by collective bargaining agreements that allocate a certain amount of money for each hour worked by UA members. If there were no training program, this money would go into the pay envelopes of the craftsmen involved. Therefore, we have a unique situation in which the journeyman himself contributes from ten to twenty-five cents an hour to train an apprentice who will eventually compete within the same area of work as the journeyman.

"Our members know that their skill is their stock-in-trade. They take great pride in their work and, on the practical level, they know that top quality performance on the job will mean increased job opportunities in their working lives."

"In view of the sometimes scathing and shot-gun attacks on not only inspections but on the quality of the craftsman's work itself at Midland and at other nuclear construction sites, we feel our presence at this hearing may help to put our concern about top quality training programs

> *"The overwhelming attitude of our workers is that they believe that the quality of the Midland job is first rate . . . I want to assure this committee that the Midland Nuclear Plant is being built safely."*
>
> *–George Such, Business Manager*
> *United Association Local 85*

;sional panel

> *"Our members know that their skill is their stock-in-trade. They take great pride in their work and, on the practical level, they know that top quality performance . . . will mean increased job opportunities."*
>
> *—Joseph M. Cribben*
> *Legislative Director*
> *United Association*

in sharper focus for the benefit of the committee and, perhaps to provide a certain amount of reassurance for the general public."

Marshall Hicks told the Udall subcommittee that he represented about 250 OM & C union employees for Consumers Power at the plant and another 5,000 employees elsewhere in the Company. He said that members of his union at Midland are committed to the safety of the plant and are not reluctant to report to management any problems they encounter in their daily work. Hicks said that he believes that management has been candid and open with UWUA workers on site and that his union will continue to support the commitment of operating the plant in conformance to applicable federal safety codes and requirements.

Hicks reviewed with the Congressional delegation how his members are responsible for testing and operating plant equipment when it has been turned over to Consumers Power.

MIDLAND REACTOR

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Published monthly for the employees of the Midland Project and their families.

Safety notes

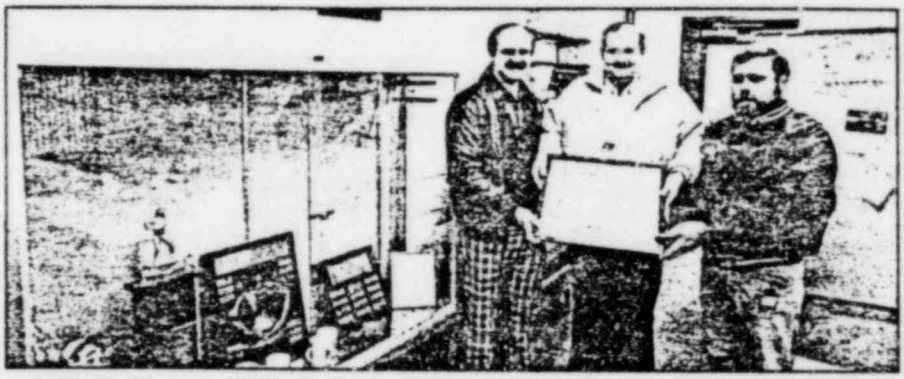
The Midland Project recorded an overall injury frequency rate of eight for the month of May. This compares favorably with the target of 50 established by the Ann Arbor Power Division (AAPD), BPCo.

Injury-free crafts included bricklayers, boilermakers, cement masons, electricians, ironworkers (riggers and rebar), mill wrights, operating engineers, laborers, painters, surveyors, and teamsters. Injuries incurred last month by pipefitters, ironworkers (structural) and carpenters contributed to the recorded project frequency.

In June, the Midland Project recorded an overall injury frequency rate of 12, again in positive comparison with the target of 50 established by AAPD.

Injury free crafts in June included boilermakers, bricklayers, carpenters, cement masons, ironworkers (riggers and rebar), mill wrights, operating engineers, painters, surveyors, and teamsters. Injuries incurred last month by electricians, ironworkers (structural), labors, and pipefitters contributed to the recorded project frequency.

On June 1, a CPCo. warehouse employee suffered a back injury when three tailgates of a stake rack struck the employee in the back. This accident resulted in the first lost time injury a CPCo. employee has suffered since February 2, 1982. During this time, CPCo. employees at the Midland Project have worked 485 days and 1,481,000 man hours without a lost time injury.



1,000,000 Hours *– GB Slade, CPCo. Superintendent, Gordon Wall, safety director, and Joe Bogart of the UWUA prepare plaque signifying Midland Plant's 1,000,000 man hours worked without a lost time injury for placement in trophy case. The award was presented by the Edison Electric Institute.*

Managers stress quality (continued from page one)

"Any previous dependence on this group (QC/MPQAD) to tell us what is wrong with our work must now be eliminated. We will know the work is correct!"

While pointing out that an effective quality program depends on all personnel, Hierzer emphasized a few more points in his memorandum:

— "I will be holding construction supervision and field engineering accountable for the success of our quality program. As I have stated repeatedly, we build quality into construction; we do not inspect it in.

— "One message that should ring loud and clear to all personnel is the importance of procedure adherence. I am directing construction supervision to take a tough stance on this requirement, and remove from positions of authority those individuals who cannot or will not comply... There simply is not latitude for deviations on this matter," Hierzer wrote.

The new BPCo. site manager said that he will be an active part of the Quality Improvement Program (QIP) and added "This (QIP) is not to be taken lightly. It is my philosophy."

(continued on page 8 see Quality)

MPQAD readies massive inspections

Verifying the Midland project is built according to specifications is the basic responsibility of the Midland Project Quality Assurance Department (MPQAD).

Since last January when Consumers Power took over management of both quality control and quality assurance, MPQAD has been rapidly expanding to meet its project commitments.

MPQAD is presently preparing a 100% reinspection of safety-related work that has already been completed as well as providing support for the resumption of quality work when released by the NRC.

To provide the support needed for this massive undertaking, MPQAD has built a staff of just over 700 individuals. Of these, approximately 310 are inspectors. MPQAD is budgeted for 782 positions, which should be fully staffed by September 1.

Gary Ewert, head of MPQAD administration and training, said that setting staff levels is based on meeting project commitments.

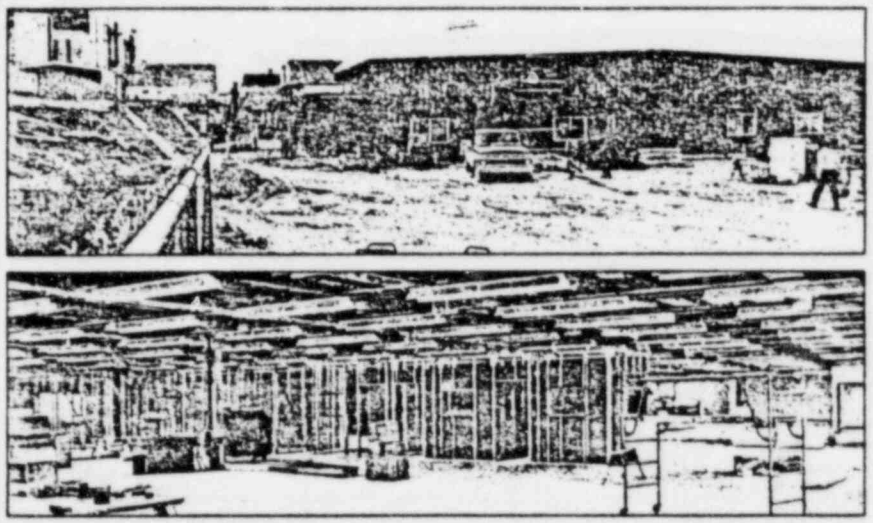
The housing of the added inspection effort has been a major consideration. This will be partly relieved with the completion of the Support Services Building. Two-thirds of the building is occupied by MPQAD's Quality Control Division and the Plant Assurance Engineering Section.

Besides determining how many new inspectors are needed, a major effort of MPQAD is finding qualified individuals needed to satisfy requirements to verify that work has been completed according to specifications.

All inspectors, whether or not they have previous experience at the Midland project, will be retrained, Ewert points out.

"The training program does not take credit for previous experience," Ewert states. Inspection training is given to all inspectors whether or not they worked at Midland Project or other projects.

All inspectors will receive both programatic training and technical training. The programatic training continues for three and one-half days while the technical training varies in length according to the previous experience of the individual.



Support Services Complete *– Construction was recently completed of the new support services building. Moving in started over the July 16-17 weekend for portions of the MPQAD staff and BPCo. construction staff.*

Ewert says that in addition to training and regardless of the previous work of an individual inspector, each Midland project inspector must successfully pass a performance demonstration. During the demonstration, the individual must show an understanding of the inspection plan and an ability to complete the documentation required.

MPQAD has completed a 100% reinspection of electric cable. The reinspection concluded that of some 9 200 cables, only nine were installed with improper codes.

Of the nine cables, four have been replaced, two will be replaced at a later date, one has been deleted from plant design and two likely will be dispositioned to use "as-is." None of the other cable characteristics, including voltage rating, electrical shielding, insulation, environmental qualification and fire protection failed to meet the appropriate specifications as had been claimed.

The lengthy reinspection was prompted by the allegations of an anonymous former site electrician that numerous wrong size cables were installed and the possibility existed of spurious signals. The allegations were proven by the MPQAD reinspection to be false.

Other inspections include those of hangers which is now underway and work completed by Bechtel's General Services Organization. MPQAD has also trained and certified inspectors to work continuously on the soils underpinning and HVAC work.

PROJECT STATUS FOR MONTH OF JUNE

DESIGN COMPLETION 95%*
ENGINEERING COMPLETION 82%*
CONSTRUCTION COMPLETION 84%*

*except remedial soils

	THIS MONTH	TO-DATE	(FIC # 7)
Large Process Piping (lineal feet) ...	169	276,723	280,000
Small Process Piping (lineal feet) ...	1,638	310,327	325,350
Conduit (lineal feet)	1,003	570,066	610,000
Wire & Cable (lineal feet)	49,386	9,971,274	10,750,000
Connections (each)	1,384	290,379	356,000
Large Pipe Hangers	81	14,517	15,485
Small Pipe Hangers	109	14,702	18,260

Keeping pests under the "thumb"

Warm weather can bring out many good things to enjoy. Tennis rackets, golf clubs, baseball and softball mits and bats, picnic hampers and the like are dusted off as mid-Michigan enjoys one of the warmest summers in recent memory.

The warm weather also brings out other not-so-welcome guests.

Climbing, flying, slithering, crawling, digging, and just plain sneaking their way into the site where they can cause serious problems and difficult working conditions is an assortment of rodents and insects.

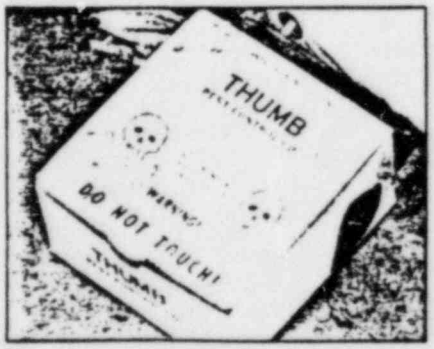
Nor has the problem of these unwanted visitors been just a matter of concern to employees and management on the Midland project. Not so long ago a story on the havoc caused by rats was carried in area newspapers.

Keeping the critters under control is the job of Mark Grauf and, until recently when he accepted a return to work at one one the valley's General Motors plants, Jim Macaig assigned full time to Midland project site by Thumb Pest Control of Bay City-Saginaw.

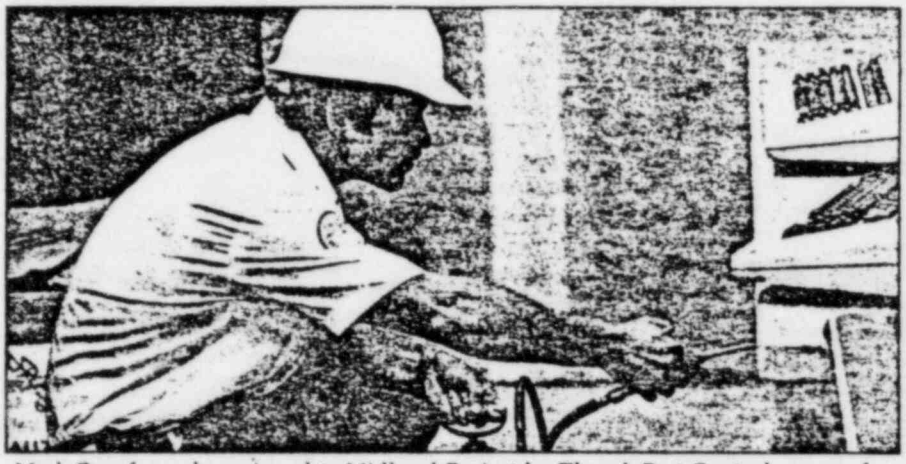
The company is no stranger to difficult assignments. Among its more interesting commercial clients are Wurtsmith Air Force Base near Oscoda, all the GM plants, and the Pepsi-Cola and Coca Cola bottling plants.

However, the Midland Project is among the most challenging of all, according to Thumb's Jann Osbourne of the firm's Bay City office.

"The Midland Project poses a high degree of difficulty," she told the Reactor.



Thumb's agents place these boxes around site for the convenience of Midland Project rodents. Flavors vary to keep rats from developing immunity to particular poison.



Mark Grauf, newly assigned to Midland Project by Thumb Pest Control, sprays for insects inside one of the steel buildings on site. Internal spraying is done when buildings are vacant to prevent noxious fumes from affecting employees.

"Because of its location — the open spaces, the abundant water availability — it is a perfect rodent environment," Osbourne says.

But for Macaig and Grauf it is a challenge built upon their leisure time activities of hunting and trapping.

Perhaps the most challenging animal to corral, though, is the common rat. Macaig says that Midland is fortunate to face only country rats and not their more sophisticated city brethren.

Macaig notes that rats are among the smartest mammals and in order to keep them under control he switches the flavor of the poison — an anticoagulant — often. He notes with certainty that common rat bait poisons are just too routinely used to be effective. The rat takes a small bite of it, realizes the material is poisonous and won't touch it again.

Among the flavors offered Midland Project rodents are fish, apple, grain, peanut butter and molasses, and chocolate. The bait is placed in small, white boxes clearly labelled around the site where rats have been reported by site workers.

"The site has cleaned up considerably since I started here last Labor Day," Macaig states. He says that the biggest draw the rats have is food scraps left around the site.

Both Macaig and Grauf say their strongest allies are employees themselves. They encourage employees to volunteer information about rats, insects or any other pests around the site.

In addition to laying poison for rats, Macaig and Grauf are often called in to help stamp out spiders, mosquitos, ants and other insects. For this they use a variety of sprays that are non-toxic to humans and also which mostly carry no odor.

Both Macaig and Grauf are careful of the amount of spraying they do.

Besides rats and insects, the "rat patrol" is also responsible for containing other forms of wildlife which wander onto the site. These include skunks, raccoons, and woodchucks.

The latter carnivore is something of a challenge for Thumb. Macaig and Grauf consider the woodchuck's presence a threat to the integrity of the cooling pond, but have been somewhat unsuccessful in luring him into one of the live traps set for his or her use.

The live trap and its use expresses a philosophy of Thumb that is out of the ordinary for pest control companies.

"You don't have to kill everything just to rid the site of pests," Macaig notes. He said Thumb tries to use live traps for every animal except rats.

Employees who notice rodents or other pests can contact Thumb's agent, Mark Grauf, through Harold Adler in Bechtel subcontracts. His extension is BPCo. 411.

Eliminating rats and other pests can be done and according to those who've seen their work on site, Thumb's agents have them, well, under the thumb at Midland.

June Oldman: pro golfer/CHP technician

Looking over the Pacific Ocean while lining up a putt on the seventeenth at Pebble Beach may not be the same as looking over the cooling pond at Midland while performing a chemistry sampling program.

But for one chemistry/health physics technician the water may lead to a bit of reminiscing about days of competitive golf.

For June Oldman, playing professional golf became an introduction to the nuclear energy business and her job as a chem/HP tech at the Midland Nuclear Cogeneration Plant.

focus

Oldman toured for eight months in 1979 on the woman's pro golfing tour. She golfed at some of the best known courses in the country — Pebble Beach, Spy Glass and Broadmoore — while on tour with both the Ladies Professional Golfing Association (LPGA) and the Women's Professional Golfing Association (WPGA).

The pro tour was just the midpoint in her career with golf.

While at Michigan State University, Oldman starred for the Spartan women's golf team.

She wore the green and white for three years and, not surprisingly, in those three years she helped the Spartan women to three straight Big Ten championships in 1974-1976. In 1975, Oldman was named the Big Ten Golfer of the year.

What does she say about the pro tour?

"It's not all it's cracked up to be," she notes, but quickly adds "It was a great experience. I travelled all over and met a lot of people who are prominent in golf," Oldman said.

June Oldman

In noting the constant travel she encountered on the tour, the attractive, easy smiling Oldman said that in order to succeed, a pro golfer can't be concerned about other players.

"You have to be for yourself and only for yourself," Oldman observed. "You can't care for anyone else because no one cares about you."

After getting off the pro circuit, Oldman was the club pro at a golf course near Jackson. While there she put her chemistry background to use in overseeing turf management. It was there her technical background was discovered and put to use for CPCo.

Coming to Midland in January, 1982, Oldman checks out radiation detection instruments. She and her colleagues insure detection equipment is operating properly and will be an integral part of the radiation protection team when the plant is operational.

As for golf, Oldman says the key to a successful round is in the head.

"Everyone's golf game is the same," she says matter-of-factly, "but it's how you think that's important.

"Some people with the best swings and the best shots don't get the card," she adds.

As for herself, Oldman tries to play four times a week during the summer, but says the winter lay-off noticeably affects her game in the spring.

And the comparison when she was a pro?

"I enjoy the game more because I'm more relaxed when I play," she says.

As for her favorite courses, she picks two, both in northern lower Michigan: the Garland Country Club near Lewiston and Boyne Highlands near Harbor Springs. On the West Coast, June Oldman remembers a number of courses in Oregon as her favorites.

Recalling her days as club pro in the Jackson area, Oldman says the best part of the job was playing at least once a day and often twice. It was playing with club members that opened her knowledge of the need for individuals with a chemistry background for work on the Midland nuclear project.

Oh yes, Oldman does give lessons — by appointment.

Quality continued from pg. 5

In an interview with the **Reactor**, Don Miller stated a similarly strong stand on the continuing need for adherence to quality on the Midland Project.

The CPCo. site leader, though, noted that the construction completion plan is a vital part of the quality effort at Midland.

"We recently received clearance to start training our CCP system teams," he reported.

"The CCP is **'our'** plan to finish the Midland Nuclear Project in a manner that satisfies the NRC regulatory requirements and at the same time meets cost and schedule," Miller explained.

"The CCP is only a plan to finish the project in the manner described. But the implementation of that program depends on the individual and by individual I mean every employee on the Midland Project whether he or she be craftsman, a plant operator, supervisor, quality representative or superintendent," Miller said.

"The individual performance of each person in accordance with approved procedures and drawings is the key to making the CCP a viable program to finish the plant," Miller

"As always, if any employee sees a problem that he or she believes is not being properly resolved by the immediate supervisor, the employee should bring it to the attention of higher authority," Miller stressed.

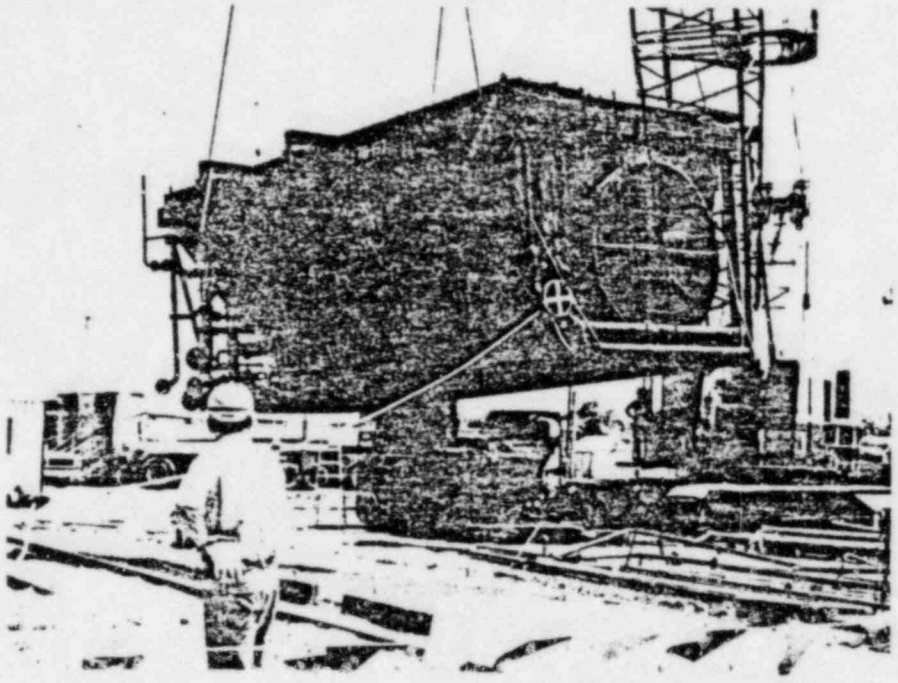
"I want to emphasize the need for individual performance: implementation of the CCP requires the support of all site personnel. No one is less important than anyone else to its success," he added.

BELLE RIVER

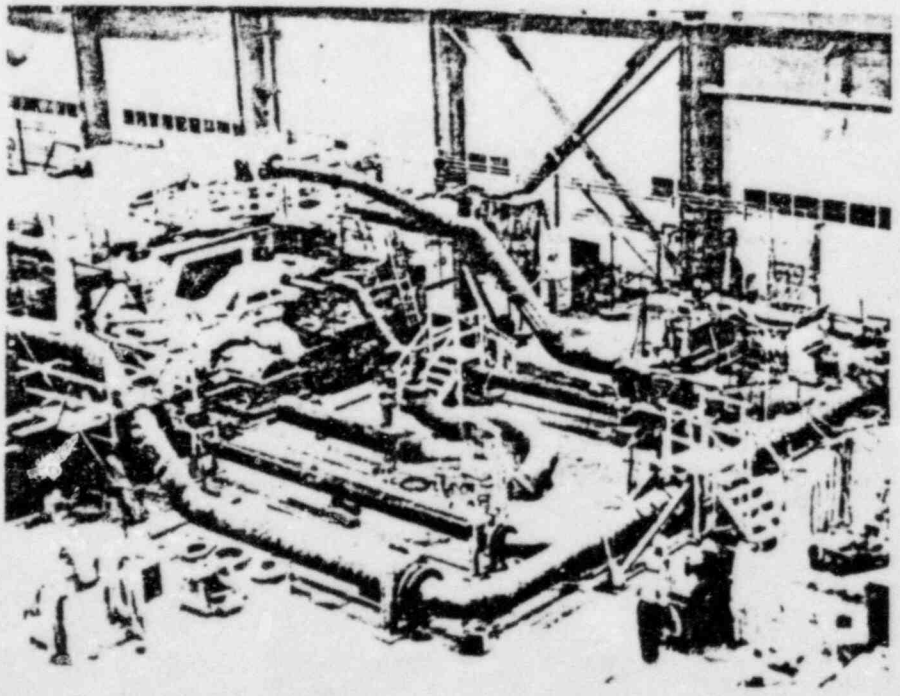
BEACON

Volume 5, Number 6

JUNE, 1983



Pipefitters guide first compressor onto concrete slab.



Special air blow piping has been installed on the Unit 1 Turbine deck.

Air Blow process to begin in July

A major step before Unit 1 Boiler Hydro

The Belle River project is about to start the first major step before boiler hydro — the process of Air Blow of the boiler and related piping.

This process of pressurizing the boiler to 800 psi and then letting the pressure decay to 600 psi, will force 14,000 inlet cubic feet per minute of air flow through the pipe and discharge to atmosphere through the silencer. The air blow is a major step before Unit 1 boiler hydro.

(continued on page 7)

Jobsite stewards to ask for United Way contributions beginning July 12

Donations will be received next month from craftsmen and non-manual employees as the Belle River jobsite United Way Fund Drive gets underway.

A goal of $14,000 has been set for the jobsite. Last year a total of $13,175 was collected from crafts and non-manuals.

Contributions will be taken by jobsite stewards, who will contact the craftsmen individually for donations. The Stewards will meet July 11 with United Way Fund Drive representatives at Conference Room "C". They will include Ray Glowski, Business Representative, Greater Detroit Building and Construction Trades Council, Pat Courtney, United Way Labor Representative, and Tom Melms, United Way Executive Director.

Following the meetings with stewards, United Way representatives will meet with foremen and general foremen and non-manual employees.

This is the third year that payroll deductions will be allowed at Belle River for jobsite donations. Jobsite United Way Chairman is Jack Wood.

Construction progress report
June, 1983

The following information was supplied by the Cost-Scheduling Department.

Overall construction progress is 65% complete. Construction of Unit 1 and common is 78% complete, and Unit 2 is 37% complete.

Structural steel bolt-up was completed for the Unit 2 boiler leave-out steel. Installation of miscellaneous handrail, grating, pipe bridges, and platforms continued in Unit 1 powerblock and yard.

Unit 1 turbine-generator assembly continued with installation of lube oil flush pipe, electrical work, and insulation.

Unit 2 turbine-generator work focused on completing the upper-inner casings, and alignment of the rotors for the low pressure turbines.

Unit 1 boiler assembly continued with erection of sootblower, seal air, and fuel oil ignitor pipe, hopper, roof, and penthouse casings, and the snubber system. Erection of pulverizers 1007 and 1010 continued. Ash hopper rough erection is basically complete with weld out continuing.

Unit 2 boiler assembly continued with the erection of coal pipe, buckstays, wall panels, crossover and riser tubes, convection pass elements, front windbox, ductwork, and pulverizers.

Unit 1 precipitator assembly continued with completion of outlet duct supports and manifolds. Roof and hopper electrical work, and control room terminations continued. Duct and manifold insulation was ongoing.

Unit 2 precipitator erection continued with installation of 2B pipeframes, 2C DS support frames, 2D supporting steel, welding inlet ducts, and fabricating hoppers, nozzles, and manifolds.

Installation of liner and conduit continued in the Unit 2 chimney, with 360 ft. of liner in place as of May 20, 1983.

Thirty-six of 128 Unit 1 and common turnover packages have been turned over.

Thirty-six of 42 Phase IIB systems have been turned over.

Electricians Bill Galliker and Vance LaMee terminate panels for coal burners at elev. 695.

Narang presents engineering paper

Paul Narang, Assistant Project Field Engineer, April 19 presented an engineering paper "Field Testing of Trench Excavation and Concrete Bedding for Circulating Water Piping (for a Power Plant) Results in Substantial Cost Savings." The paper was presented at the American Power Conference, sponsored by Illinois Institute of Technology, held at the Palmer House in Chicago.

The conference is an annual national forum for the discussion of problems and the exchange of information concerning the power industry and associated activities.

Lands a big one

Jerry Rachel, Civil Supt. last month landed a 25 lb. Chinook salmon on 8 lb. test line during a 20 minute battle on Lake Huron. This pleased him so much he went right out the following weekend and landed some more big ones. Fishing with him was carpenter GF Roy Jokie.

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Electricians Janet Cochran, Gerry Garascia and Ed Kohler, preparing Unit 2 isophase bus for insulation.

PROJECT STATUS FOR MONTH OF MAY, 1983

CONSTRUCTION COMPLETION 65%

	THIS MONTH	TO DATE
Structural Concrete (cubic yards)	551	119,774
Large Process Piping (lineal feet)	8,293	352,771
Small Process Piping (lineal feet)	6,339	118,998
Cable Tray (lineal feet)	5,909	123,111
Conduit (lineal feet)	22,585	342,402
Wire & Cable (lineal feet)	331,981	3,347,401
Terminations	13,738	101,588

* Excludes contractor quantities

Sprinkler fitters, electricians completing fire protection system

The fire protection system — one of the most important in terms of plant safety, before, during and after startup — is now being completed by sprinkler fitters and electricians.

The function of the fire protection system is to detect, annunciate, minimize, confine and extinguish all types of fires encountered in all plant areas.

The fire protection system is comprised of diversified monitoring, detection, alarm, and extinguishing facilities to protect the areas of equipment from damage by fire.

The system includes the following: Fire pumps and jockey pump, yard fire loop and hydrants, sprinkler systems, water spray systems, standpipe and hose systems, portable fire extinguishers, fire detection and alarm systems, fire barriers and mechanical foam system.

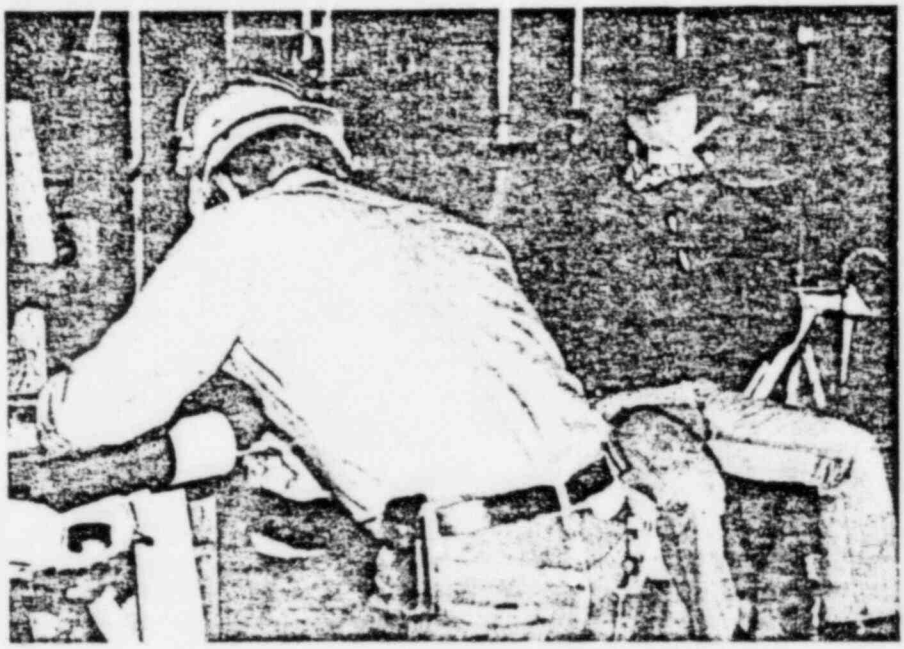
The fire protection system also includes the carbon dioxide system, pre-action systems for the coal conveyors and water spray systems for the dust collectors in the main building coal conveyor galleries area, or the yard coal handling fire protection systems.

A ground level fire water storage tank is the primary source of water for the fire protection system. Hose stations in the boiler, turbine, administration, and service building are supplied from wet standpipes and are installed within or adjacent to stairwells and at interior columns.

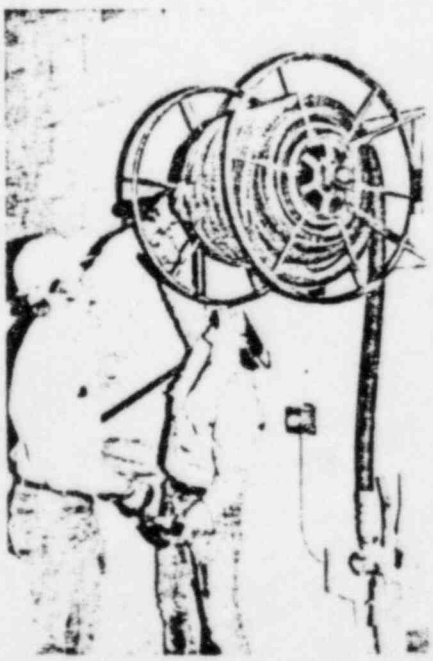
Automatic sprinkler systems are installed in key areas of the power plant and heat and smoke detectors are installed in various areas or ducts throughout the plant to provide alarms locally and in the main control room.

Wheeled dry chemical extinguishers, 150 lb. size, ready for immediate use, will be located in the switchyard relay control house, on the ground floor of Units 1 and 2 turbine areas, in the intake structure, and in the fire pumphouse electrical room.

A mechanical foam extinguishing system, located in the fuel oil/foam pumphouse, is provided to protect the outdoor, above ground No. 2 fuel oil storage tank and the fuel oil pump room.

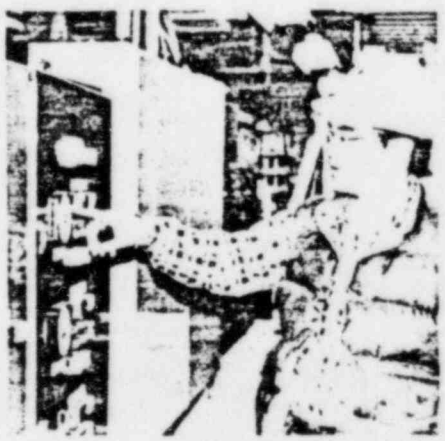


Sprinkler fitters preparing CO_2 piping for installation.

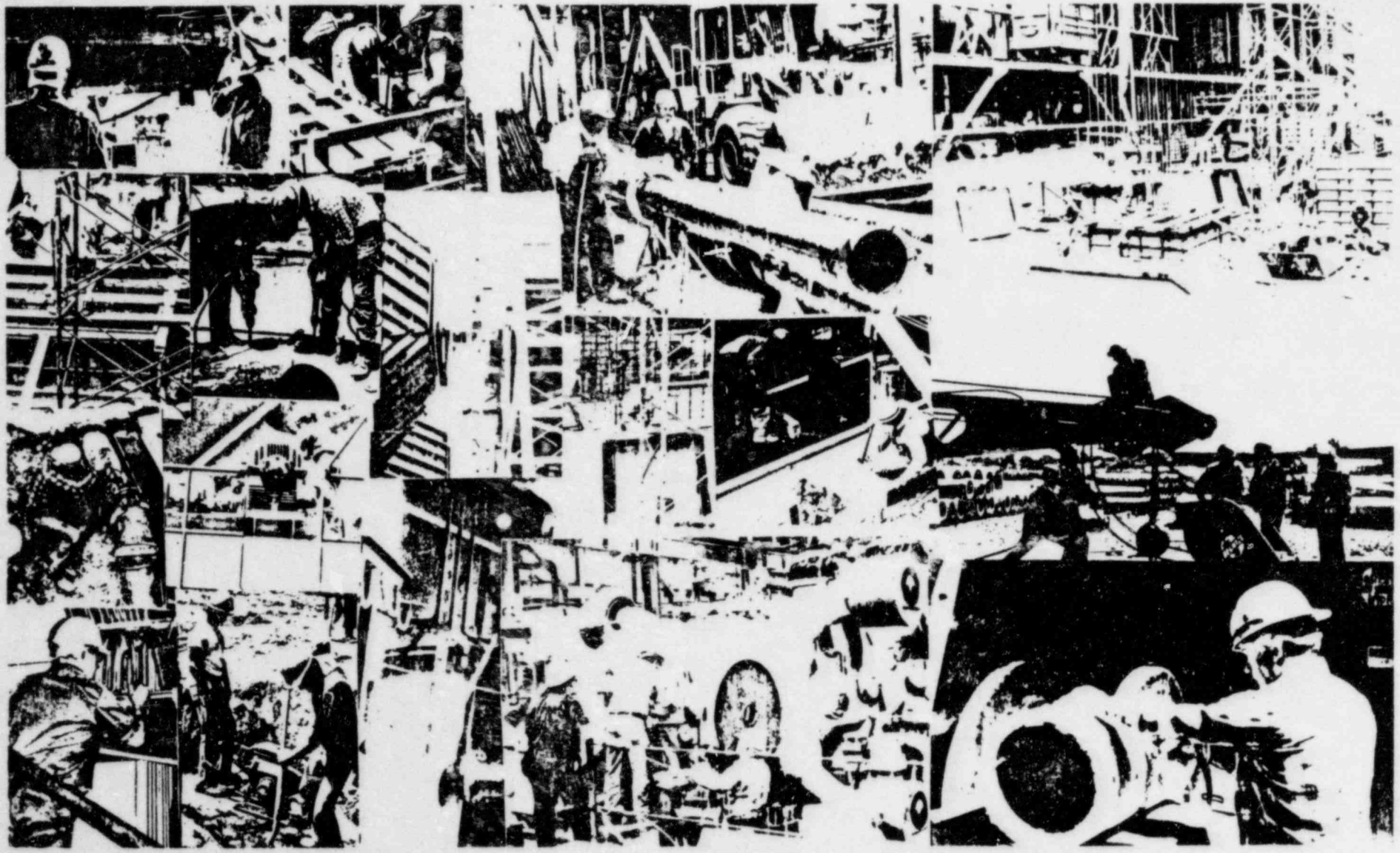


Randy Schneider and Bruce Hewitt, sprinkler fitters, install CO_2 hose reel station outside Turbine Building switchgear room.

Pulling cable for fire detection and alarm system, electricians Jim Mathew, left, and Dave Frumveller.



Thermal detection panels inspected by Larry Louie, Construction Engineer.



Hard hitting Sparkies jolt Dillos 13-3, Contracts 6-3

"There is no one who lies
of the Dillos demise
on that warm, sunny eve on June 2
when the Sparkies grew bold
as their story unfolds
and their fame and team standings both grew

The nine-banded Armadillo suffered from ring around the collar June 2 as the Electrical Sparkies, blasting rifle shots over the heads of outfielders, crushed the Dillos 13-3 in a game which featured fifth and sixth inning rallies.

The combination of the Sparkies' tough defense and John Armando hurling an 8 hitter made it possible to hold the Dillos to 3 runs.

The Sparkies led off with 2 runs in the first inning with singles by Simmons, Uganski and Grider. The Dillos answered back with 1 run in the bottom of the second with singles by Pons and Choy Hee. The Sparkies added 1 in the fourth with singles by Wade and Sitar. The Dillos also scored 1 run as Foley tripled and Lynch singled.

It was in the fifth inning when the Sparkies exploded scoring 6 runs on 7 hits. Page started off the inning with a double followed by Armando's single. Uganski continued the rally with a triple plus Grider, Wurmlinger, Wade and Rittenger added singles.

The Sparkies continued to batter the ball in the seventh adding 4 more runs with singles by Uganski, Grider, Wurmlinger and Rittenger.

The Dillos were only able to answer back in the fifth scoring 1 run on a double by Choy Hee and a single by Nuttal.

ELECTRICAL SPARKIES softball team, left, Glenn Rittenger, Larry Simmons, Tim Wade, Daryl Sitar, Neil Wurmlinger, Rene DeHondt, Todd Wanley, Bob Nicholas, Ken Uganski Mike Shelton, Steve Grider, John Armando and Paul Anderson.

LEAGUE HIGHLIGHTS

June 17

Halfway through the regular season, the Dillos are holding on to second place after recently pounding the Pirates 7-3. Hard on the Dillos heels are Uncivilized (3-1) and last year's champs, F & A, who seem to be recapturing last year's form after beating the Blues and Contracts.

The Pirates this year seem to be floundering, and the Blues are still looking for their first win. Steve Rider of the Sparkies and Reggie Campbell of the Pirates lead the home run derby with three apiece.

Highlights of the Dillos-Pirates contest included Santavicca and Suenkel going for two for three while seven other devoted Dillos had one hit apiece (what balance). Lynch homered to deep right field and Seaman gunned down Phillipich going to second (no problem). Hero for the Pirates was Reggie, who went 4 for 4 with homers over the fence. Way to go with the refreshments, Walt! (we even had squeeze mustard)!!

F & A vs. Blues softball action.

MOLSON CUP STANDINGS

June 17	Dillos	7	Pirates	3
6 week results	F & A	15	Contracts	9

Standings	W	L	PTS
SPARKYS	5	0	5
DILLOS	4	2	4
UNCIVILIZED	3	1	3
F & A	3	3	3
MOD SQUAD	2	3	2
CONTRACTS	2	4	2
PIRATES	1	3	1
BLUES	0	4	0

HOME RUN LEADERS:		
	Rider (SPARKYS)	3
	R. Campbell (PIR.)	3
	Phillipich (PIR.)	1
	Karl (PIR.)	1

New Employees

New Hires:

Steven M. DiGaetano, Sr. Eng. Aide-casual - Piping; Louis C. Carducci, Const. Ast. - Piping; Thomas J. Martin, Fld. Summer/Tech. - Safety; Greg S. Curson, Fld. Summer/Tech. - Instrumentation; Daniel E. Harris, Int. Clk. - casual - Document Control; James E. Boelter, Sr. Eng. Aide - casual - Mechanical

Rehires:

Julia M. Corner, Fld. Co-Op/Tech. - Mechanical; Mark F. Nemeth, Fld. Co-Op/Tech. - Civil; Todd D. Wanley, Fld. Co-Op/Tech. - Electrical; Fred J. Zweng, Const. Eng. - Civil; Dan Santavicca, Fld. Ast. - casual - Procurement; Gerald M. Karl, Fld. Co-Op/Tech. - Piping; Doug E. Potocki, Fld. Summer/Tech. - Piping

Transfer:

Bruce K. Moulton, Sr. Const. Eng. - Instrumentation (Richland, WA)

Seven Craftsmen on top notch Class A ball team

Seven Belle River craftsmen are among the starting 10 players on the undefeated Championship Class A "Beverage Shop" softball team which recently won the "Round Robin" softball tournament in Port Huron.

Now trying to win a state championship this fall, the team consists of short stop Craig Seaman, laborer; pitcher Vick Donaghy, boilermaker, Wheelabrator-Frye; third baseman John Rich, Bechtel laborer; left center fielder Dave Thomas, Bechtel laborer, right centerfielder Jim Mott, Supt. Wheelabrator-Frye; second baseman Greg Thomas, laborer Power Process Piping and left fielder Billy Bartlett, Bechtel laborer foreman.

Undefeated so far in their Class A Open League, last year the team finished ninth in the state and second in the District and City Port Huron competitive sports Class A Slow Pitch tournament.

Air Blow process to begin

(continued from page 1)

The objective of this air blow is to remove any foreign material from the critical piping and boiler. This will be accomplished through a series of blows in different paths of the system.

The system is divided into the following flow paths:

(1. Main steam flow path. (2. Turbine seals and boiler feed pump turbine flow path. (3. Cold reheat leg 1. (4. Cold reheat leg 2. (5. Hot reheat leg 1. (6. Hot reheat leg 2.

The air blow will be accomplished over a six day period starting July 9 and will consist of 20 blows each in each flow path.

The boiler and main steam lines will be pressurized to 1000 psi and will blow 20 times at 800 psi to 600 psi.

The Ingersol - Rand compressors are capable of pressurizing the system from 600 to 800 psi in 30 minutes.

Two electric powered high volume, low pressure 4160 volt Centac air compressors will feed up to 150 psi maximum per square inch into three three-stage RDS natural gas powered 1100 horsepower rotary engine reciprocating air compressors. These will deliver from 133 PSIG to 1,015 PSIG. The RDS compressors weigh 80,000 lbs. each and were lifted from flat bed trucks by crane and guided into position onto specially constructed concrete mats in front of the power plant by pipefitters. These compressors were then leveled and grouted.

According to Hollis Smith, Ingersol Rand supervisor, the air blow by power plants allows time saving on schedules, and at the same time, delivers a better cleaning job.

Normally, he said, a plant using a steam blow to clean out critical piping has to wait until boiler hydro is completed. An air blow can be accomplished before boiler hydro, and thus saves time because it doesn't stop construction, he said.

Crafts donate for Special Olympic Games

Sixty eight craftsmen at Belle River donated a total of $680.00, plus the use of a bus on behalf of the mentally impaired athletes representing Michigan at the International Summer Special Olympics in Baton Rouge, Louisiana.

Bud Quidley, foreman, Instrument Fitters, donated his bus for the Olympic Games. He collected the donations from his people who ride on his bus to work each day and from others on the jobsite.

The contribution helped defray expenses involved in the games competition. "It is tremendous having your support and dedication to our program. Many thanks," said John P. Walsh, Executive Director, Michigan Special Olympics.

Laborer saved from that 'sinking feeling'

It was a sight wondrous to behold when laborer Howard "E" Price III rescued fellow worker, Clair Curtis, from a dangerous situation.

While dewatering a manhole, Clair stepped into what appeared to be a shallow pool, and immediately started to sink in the mud and water up to his hips, and was still sinking when his partner, Howard, snatched Clair "single handedly" from the mud hole.

"We all want to thank and commend Howard on his quick reaction and disregard for his own safety," his fellow workmen stated.

Belle River Golf League

The May golf outing was scheduled for May 28th which was one of the Memorial Day weekend days. In spite of this fact we had an excellent turnout — 84 signed up and we had one "no show". The weather was great (Saturday was the only good day of the weekend) and Max had the course in excellent shape.

The scramble results:

- The number one team with a low score of 66 was the DECo group of Howard MacIntosh, Jay Lawson, Rick Luberacki, and Dennis Magolan.
- Second place team with a score of 67, was the Wheelabrator-Frye entourage of Dan Randolph, Clyde and Roger Rushton, and Gerry Cook.
- The third place team with a score of 68, was another DECo entrant consisting of Dennis Toune, Dave Jones, Dave Baker, and Sam Mancuso.

Note: The Bechtel team of Paul Wade, Bud Sayers, Jack Williams, and Larry Rodgers also came in with a 68 but they lost in a card play-off starting at the 14th hole. Sorry guys.

- Longers drives and closest to the pin results were as follows:

Longest drive - No. 13 - Rick Palo
No. 8 - Bob Jeffers

Closest to the pin - No. 2 - Bob George
No. 14 - Dan Hudolin

Al Frantz

Guyer, left, was presented award by Naren Bhatia, Project Manager.

Quality Improvement Nomination for Guyer

Tom Guyer has been nominated for a Quality Improvement Achievement Award. The nomination reads as follows:

"As Startup Construction Coordinator in the Client Organization, Tom Guyer has created a high degree of mutual trust and cooperation between the Construction Organization and the Client Startup Organization at the Belle River jobsite. By individual perseverance and attention to detail, Tom has helped Construction to achieve a high system completion rate and in the same manner assisted the Startup Organization in accepting systems and placing them in service.

"This "can do" attitude has contributed significantly to the project schedule and to quality of the completed product."

Volunteer math teacher receives letter of thanks

Mechanical engineer Dave Tratt received a letter of thanks recently from the Oak Park School District for volunteering to teach Geometry to high school students enrolled in the evening math tutorial program. In a letter to the Belle River Personnel Dept., Oak Park Supt. Malcolm Katz wrote:

"Dear Mr. Nacu:

Your employee, Mr. Dave Tratt, has made a significant contribution to the students of Oak Park Schools and thus the Oak Park Community. This past year Mr. Tratt volunteered two hours per week in an evening math tutorial program for our High School students. In some instances, remedial services that are no longer funded by the Federal government were provided by our volunteers. This valuable program would not have been possible without your employee's dedication to the education of our youth.

I thought it important to let you know that your employee is an asset to this School District. We thank them for joining our team and involving themselves in the educational process."

WHO'S WHO
AT BELLE RIVER

Marian Jury, Junior Accountant, Accounting Dept., is the lady people see about employee expenses. "They like me because of that." She is also the person people see about backcharges. "Everybody hates me for that."

She says she enjoys the work. "I like the people and everything."

A St. Clair resident, whose family originally moved to Marine City from Detroit, Marian has one sister and five brothers, including Bob, who works at Belle River as Lead Piping Engineer.

She has a seven month old son, Ryan. "He's my main hobby." She also likes to swim in the St. Clair River, "the bluest river I've ever seen," and she enjoys water skiing.

Her family has perfected a beer batter for frying walleye. She has never caught one, but said someday she hopes to land a big one.

Glad to be back in Michigan, his home state, after three and one half years at the Richland, Washington WNP-2 nuclear projec' is **Bruce Moulton, Instrumentation Engineer.**

Bruce served at the Greenwood project with the Instrumentation Dept. from 1977 through March of 1979 before transferring to Washington. While working at Richland, he met and married Candy, who happens to be the daughter of Tom Wynne, Lead Civil Supt. at Belle River.

Bruce said he is happy to be back in a boating state, and has brought his water skiing boat with him. At Richland he lived within a mile of the Columbia River.

Serving at Richland, Bruce worked in the Instrumentation Dept. and as Quality Control Engineer. He also tried his hand at elk hunting in the mountains, which surround the area.

During his western soujourn, he took lessons and obtained his pilot's license and enjoyed fishing and camping in Idaho.

Electrician Jim Jones
White water rafting on the wild Youghiogheny

The eight mile stretch of the Youghiogheny River is a classic white water. Calm pools of clear blue water interrupting turbulent rapids created over the years by the river slicing through the Laurel Mountains of Southwestern Pennsylvania.

A veteran of the white water rafting trips is **electrician Jim Jones,** who has made this adrenalin pumping white water journey 15 times and annually hosts group tours to the area.

Jim got into white water rafting at the invitation of a friend several years ago. He made the trip to the Youghiogheny River and has been hooked ever since.

Located in the Ohiopyle wilderness area and located one and one half hours drive southeast of Pittsburg, the Youghiogheny is a sparkling river — a challenge — alternating experiences through roaring white water and calm river stretches...all wrapped in the sights, scents and sounds of the wilderness.

Jim went the first time on a guided raft tour and has since purchased his own equipment. He takes groups of four to six persons along with him, and splits expenses. They split the raft rental fee of $30 between them. The groups meet at the park and "suit up." Recommended attire for rafting is cut-offs, swim suits, etc. for summer wear and wool socks, sweaters or diver's swim suits in the spring and fall. Tennis shoes are a must, but no sharp objects should be worn. They also bring a change of clothing since getting wet is as sure as the fun they will have. Also, non-swimmers should not attempt this sport and life jackets are worn at all times.

Rated from 1-6, the 6-7 hour trip on the river is nothing you can take for granted, Jim said. "It's a real challenge." In the past 20 years 15 persons have been killed on the river, he said.

Each year in July, Jones takes a week vacation to this area. Last year he made the white water trip in a canoe with his girl friend. This was accomplished while paddling in the kneeling position on knee pads. Inside the canoe were special flotation pads.

But it was a piece of cake for a man who has made the trip 15 times.

"I'm really impressed with this river," Jim said. "But, over in West Virginia there are some rivers a lot more vicious than this."

Copy sent to DMB 8/25/83

Consumers Power Company

PRINCIPAL STAFF			
RA		ENF	
D/RA		SCS	+ 3
A/RA		PAO	
DPRP		SLO	
DRMA		RC	
DRMSP			
DE			
ML			
OL		FILE	

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

August 18, 1983

Mr Stanley Baranow
Stone & Webster Construction Co
Midland Nuclear Cogeneration Plant
PO Box 1963
Midland, MI 48640

MIDLAND ENERGY CENTER - SERIAL: 23517 FILE: 24.2

References:
1. MLCurland letter to RAWells, dated August 8, 1983, Serial 25172
2. RAWells letter to JWCook, dated August 8, 1983, Serial 23677
3. RAWells letter to DBMiller, dated August 9, 1983, Subject: Midland Energy Center Project - Material Traceability Review CCP Zone 6

Please find attached copies of the three memos referenced above which deal with material traceability.

Should you have any questions, please feel free to contact me or Brien Palmer.

HPLeonard, General QA Superintendent
Plant Assurance Division
Midland Project Quality Assurance Department

HPL/BMF/ckb

cc: JHarrison, USNRC
DBMiller, Midland
BMPalmer, Midland
DATaggart, Midland
RAWells, Midland

AUG 25 1983

8308300642

To RAWells

From MLCurland M L Curland

Date August 8, 1983

Subject MIDLAND ENERGY CENTER PROJECT - PROGRAMMATIC REVIEW OF MATERIAL TRACEABILITY BY MPQAD
FILE 24.0 SERIAL 25172

CC

Consumers Power Company

INTERNAL CORRESPONDENCE

MPQAD has completed a review of the procedures and systems in use at the Midland Plant for identification and control of material and components in response to a Zone 6 action item of the Construction Completion Program. An evaluation was made of the adequacy of these procedures and systems to fulfill and adhere to regulatory, code and standard requirements regarding material identification and control. The review consisted of: a search of requirement documents, procedures, specifications and instructions; personnel contact; and observations of stockrooms, storage areas and field installations. Investigations concentrated on pipe hangers and supports, structural materials, piping, and weld filler material.

Based on this review, my staff and I have concluded that the systems in use for material identification and control do provide for compliance with ASME Code requirements of identification through fabrication, and for 10CFR50 Appendix B requirements of preventing the use of incorrect material. Although the requirements are met, the degree of compliance is considered minimal. The report prepared by my staff does recommend some actions which it is believed will provide a more positive control for future activities and will lessen project vulnerability to subsequent difficulty in responding to questions of material acceptability. However, it is my judgement that the present program and the verification of material identification imposed by appropriate PQCIs complies with the commitments for this project. It is my conclusion that although certain improvements will be recommended, as noted above, there should be no constraint or holds placed on the inspection process at this time.

MLC/pab

To JWCook, P-26-336B

From RAWells, Midland

Date August 8, 1983

Subject MIDLAND ENERGY CENTER PROJECT -
CCP PROGRAMMATIC REVIEWS
MATERIAL TRACEABILITY
FILE 24.0 SERIAL 23677

CC WRBird, P-14-418A DBMiller, Midland
MLCurland, Midland BMPalmer, Midland
HPLeonard, Midland

Consumers Power Company

INTERNAL CORRESPONDENCE

As part of our Construction Completion Program, MPQAD was assigned the responsibility to conduct certain programmatic reviews as a prerequisite to initiation of Phase 2 of the CCP. The purpose of this memo is to address the review conducted on material identification and control. This study has been completed under the direction of M L Curland, Principal Quality Advisor for MPQAD. The fundamental conclusion of the study is that the systems in use for material identification and control do provide for compliance with ASME Code requirements of identification through fabrication, and for 10CFR50 Appendix B requirements of preventing the use of incorrect material.

The detailed findings, conclusions and recommendations contained in the MPQAD report will be presented to the CCP Management Review group and selected staff in the very near future. It is the position of MPQAD that our material identification and control systems are acceptable, although certain recommendations may be made for future improvements. Additionally, since material identification and control verification is required where necessary through appropriate PQCIs, it is concluded that the program for material identification and control requirements and verification is acceptable for inspection purposes. Although some improvements will be recommended to the overall program, these are not considered a constraint to our inspection process. The ongoing larger reinspection effort and reinspections under the QVP will meet programmatic material identification and control requirements.

This position is based upon a collective review of the final draft report by my staff and upon the recommendation of M L Curland, attached.

RAW/pab

To DBMiller

From RAWells

Date August 9, 1983

Subject MIDLAND ENERGY CENTER PROJECT -
MATERIAL TRACEABILITY REVIEW
CCP ZONE 6

Consumers Power Company

INTERNAL CORRESPONDENCE

cc JWCook
~~HPLeonard~~

The attached memos indicate that MPQAD has completed its review of material traceability as required by Zone 6 of the CCP. As indicated in the attached, the programs presently in place are acceptable, although some recommendations for improvements for future use will be made. The details of the study and conclusions will be presented to the CCP management group for information in the near future.

I consider this CCP assignment closed.

jln

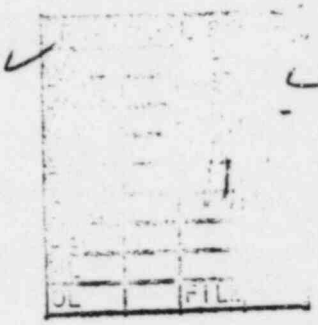
-BCLW
(2) Ltr
sent to DMB 8/17/83

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

August 9, 1983



Mr. Stanley W. Baranow
Stone & Webster
Midland Nuclear Plant
P.O. Box 1963
Midland, MI 48640

MIDLAND ENERGY CENTER GWO 7020
STONE & WEBSTER CORRESPONDENCE
File: 0655, B1.1.4 UFI: 99*08, 08*06*04*04 Serial: CSM-0666

Please find attached our response to questions raised in your memorandums to J G Keppler. This response covers open items from my July 1, 1983 letter and also includes responses through Report #7 dated August 1, 1983 (S&W #16) After an evaluation of the attachment CPCo believes that none of the open items are restraints to implementation of the CCP activities.

DBM/RRL/lrb

cc: JGKeppler
JWCook
RJCook
RAWells
RBKelly
APArmaruso

DBM

AUG 17 1983

OC0783-0001A-CN03

8308220346

SUMMARY OF RESPONSE TO S&W CIO REPORTS

I. S&W OPEN ITEMS PRIOR TO JUNE 30, 1983 (S&W #11)

The following items remain open from previous letters:

1. Need to supply S&W with a copy of the NRC Commitment List

   Response: An initial revision of the base NRC commitment list based on the June 10 CCP letter to NRC has been provided to the CIO. S&W letter dated July 25, 1983 (S&W #15) indicates this item as closed. Updates to the commitment will be provided to the CIO as they are made.

2. Need to take action on Roy A. Wells memo (Serial 22848) dated June 7 summarizing status of open items from the QVP management review.

   Response: J. W. Cook letter to J. A. Rutgers, CPCo Serial 23624 dated July 13, 1983 acts on the recommendations made by R. A. Wells and concludes for the MRC (Management Review Committee) that all constraints to the QVP, other than NRC approval, have been closed.

3. Need to describe and present procedures on the NCR disposition process.

   Response: The NCR disposition process to be used for the QVP is the normal process as described in PSP 3.2. A revised procedure (F2-M) for preparing and processing NCR's will become effective August 30, 1983.

   NCR's generated from the hanger reinspection only will have an additional step to develop a recommended disposition prior to final disposition in accordance with the above procedures. These additional procedures will be made available to the CIO. The Nutech portion of the NCR process remains open until we provide the CIO with the process. The Nutech Process was developed for the hanger reinspection program and should not be a restraint to CCP (which includes the QVP). Project Engineering will discuss process with CIO.

II. JUNE 30, 1983 LETTER (S&W #11) - MANAGEMENT COMMITTEE REVIEW

1. CPCo should clearly establish their position on requirements for examination after team training.

   Response: The project position is that supervisor evaluation of individual on-the-job performance will determine the qualifications of each individual. Examinations following training sessions will not be used. A separate program for evaluation of training content and instructor performance has been set up. The CIO has reviewed this program and reported it as closed in Report #5 dated July 18, 1983.

2. The review team should assemble their comments in one document and present their findings prior to the Management Review Committee Meeting.

   Response: A similar request was made of the review team by the Chairman of the Management Review Committee. An effort will be made to schedule review team activity to allow time for preparation of a single summary document for future management reviews.

3. Restraints presented to the Management Review Committee should be resolved prior to the MRC meeting or the meeting delayed.

   Response: The review team has been identifying their open items directly to the responsible organization element prior to the Management Review Committee meeting which allows for corrections or response on each item at the MRC meeting. This approach meets the needs of the MRC and will continue to be used for future management reviews in order to maintain needed management flexibility and prior notice in scheduling meetings.

III. JULY 12, 1983 LETTER (S&W #12) REPORT #4

1. Page 2 of Report Item 3) - "Need to identify commitments made to NRC"

   Response: This is a previous open item - It is closed as described in I.1 above.

2. Page 2 of Report - Item 4) - "CIO considers the list of commitments to the NRC a constraint to the QVP"

   Response: This is a previous open item - It is described in I.1 above.

3. Page 2 of Report - Item 5) - "CIO concerns in the conduct of training of supervisory personnel"

   Response: This item is closed in S&W Report #5 dated July 18, 1983 (Item 2, page 2).

4. Action Items from Page 2 of S&W #12

   1) Resolve items on B M Palmer's memo - Serial 22897A dated 6-14-83

      Response: This was a CIO Action Item and Report #5 (S&W #14) addresses the memo.

   2) Need job descriptions and responsibilities of CPCo personnel engaged in QVP.

      Response: The job descriptions have been reviewed and the item closed (S&W Report #5 dated July 18, 1983).

3) Has a program been developed to process non-conformances?

Response: The program to process non-conformances has been covered in I.3 above.

IV. JULY 14, 1983 LETTER (S&W #13) - OVERVIEW OF CCP

No response required

V. JULY 18, 1983 LETTER (S&W #14) - REPORT #5

1. Item3)a page 2 "Adequacy of Drawing (A8) - large bore pipe hangers"

Response: Closed by S&W #15

2. Item 3)b page 4 "Additional verification of equipment received and installed (E2)"

Response: Even though S&W has closed this item relative to QVP, a separate program requirement is still open that would establish how to verify vendor equipment.

3. Item 3)c page 4 "Material traceability of installed hangers (E3)

Response: The material traceability issue for hangers is open pending S&W review.

4. Page 5 of Report #5 - Item 4

Response: This item closed. Item 4.2) from Item III above (S&W #12 - Report #4)

Open Action Items - Listed on Page 5 of Report #5

1) Commitment List

Response: Closed as described in I.1 above

2) Commitment List

Response: Closed as described in I.1 above

3) Management Review Committee action in R. A. Wells memo

Response: Closed as described in I.2 above

CPCo Required Action

1) MRC to convene to confirm or modify recommendation of MPQAD

Response: Closed as described in I.2 above

2) NCR Process

Response: Current status described in I.3 above

VI. JULY 25, 1983 (S&W #15) Report #6

Action Items

1) Concern - "Adequacy of drawings - Large Bore Pipe Hangers" - closed by this letter. New item opened. Advise CIO of redline NCR and its impact of QVP.

Response: The majority of the Field Redlines (FRL) in question affected pipe supports within the scope of the Hanger Reinspection Program. Approximately 5% of the FRLs affected small bore pipe drawings.

Immediately upon identification of the FRL problem, the necessary procedural controls were implemented by the affected organizations.

These controls include:

1) Project Engineering identifying which drawings are affected and placing them on hold in accordance with EDP 4.46.

2) Upon notification from Project Engineering, Field Document Control issues a drawing hold cover sheet to all affected organizations on drawing distribution. This action is in accordance with FPD-1.000 Rev 16.

3) Quality Control has issued an "activity hold" in accordance with AAPD/PSP G-3.2, preventing any inspections to a drawing with an outstanding FRL.

These programatic controls are sufficient to preclude inspection acceptance of affected items. In addition, all of the individual holds are forecasted to be released and revised drawings redistributed by 9-8-83. For this reason, the redline issue has no quality impact on the QVP.

2) Concern - "Material Traceability of Installed Hangers".

Response: Material traceability in general is the subject of a draft report completed by the MPQAD Principle Quality Advisor. Although this draft report recommends some changes for future work, it concludes that the Project does meet the applicable requirements. A memo from the Executive Manager - MPQAD to the Management Review Committee presents this conclusion.

Since the conclusion is that material traceability requirements are currently being met, there will be no impact on reinspections during QVP or the Hanger Reinspection Program.

3) Concern - Has a program been developed ... to process NCR's?

Response: Remains open as indicated in I(3) above.

Open Action Items

1) CPCo believes this is closed based on I.2 above

VII AUGUST 1, 1983 LETTER (S&W #16) Report #7

All identified action items have been addressed in Section VI above.

VIII SUMMARY OF OPEN ITEMS TO DATE

1) Develop vendor equipment verification program - (MPQAD/SMO). This is not a restraint to Phase I CCP activities but has been committed to resolve prior to Phase II.

2) Project Engineering to provide the CIO with procedures on the Nutech Process.

sent to DMB 8/15/83

Consumers Power Company

Roy A Wells
Executive Manager
Midland Project Office

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

August 8, 1983

PRINCIPAL STAFF			
RA		ENF	
D/RA		SGS	
A/RA		PAO	
OPRP		SLO	
DRMA		RC	
DRMSP			
DE			
ML			
OL		FILE	

orig+3

Mr Stan Baranow
Stone and Webster Engineering
Midland Nuclear Plant Project
Trailer 186
3500 E Miller Road
Midland, MI 48640

MIDLAND ENERGY CENTER PROJECT - MPQAD MATERIALS

This is to confirm that copies of the MPQAD Training Schedule and material concerning inspector certification was supplied on August 5, 1983 as you requested.

BAW/GFE/kw

CC DBMiller
GFEwert
JHarrison, NRC

AUG 15 1983

8308190296

Ltr to Dmng 8/11/83

PRINCIPAL STAFF			
RA		ENF	
D/RA		SCS	✓ orig+3
A/RA		PAO	
DPRP		SLO	
DRMA		RC	
DRMSP			
DE			
ML			
OL		FILE	

Consumers Power Company

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

August 8, 1983

Mr Stan Baranow
Program Manager CIO
Stone and Webster
Midland Energy Center
PO Box 1963
Midland, MI 48640

SUBJECT: MIDLAND ENERGY CENTER - REQUESTED DOCUMENTS
FILE: 24.2 SERIAL: 19830

This is to confirm discussions between M J Schaeffer, M L Bupp and S K Cox of MPQAD-HVACA and Frank Bearham and Rick Scallon of Stone and Webster on requesting the following documents:

H1A Rev 2	PIPR	H5A Rev 1	PIPR
H1B Rev 0	PIPR	H5B Rev 1	PIPR
H2A Rev 0	PIPR	H6 Rev 1	PIPR & Supplements
H2B Rev 0	PIPR	H7A Rev 1	PIPR & Supplements
H2C Rev 0	PIPR	H7B Rev 3	PIPR
H3 Rev 0	PIPR	H7C Rev 1	PIPR
H4A Rev 3	PIPR	H7D Rev 0	PIPR
H4G Rev 2	PIPR	H7E Rev 0	PIPR
H4H Rev 0	PIPR	H9 Rev 1	PIPR
H4I Rev 0	PIPR	H10 Rev 2	PIPR

Bechtel Technical Specification M151A, Rev 15

MB-FP-17 Rev 2, Welding Procedure Qualification
MB-FP-5 Rev 3, Installation
MB-FP-3 Rev 2, Field Fabrication
MB-FP-1 Rev 2, Requisition/Receipt Inspection
MB-FP-7 Rev 1, Document Control

Zack Quality Assurance Manual - 2nd Edition, Rev 0

Bechtel Drawing C-843, Rev. 7

AUG 11 1983

8308160422

A copy of each of the abcve is attached for your use.

H P Leonard
General Superintendent
MPQAD-PAD

S K Cox
Supervisor, Administration
MPQAD-HVACA

HPL/SKC/cn

cc: JHarrison, NRC (w/o att.)
DBMiller, Midland (w/o att.)
RAWells, Midland (w/o att.)

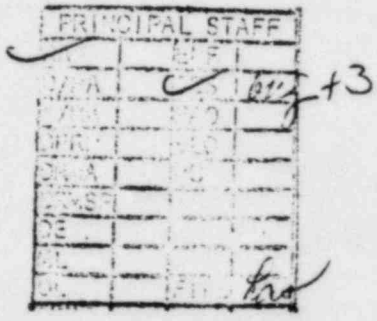
sent to DMB 8/10/83

Consumers Power Company

J A Mooney
Executive Manager
Midland Project Office

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0498

August 2, 1983
JNL 31-83



J J Harrison
Midland Project Section
US Nuclear Regulatory Commission
Region III
799 Roosevelt Avenue
Glen Ellyn, IL 60137

MIDLAND ENERGY CENTER
MIDLAND DOCKET NOS 50-329, 50-330
TRIAXIAL TEST RESULTS - AUXILIARY BUILDING
FILE: 0485.16, C-125B(QR) SERIAL: 23882

REFERENCE: CPCO LETTER (J A MOONEY) TO NRC (J J HARRISON) DATED 6/19/83
SERIAL CSC-6735

The purpose of this letter is to closeout the commitment in the reference for providing the Auxiliary Building triaxial test results. The enclosed report presents the results of tests performed for piers W11, E8 and W8. It should be noted that these tests have been performed in accordance with Appendix A to the report, "Guidelines for Thin-Walled Tube Sampling of Pier Subgrade," by Hanson Engineers, Springfield, IL and are for information only. The design has been based on earlier tests.

JAMooney

JAM/JNL/bjw

CC RJCook, Midland Resident Inspector
JGKeppler, Administrator, NRC Region III
DSHood, US NRC
RBLandsman, US NRC
OL/OM Service List

oc0783-0534a100

AUG 10 1983

8308150256

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mi0583-0429a100

RESULTS OF THE
TRIAXIAL TESTING FOR THE

AUXILIARY BUILDING UNDERPINNING

The purpose of this report is to summarize the guidelines for taking thin-walled tube samples in designated piers, and to present the results of laboratory tests performed on selected tube samples taken to date. Tube samples are taken to provide relatively undisturbed samples of pier subgrade soils suitable for performing unconsolidated-undrained triaxial shear strength tests. These shear strength test results can then be compared to the average shear strength used in design.

Piers designated for tube sampling are W 11, E/W 2, 5, and 8, and CT 3, 10 and 14. To date, tube samples have been obtained in piers W 11, W 8, and E 8.

At designated piers, two (2) thin-walled tube samples are obtained according to the guidelines in Appendix A (except as noted in Table 1 for Pier W 11). The tubes are sent to the laboratory of Hanson Engineers in Springfield, Illinois for testing. The testing program consists of determining water content, wet density, Atterberg limits, and shear strength from unconsolidated-undrained triaxial compression tests performed on selected portions of the samples. Three (3) triaxial tests are performed using confining pressures of 15, 30, and 45 psi.

The laboratory test results obtained to date are summarized in Table 1 of this report. The Mohr's circles for the triaxial test results are included in Appendix B of this report.

The average of the data shown in Table 1 can be compared to the average anticipated design values for pier subgrade soils which are given on Bechtel Design Drawing C-1304 (Q), Rev. 1, as summarized below:

	Design	Measured
Water Content	20%	21.2%
Liquid Limit	42%	47.1%
Plastic Limit	20%	18.8%
Wet Density	130 pcf	130.2 pcf
Undrained shear strength	7 ksf	7.3 ksf

The measured range of undrained shear strength values of 6.2 to 8.0 ksf is within the anticipated range of 5 to 10 ksf. As expected, the natural soils encountered near the pier subgrade elevation have been consistent with the design basis.

STS/WORK3

TABLE 1

SUMMARY OF LABORATORY TEST RESULTS

			INDEX PROPERTIES				UNCONSOLIDATED-UNDRAINED TRIAXIAL TEST RESULTS		
Pier No.	Sample No.	Elev. Ft.	Water Cont. %	Liquid Limit % (3)	Plastic Limit % (3)	Wet Unit Weight	Conf. Pres. PSI	Shear Strength KSF	Average Shear Strength KSF
W 11(1)	1U-3	565.3	19.7	-	-	132.5	15	7.4	
W 11(1)	1U-2	565.7	21.3	43.1	19.1	131.4	30	8.0	7.7
W 11(1)	1U-1	566.0	21.5	-	-	130.6	45	7.8	
W 8(2)	S-1	565.6	20.0	-	-	130.0	15	6.8	
W 8(2)	S-2	565.6	20.6	49.2	18.4	130.3	30	6.2	6.8
W 8(2)	S-2	565.3	20.6	-	-	131.5	45	7.4	
E 8(2)	S-1	564.3	23.1	-	-	127.3	15	7.1	
E 8(2)	S-1	564.0	23.9	49.1	18.8	126.7	30	6.7	7.2
E 8(2)	S-2	564.4	20.5	-	-	131.3	45	7.9	

(1) Tube advanced using jacking system. Only one tube sample was obtained in Pier W 11.

(2) Tube advanced by driving.

(3) One set of Atterberg limits performed from tube sample at each pier location: for E 8 and W 8 the samples were obtained by combining portions of both tube samples.

APPENDIX A

GUIDELINES FOR THIN-WALLED TUBE SAMPLING OF PIER SUBGRADE

GUIDELINES FOR THIN-WALLED TUBE SAMPLING OF PIER SUBGRADE

PURPOSE

The purpose of this procedure is to provide a method for using thin-walled tubes to obtain soil samples suitable for laboratory testing from the subgrade of piers at the Midland Nuclear Plant.

SCOPE

The piers to be sampled using this procedure are E/W 2, 5, 8, and CT 3, 10, 14, and at other locations as determined by the RGE.

PROCEDURE

After the pier shaft has been excavated to approximately one foot above the design subgrade elevation, the bottom of the excavation shall be cleared of loose material. The sample tube shall be a 14.5 inch long steel tube with a two inch outside diameter and a 1/16 inch wall. Other tubes acceptable to the resident geotechnical engineer may be used.

Place the sample tube with a coupler attached to the top in a vertical position on the bottom of the excavation. Place a cushion such as wood blocking on top of the coupler and advance the tube using a sledge hammer. Care shall be taken to maintain the tube as vertical as possible and to reduce the tendency for swaying during driving. After determining that the tube has reached adequate depth, record the depth of penetration. Before removing the tube, rotate the tube at least two full revolutions to shear the sample at the bottom. Measure and record the length of the sample obtained. The job number, sampling date, pier number, sample number, and sample elevations (top and bottom of sample) shall be shown on the tube. The tube may also be advanced using a hand-operated jack, braced as necessary, using as uniform and penetration rate as possible.

Remove any loose material from the upper end. Trim at least ½ inch of material from the lower end. Seal both ends with wax. Microcrystalline wax is preferable, but paraffin may be used. After waxing, fill the space in the upper end of the tube with a filler such as rags or newspaper. Securely tape both ends and seal again with wax.

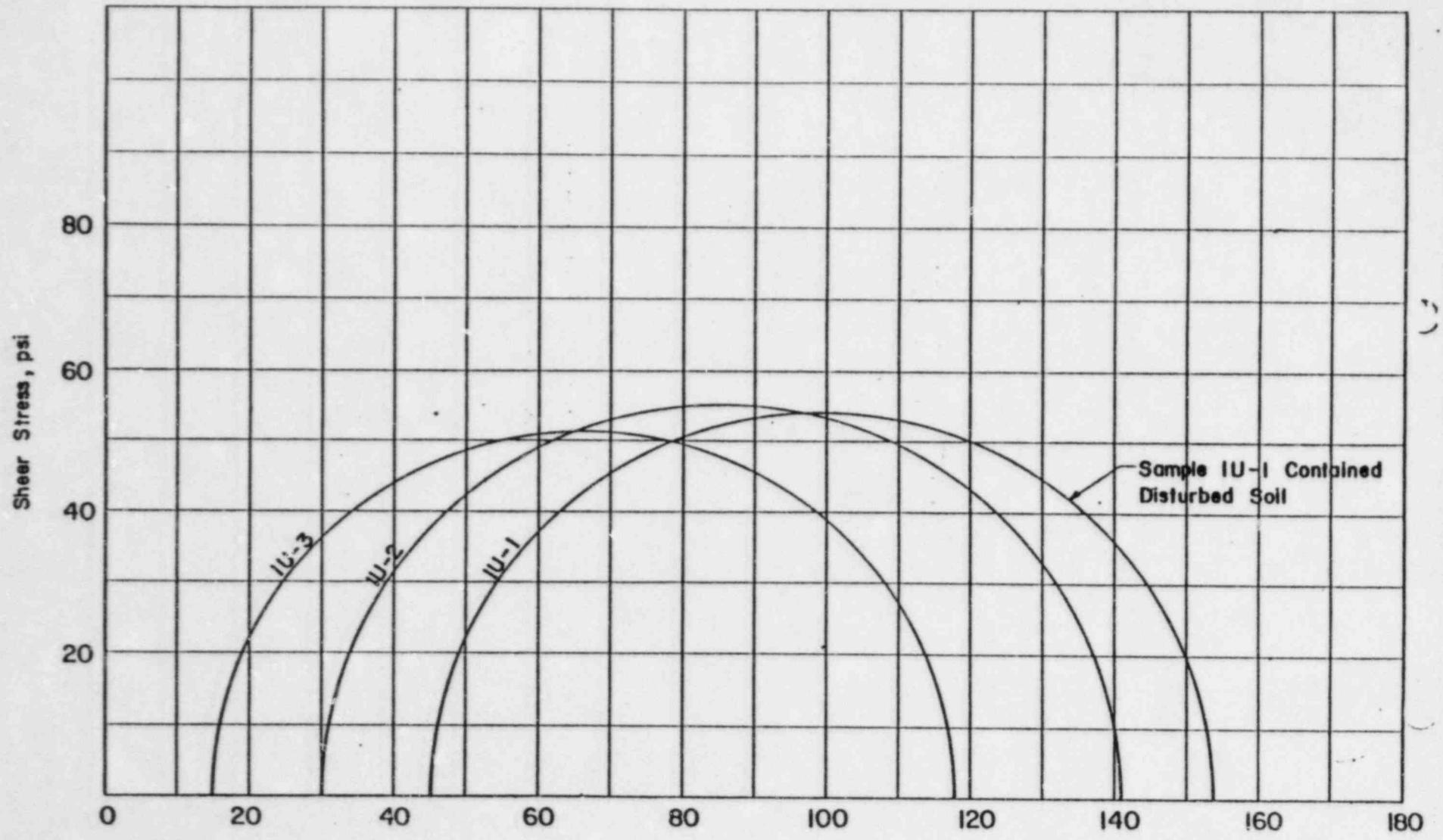
The tube sample shall be shipped in a cardboard tube with an annular space between the sample and the cardboard wall filled with a cushioning material such as styrofoam pellets.

JG/F2

APPENDIX B

TRIAXIAL TEST RESULTS

Piers W 11, E/W 8



Pier W-11

Material Description

V.F. Sandy Silty Clay
/so-tr v.f sa. silt seams
(W_L = 43%, Wp = 19%)

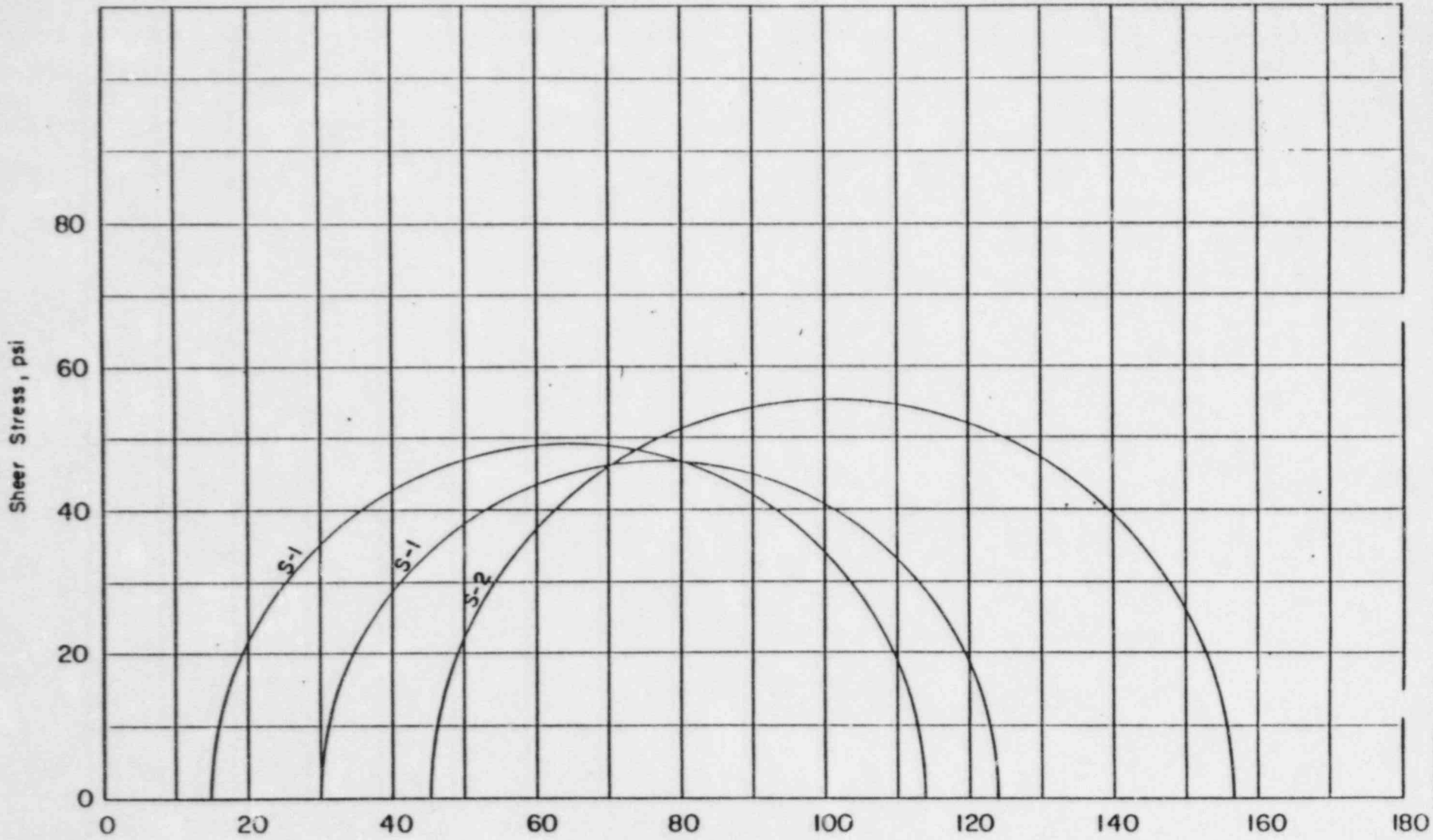
MOHR CIRCLES - Q TESTS

HANSON ENGINEERS

SPRINGFIELD, IL • PEORIA, IL • ROCKFORD, IL

UNDERPINNING AUXILIARY BUILDING
MIDLAND PLANT UNITS 1 & 2
CONSUMERS POWER COMPANY

APRIL 1983 81S1036



Pier E-8

Material Description

Gray v.f. sandy, silty clay (tr. c sand & sm. gravel.)

(W_L = 49%, W_P = 19%)

MOHR CIRCLES - Q TESTS

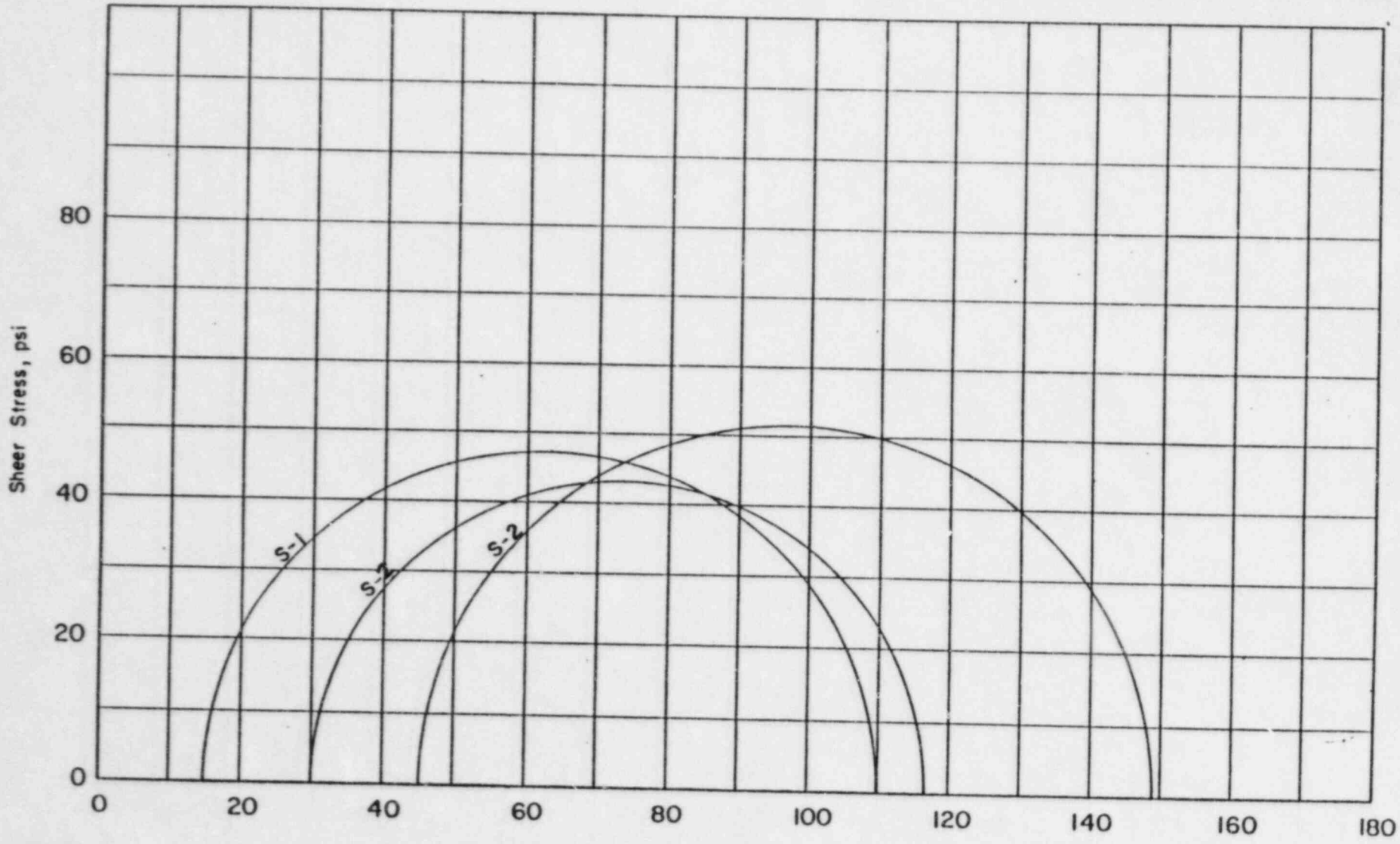
HANSON ENGINEERS INCORPORATED

SPRINGFIELD, IL • PEORIA, IL • ROCKFORD, IL

UNDERPINNING AUXILIARY BUILDING
MIDLAND PLANT UNITS 1 & 2
CONSUMERS POWER COMPANY

JUNE 1983

8151036



Pier W-8

Material Description

Gray v.f. sandy, silty clay / v.f. sandy silt seams.

(W_L = 49.2 %, W_P = 18.4 %)

MOHR CIRCLES - Q TESTS

HANSON ENGINEERS

SPRINGFIELD, IL • PEORIA, IL • ROCKFORD, IL

UNDERPINNING AUXILIARY BUILDING
MIDLAND PLANT UNITS 1 & 2
CONSUMERS POWER COMPANY

JUNE 1983

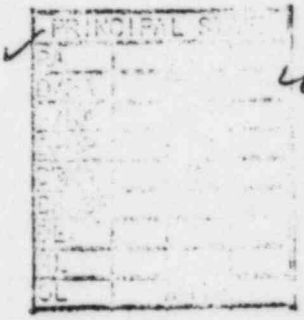
81S1036

Consumers Power Company

J A Mooney
Executive Manager
Midland Project Office

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0498

July 26, 1983



Mr J J Harrison
US Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND ENERGY CENTER
MIDLAND DOCKET NOS 50-329, 50-330
REACTOR BUILDING SETTLEMENT
FILE: C-27, 0505.7 SERIAL: 23879

Pursuant to our discussion on July 18, 1983, enclosed please find the crack summary information which was provided to your legal counsel on July 20, 1983.

JAMooney

JAM/JNL/bjw

CC RJCook, Midland Resident Inspector, w/a
JGKeppler, Administrator, NRC Region III, w/a
DSHood, US NRC, w/a
RBLandsman, US NRC, Region III, w/a
OL/OM Service List, w/a

AUG 01 1983

oc0783-0530a100

8308050371

Please Resubmit Corrected Document in Its Entirety Within NA Weeks

AAO-1040 7220

G-321-D

Category NA

AAO-1041 7220

BUTTRESS ACCESS SHAFT
CRACK MAPPING
UNIT 1 NORTH & WEST SHAFT
UNIT 2 NORTH, WEST
& EAST SHAFTS
REV. NR

DISTRIBUTION	
JOB 7220	COPY
VENDOR	2
CLIENT	1
FIELD PQ	2
ARCH.	
CIVIL/SOIL	1
ELECT	
P/D	
MECH	
C SYS	
INSP	
STARTUP	
PSE	1
RECORD	1
BECHTEL	

7-14-83

BECHTEL ASSOC. PROFESSIONAL CORP. — JOB NO. 7220-01

SUPPLIER DOCUMENT STAMP

1. ☐ WORK MAY PROCEED.
2. ☐ WORK MAY PROCEED. SUBMIT FINAL DOCUMENT.
3. ☐ REVISE AND RESUBMIT. WORK MAY PROCEED SUBJECT TO INCORPORATION OF CHANGES INDICATED.
4. ☐ REVISE AND RESUBMIT. WORK MAY NOT PROCEED.
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PERMISSION TO PROCEED DOES NOT CONSTITUTE ACCEPTANCE OR APPROVAL OF DESIGN DETAILS, CALCULATIONS, ANALYSES, TEST METHODS OR MATERIALS DEVELOPED OR SELECTED BY THE SUPPLIER AND DOES NOT RELIEVE SUPPLIER FROM FULL COMPLIANCE WITH CONTRACTUAL OBLIGATIONS.

REVIEWED	A	C	E	J	M	N	P	Q	
	/	DS	/	/	/	/	/	/	/

BY W. Chiopmatsky for R. Dhar Date 7-14-83

7220-200 REV 9/82

DWG REVISEQ NO. 7220-C-198-2857-1

STARTUP SYSTEMS OR AREAS ≤ 90 DAYS OF TURNOVER, OR AFTER TURNOVER IF AFFECTED BY CHANGES:

System/ Area No.	Hardware Change (Yes or No)
NA	

7220-242

7220-C-198-2857-1 TOTAL # OF PAGES -11

1

SCALE: ONE [redacted] EQUALS ONE FOOT

AUXILIARY BUILDING

DATE 7/12/83

ELEVATION 591'6"

COMPARATOR NO. C1-1

CALIBRATION DUE DATE N/A

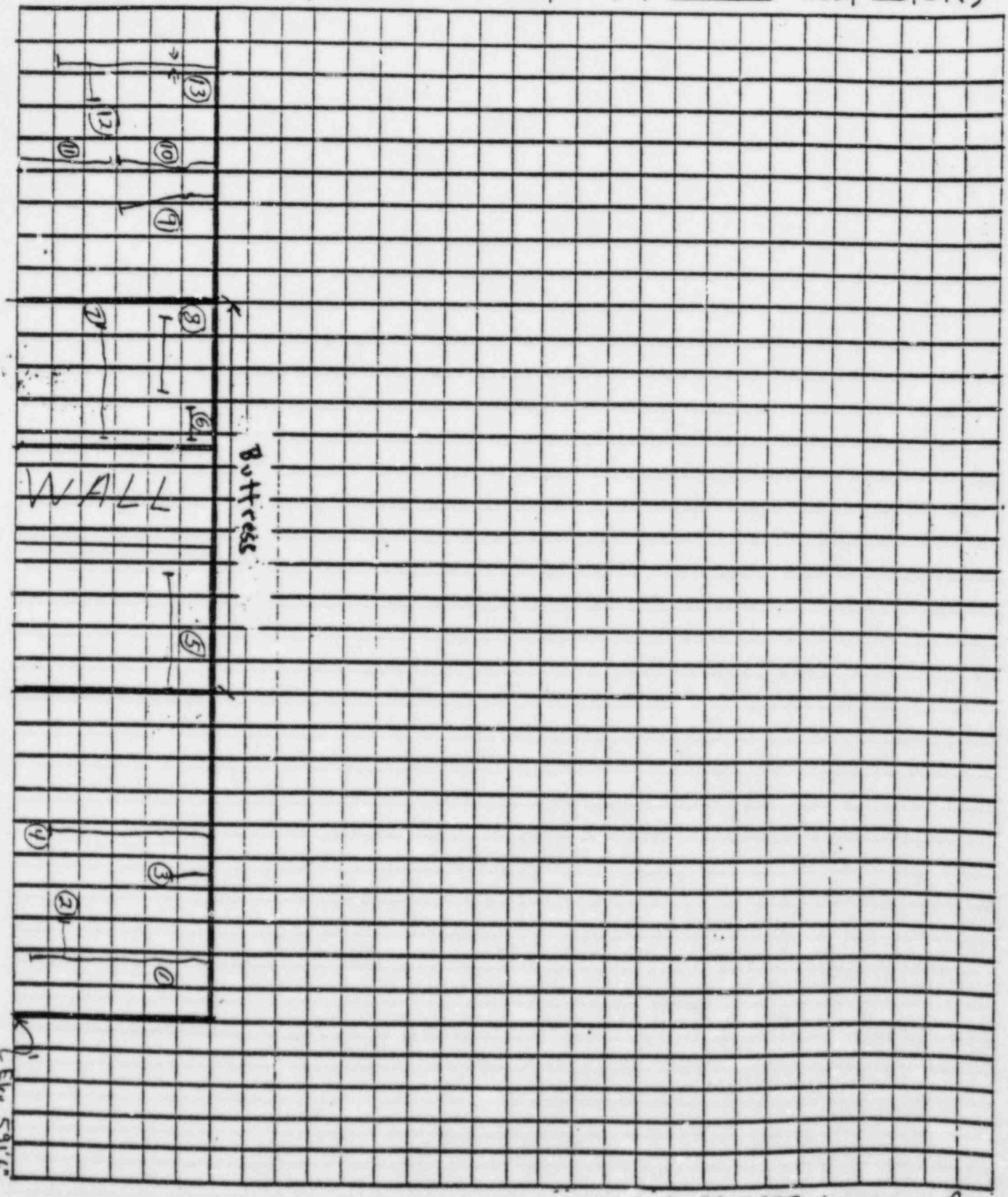
LOCATION Unit 2 East

SEQUENCE NO. 1

SURVEYED BY [illegible]

REVIEWED BY [illegible]

W.I.E. (LEVEL II INSPECTOR)



7220-C-198-2857-1

2

TAB... 43T

MEASURED CRACK WIDTH SUMMARY 591'6" Unit #2, East

CRACK NO.	DATE											
	C1-1											
	7/12/83											
1	H.L.											
2	H.L.											
3	H.L.											
4	H.L.											
5	H.L.											
6	H.L.											
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9	H.L.											
10	H.L.											
11	H.L.											
12	H.L.											
13	.005											

1-7582-881-0.0224

9

SCALE: ONE [redacted] EQUALS ONE FOOT

AUXILIARY BUILDING

DATE 2/11/82

ELEVATION 591' 6"

LOCATION Unit 1 West

REVIEWED BY [redacted]

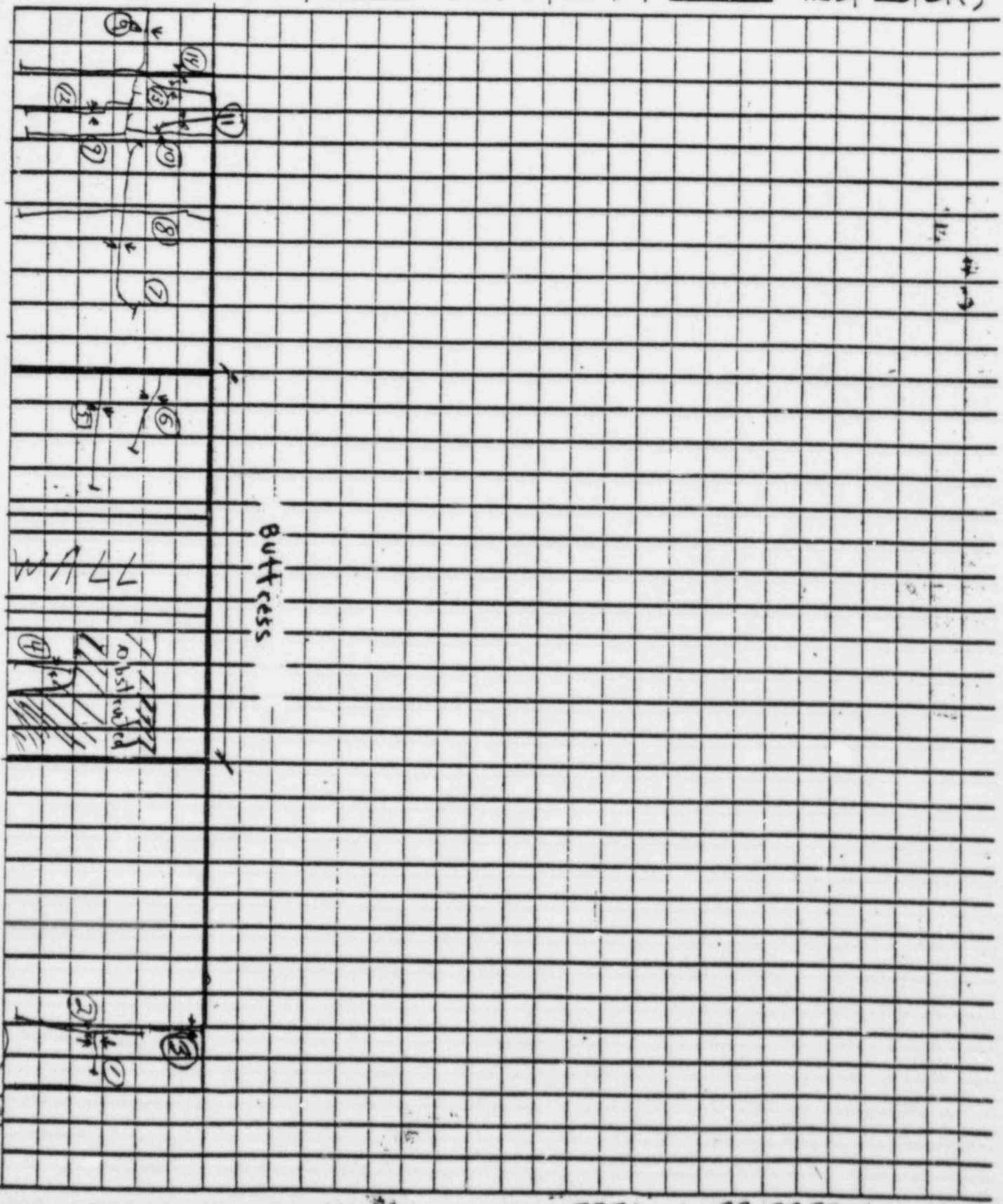
COMPARATOR NO. C1-1

SEQUENCE NO. 1

WJE (LEVEL II INSPECTOR)

CALIBRATION DUE DATE N/A

SURVEYED BY SK



7220 · C-198 2857-1

TAB... 43T

MEASURED CRACK WIDTH SUMMARY

591'6" Unit #1, West

CRACK NO.	DATE												
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	7/11/83												
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2	.005												
3	H.L.												
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5	H.L.												
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9	.005												
10	H.L.												
11	.005												
12	H.L.												
13	H.L.												
14	H.L.												

2220.0.148.28571 5

SCALE: ONE ■ EQUALS ONE FOOT

AUXILIARY BUILDING

DATE 7-12-83

ELEVATION 591'-6"

LOCATION UNIT 2 NORTH

REVIEWED BY M Conroy

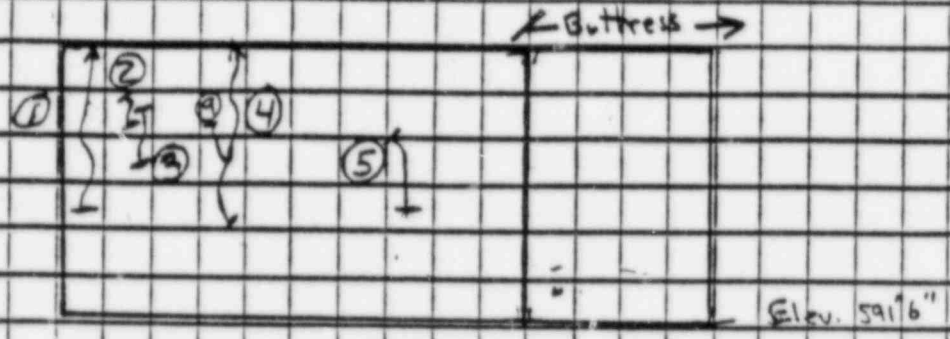
COMPARATOR NO. C1-1

SEQUENCE NO. 2

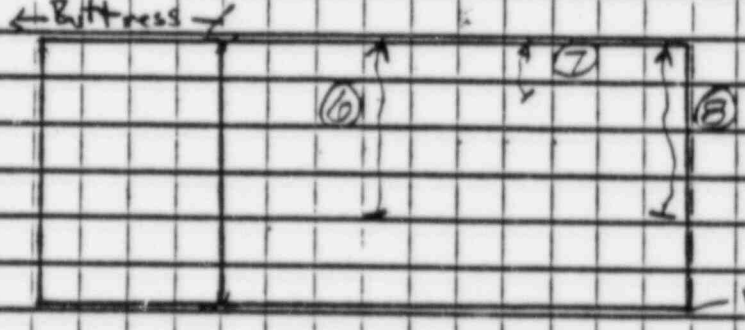
WJE (LEVEL II INSPECTOR)

CALIBRATION DUE DATE NA

SURVEYED BY GDB



WEST SIDE



EAST SIDE

7220-C-198-2857-1

TAB... 43T

MEASURED CRACK WIDTH SUMMARY

591' 1" UNIT 2, NORTH

CRACK NO.	DATE												
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	7/12/83												
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2	HL												
3	HL												
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8	HL												
9	HL												

7220.C.198.28571

SCALE: ONE [redacted] EQUALS ONE FOOT

AUXILIARY BUILDING

DATE 7-12-8[illegible]

ELEVATION 591'-2"

LOCATION UNIT 1 NORTH

REVIEWED BY [signature]

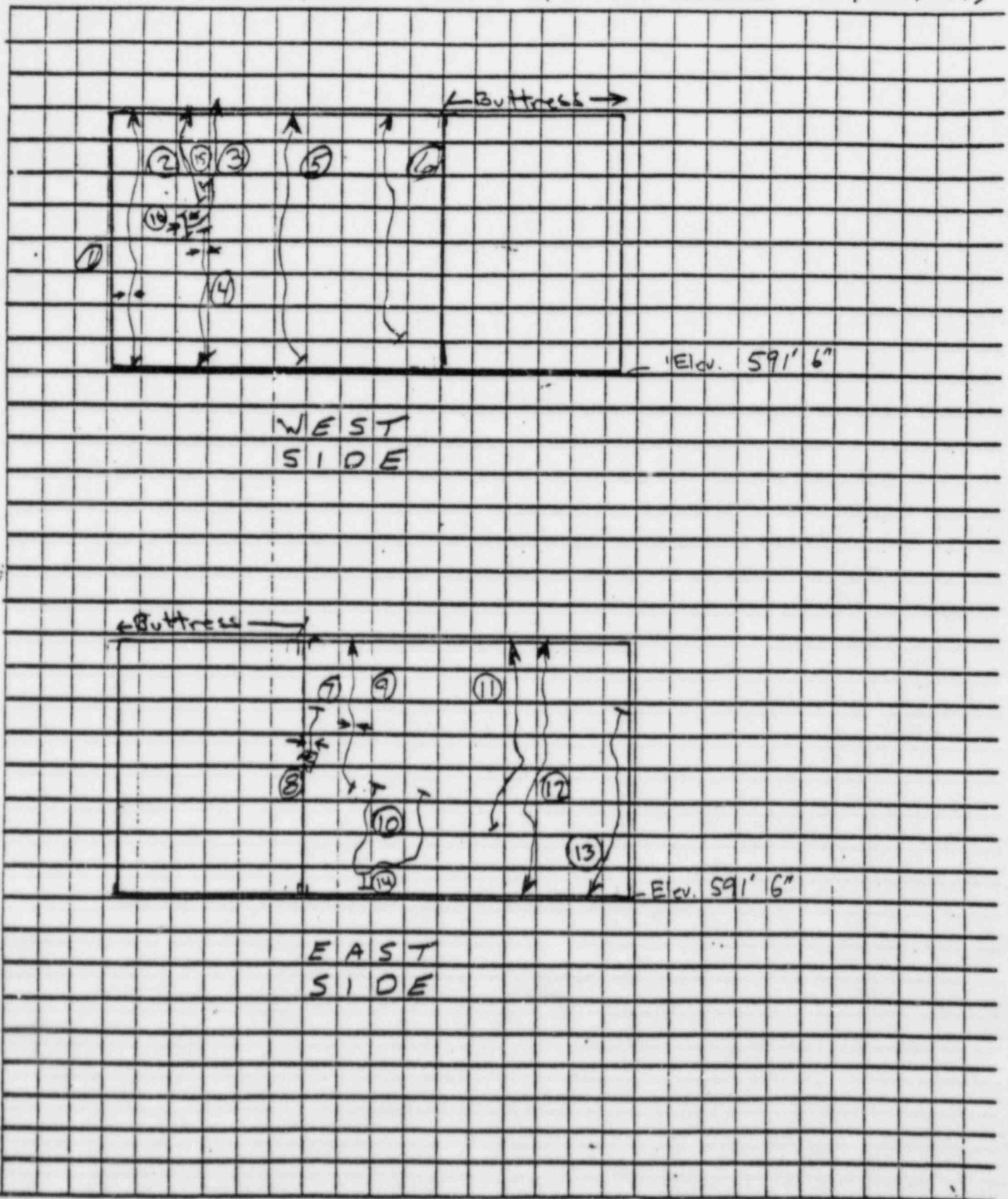
COMPARATOR NO. C1-1

SEQUENCE NO. 1

WJE (LEVEL II INSPECTOR)

CALIBRATION DUE DATE NA

SURVEYED BY [illegible]



7220-C-198-2857-1

TAB. 43T

MEASURED CRACK WIDTH SUMMARY 591' 6". UNIT 1 NORTH

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7	.010											
8	.010											
9	.010											
10	HL											
11	HL											
12	HL											
13	HL											
14	HL											
15	HL											
16	.010											

220.1-188.2857-1

9

SCALE: ONE ■ EQUALS ONE FOOT

AUXILIARY BUILDING

DATE 7-13-8

ELEVATION 591'-6

LOCATION UNIT 2 WEST

REVIEWED BY

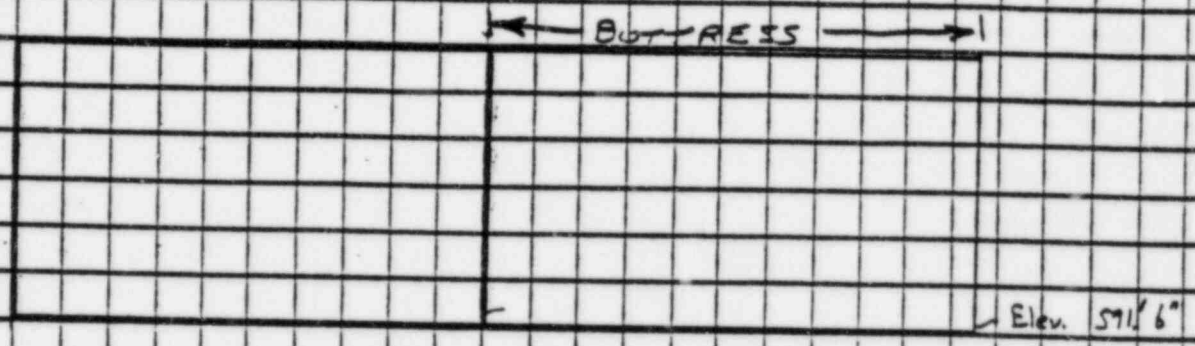
COMPARATOR NO. C2-1

SEQUENCE NO. 1

WJE (LEVEL II INSPECTOR)

CALIBRATION DUE DATE NA

SURVEYED BY C2



NORTH SIDE

SOUTH SIDE

TAB... 43T

MEASURED CRACK WIDTH SUMMARY 59'6" Unit #2, west

CRACK NO.	DATE											
	7/15/85											
	No cracks											

Original + drawings sent to DMB 8/17/83 COPY

PRINCIPAL STAFF			
RA		ENF	
D/RA		ECS	Voric
A/RA		PAO	
DPRP		SLO	
DRMA		RC	
DRMSP			
DE			
ML			
OL		FILE	hold letter only

Consumers Power Company

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0550

July 25, 1983

J J Harrison
US Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND ENERGY CENTER
MIDLAND DOCKET NOS 50-329, 50-330
GROUNDWATER LEVEL AND REACTOR BUILDING SETTLEMENT
FILE: 0505.6, C-74, C-27, 0505.2 SERIAL: 23874

This letter is pursuant to the telephone conversation with members of my staff and yours on July 13, 1983. Some of the enclosed documents were delivered to NRC's Mr Kane. This letter provides the information not yet submitted and also formally documents the information previously delivered. The following is a list of the documents enclosed.

1. Semi-log plots of groundwater well elevation vs time (11 sheets).

2. Plan of dewatering and observation wells (1 sheet).

3. Semi-log plots of settlement vs time for settlement markers C-1 through C-8 on the reactor building (8 sheets).

4. Semi-log plots of settlement vs time, reactor building FSAR SKG-414, (Rev 7).

5. Semi-log plots of settlement vs time since July 12, 1980 of markers on the reactor building (3 sheets.)

6. Hydrographs of observation wells MP-2, MP-4, MP-4A, LOW-7 and LOW-9 (16 sheets.)

The following is an explanation of why certain settlement markers were relocated.

Marker C-1

Marker C-1 was initially set on 5/17/77. The marker was relocated twice. The date of the final reported settlement before its first relocation was

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11/16/79. The marker was relocated on 1/8/80. The reason for the relocation is unknown. The final reported settlement date before the second relocation was 9/12/81. Before this last reading on 9/12/81, a new marker was established on 8/21/81 because the old marker was blocked by the Unit 1 Emergency Airlock Wall.

For its first relocation, marker C-1 was replaced after the old one was destroyed. There was a period of almost two months (11/16/79 to 1/8/80) between the time the marker was destroyed and the time it was replaced. Settlement could have occurred during this period that was not monitored. However, approximate total settlements for this marker are obtained by algebraically adding the final reported settlement of 0.063 ft (on 11/16/79), to all subsequent settlements. Settlement of this containment based on surrounding markers was minimal during this period (less than 0.003 ft between 11/16/79 and 1/12/80).

For its second relocation, marker C-1 was replaced before the old marker was destroyed. A final settlement reading was taken after an elevation was determined for the new marker. Total settlement is obtained by algebraically adding the final reported settlement prior to the first relocation, 0.063 ft (on 11/16/79), plus the final reported settlement prior to the second relocation, 0.028 ft (on 9/12/81), plus the settlement presently read.

Marker C-4

Marker C-4 was initially set on 3/25/78. This marker was relocated once. The date of the final reported settlement before relocation was 9/27/82. The marker was relocated on 9/27/82 to clear the shield box.

Marker C-4 was replaced before the old one was destroyed. A final settlement reading for this marker was taken the same day as an elevation was determined for the new marker. Total settlement for this marker is obtained by algebraically adding the final reported settlement of 0.066 ft (on 9/27/82) to all subsequent settlements.

Marker C-5

Marker C-5 was initially set on 3/25/78. This marker was relocated once. The date of the final reported settlement before relocation was 9/27/82. The marker was relocated on 9/27/82 to clear the shield box.

Marker C-5 was replaced before the old one was destroyed. A final settlement reading for this marker was taken the same day as an elevation was determined for the new marker. Total settlement for this marker is obtained by algebraically adding the final reported settlement of 0.061 ft (on 9/27/82) to all subsequent settlements.

Marker C-8

Marker C-8 was initially set on 5/7/77. The marker was relocated twice. The date of the final reported settlement before its first relocation was 7/17/79. The marker was relocated on 1/3/80, because the old marker was destroyed. The

final reported settlement date before the second relocation was 7/23/82. After this last reading on 7/23/82, a new marker was established on 9/27/82 because the old marker was blocked by Unit 2 Emergency Airlock Wall.

For its first relocation, marker C-8 was replaced after the old one was destroyed. There was a period of over five months (7/17/79 to 1/3/80) between the time the marker was destroyed and the time it was replaced. Settlement could have occurred during this period that was not monitored. However, approximate total settlements for this marker are obtained by algebraically adding the final reported settlement of 0.039 ft (on 7/17/79) to all subsequent settlements. Settlement of this containment based on surrounding markers was minimal during this period (less than 0.027 ft between 7/17/79 and 1/12/80).

For its second relocation, marker C-8 was replaced before the old marker was destroyed. A settlement reading was taken after an elevation was determined for the new marker. Total settlement is obtained by algebraically adding the final reported settlement prior to the first relocation, 0.039 (on 7/17/79), plus the final reported settlement before the second relocation, 0.027 (on 7/23/82), plus the settlement presently read.

Note that settlement monitoring did not start until mid-1977, when load intensity was between 5-1/2 and 6-1/2 KSF, in Unit 1 and Unit 2, respectively (refer to Drawing SK-G-414, Rev 7).

The following is an evaluation of groundwater level data from observation well MP-4.

The hydrograph of observation well MP-4 (attached) indicates that since November 1982, the groundwater level has fluctuated between elevation 581 and 604 without any apparent regularity, whereas the water level in observation wells MP-2, MP-4A, LOW-7 and LOW-9 (hydrographs attached) has remained relatively unchanged over this same period. This would indicate that MP-4 is not functioning properly or that some form of artificial recharge is occurring which is closely confined to the vicinity of MP-4.

The subcontractor has flushed the observation well on numerous occasions and recently performed a response test which indicates the observation well is functioning properly. The contractor has also pointed out that MP-4 is located within a few feet of a discharge hose that extends from a turbine building service water line. Visual examination indicates that water has often been spilled in this area and ponding occurs when it rains. The ground in the area of the observation well MP-4 is such that standing water could flow into the observation well since the top of the riser is recessed below ground surface to prevent damage (MP-4 is located in a heavily travelled area immediately adjacent to the main equipment access to the turbine building). Therefore, the fluctuations in groundwater level at MP-4 are attributed to the heavy use of the construction water outlet and/or poor surface drainage. Thus, this well is not considered representative of the true ground water level when compared to the other observation wells in the area.

Although the groundwater level data from observation well MP-4 exhibits anomalous fluctuation, the data is still evaluated relative to the adjacent observation wells and is assumed to represent the groundwater level in the vicinity of the observation well when used in preparation of groundwater level contour maps.

If this information provided is unclear or inadequate, please contact myself or Nate Leech (517) 788-1489 and we will make every effort to provide you with further information.

/ JMooney

JAM/JNL/bjb

CC RJCook, Midland Resident Inspector
JGKeppler, Administrator, NRC Region III
DSHood, US NRC
RBLandsman, US NRC, Region III
OL/OM Service List, w/o

oc0783-0525a100

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Washington, DC 20009

mi0583-0429a100

K-E SEMI-LOGARITHMIC KEUFFEL & ESSER CO

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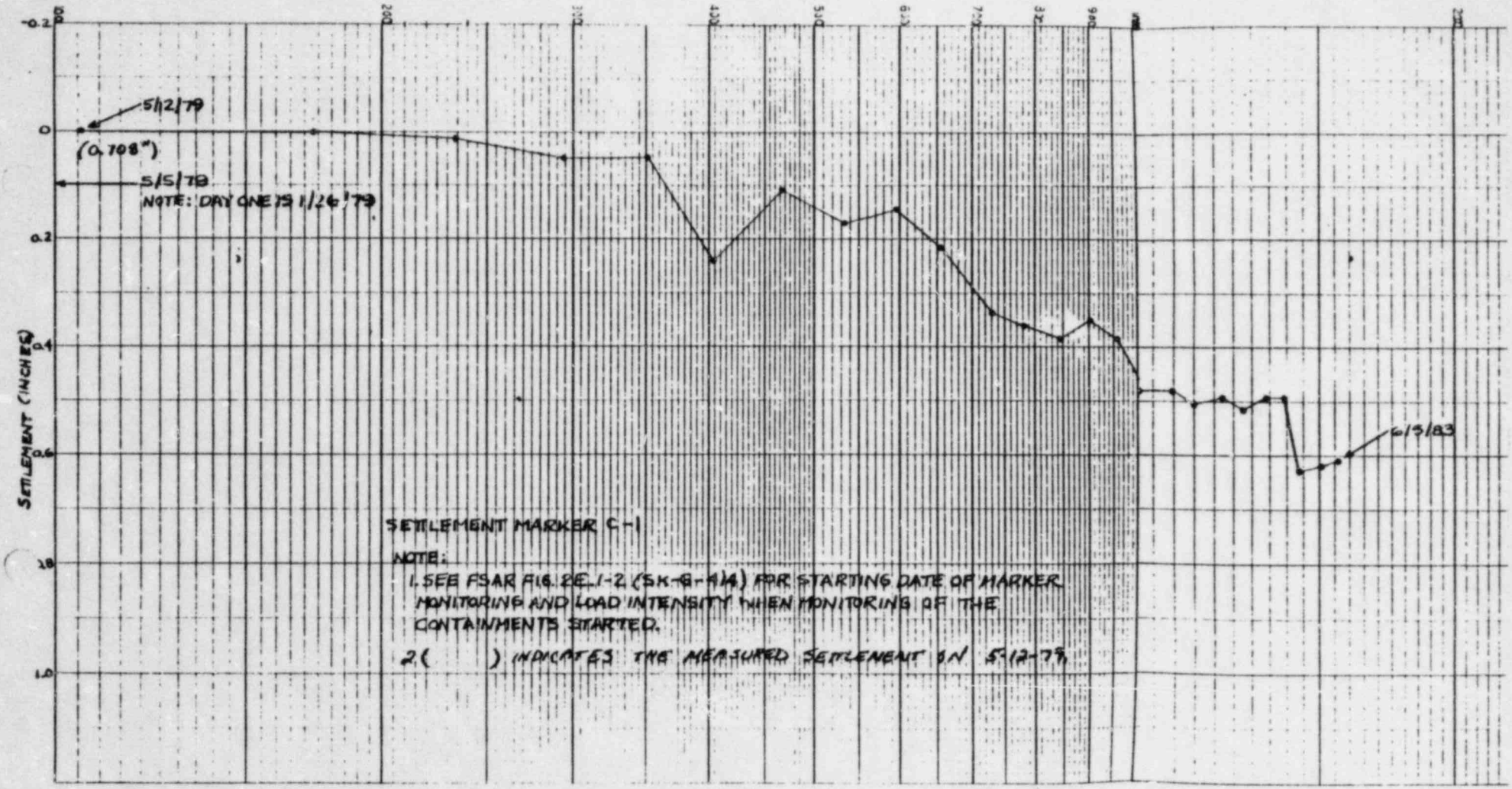
K-E SEMI-LOGARITHMIC KEUFFEL & ESSER CO



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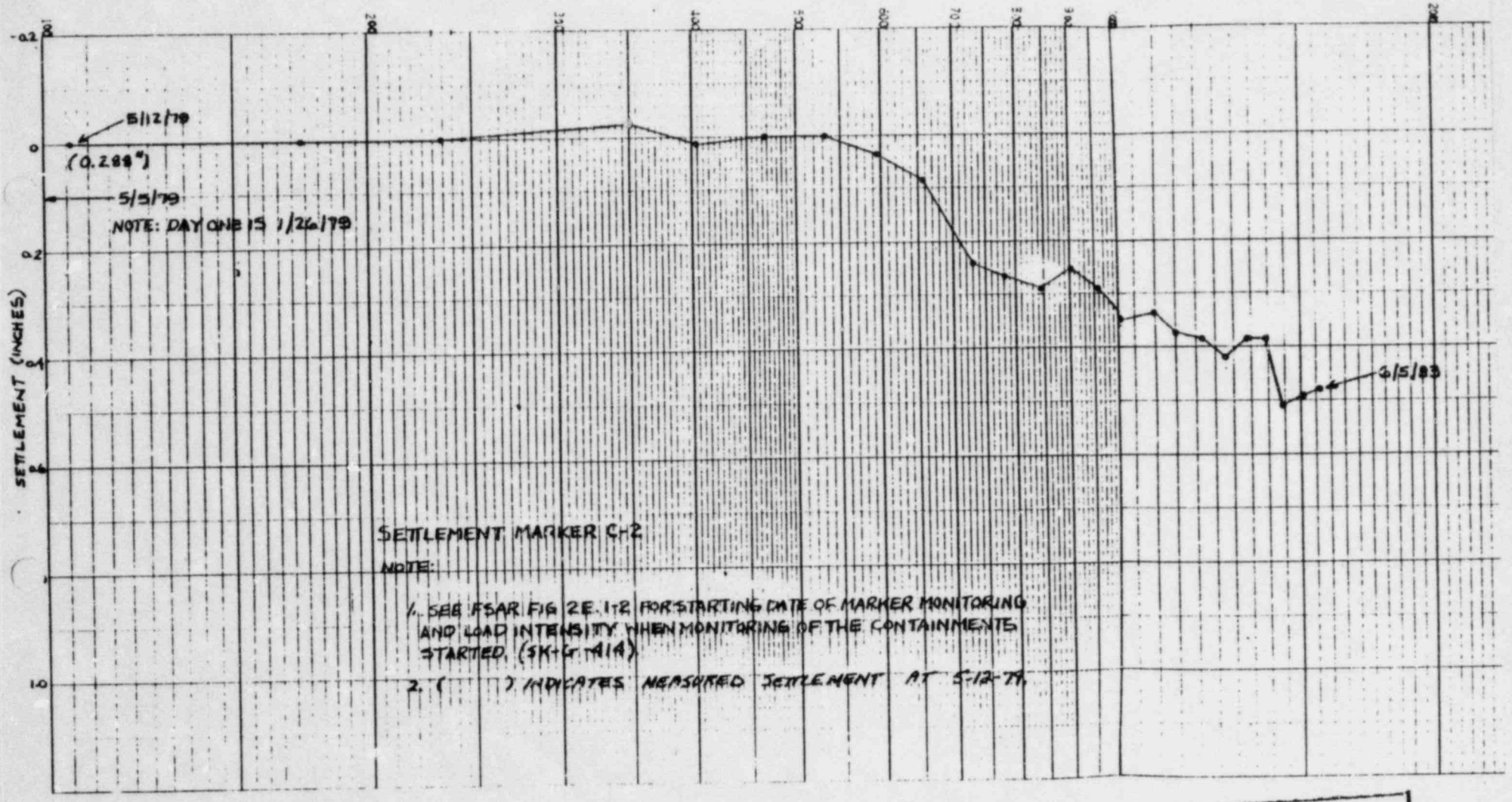
K·E SEMI-LOGARITHMIC KEUFFEL & ESSER CO



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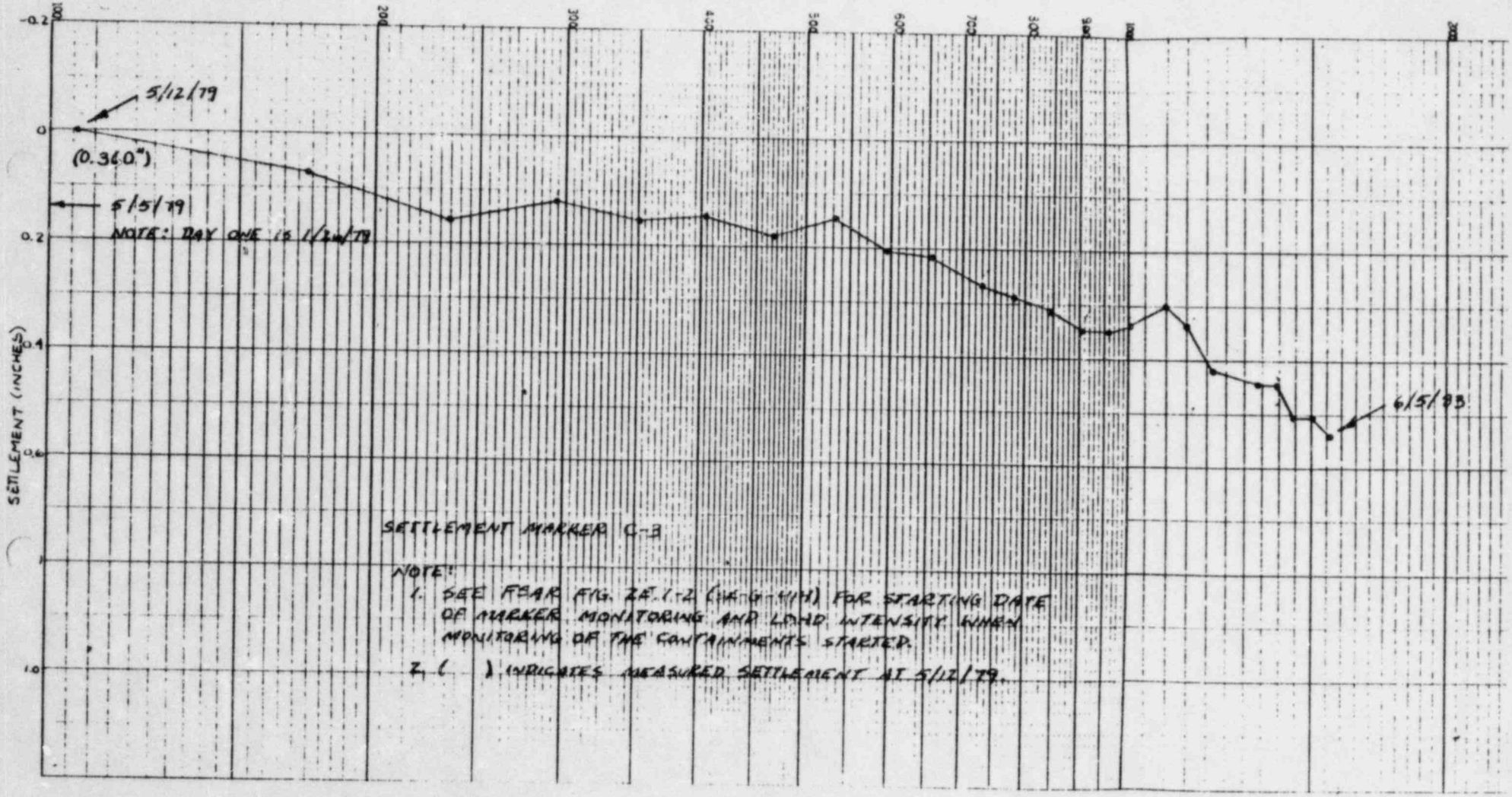

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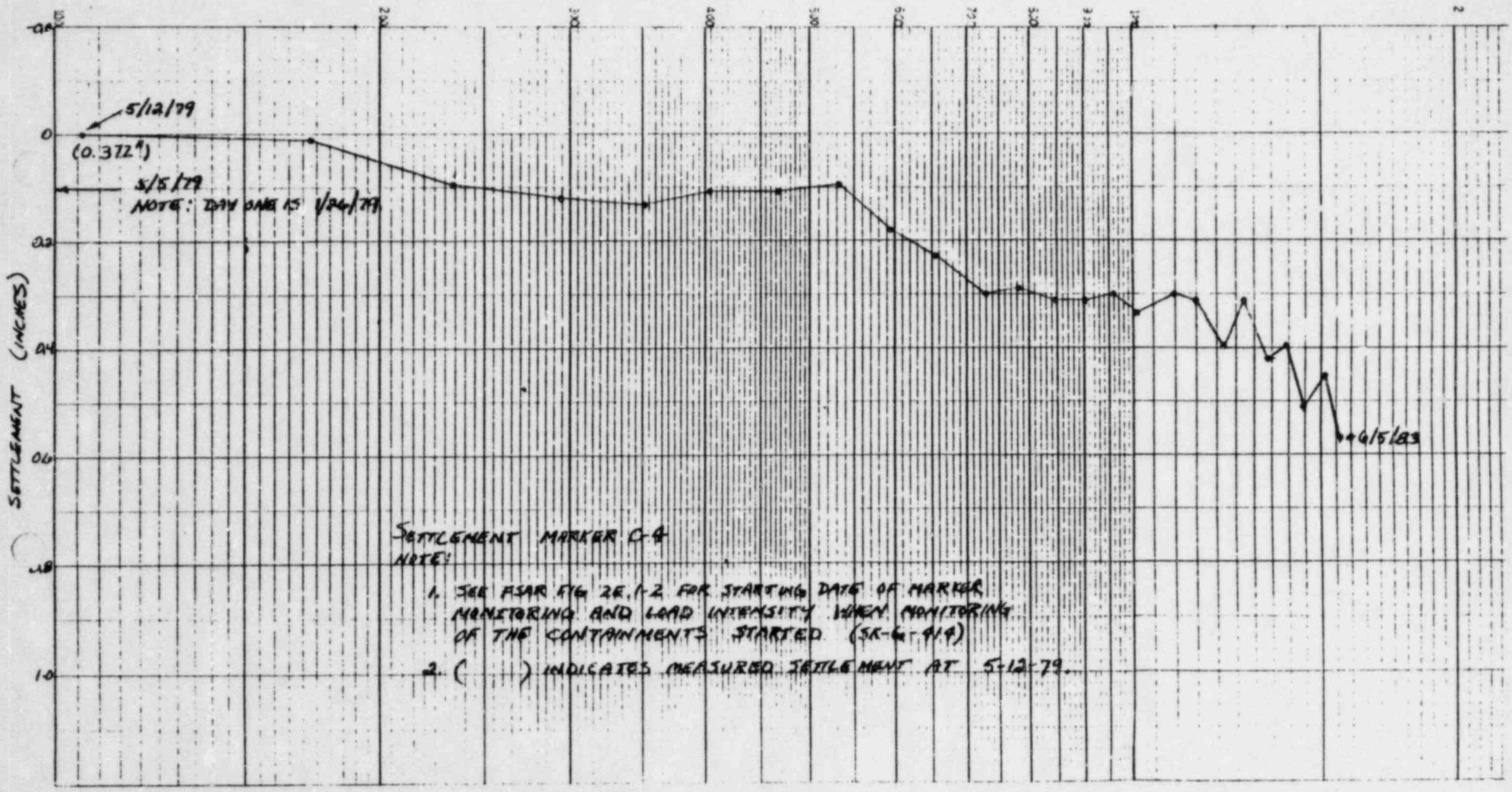

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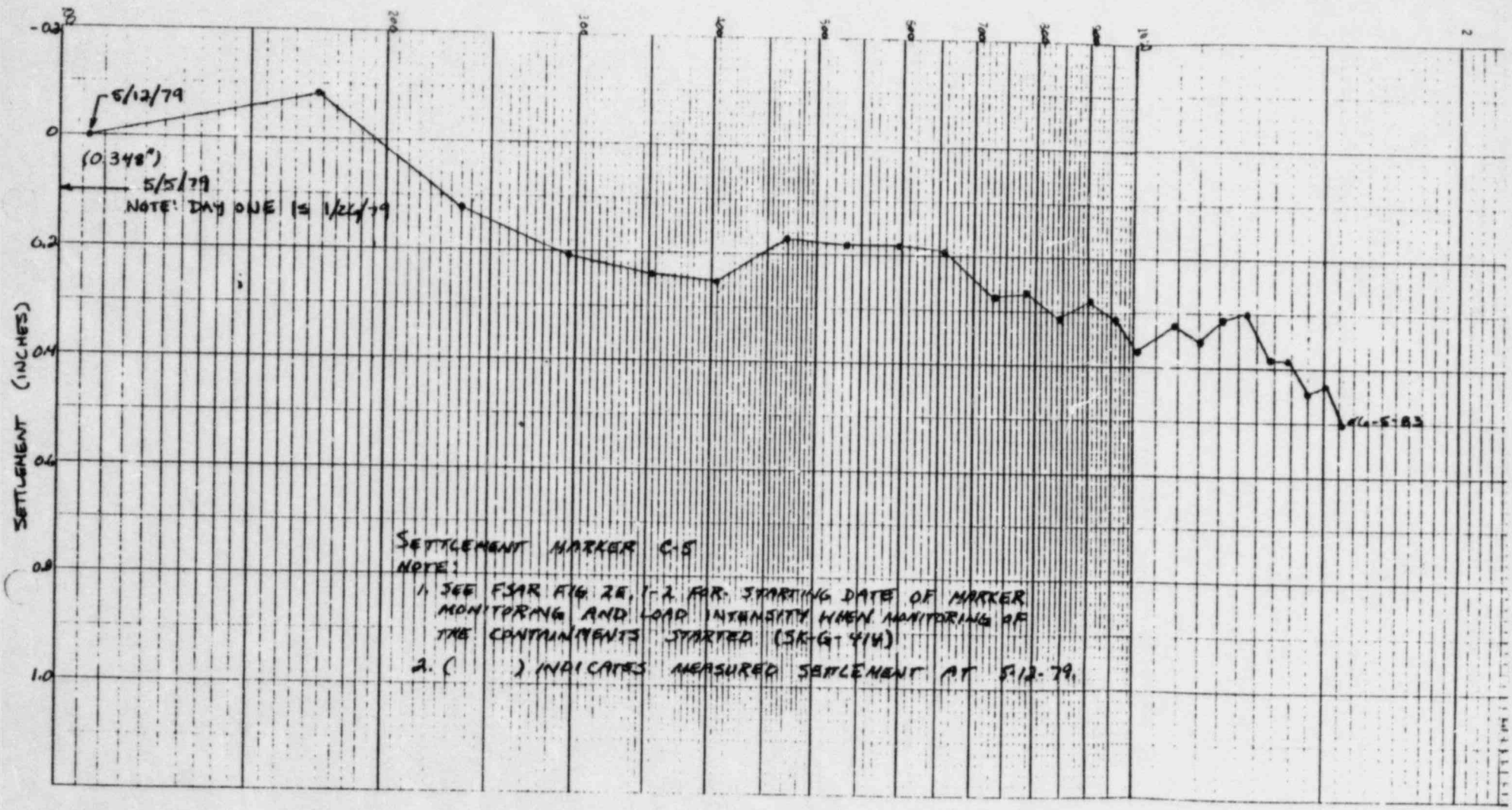

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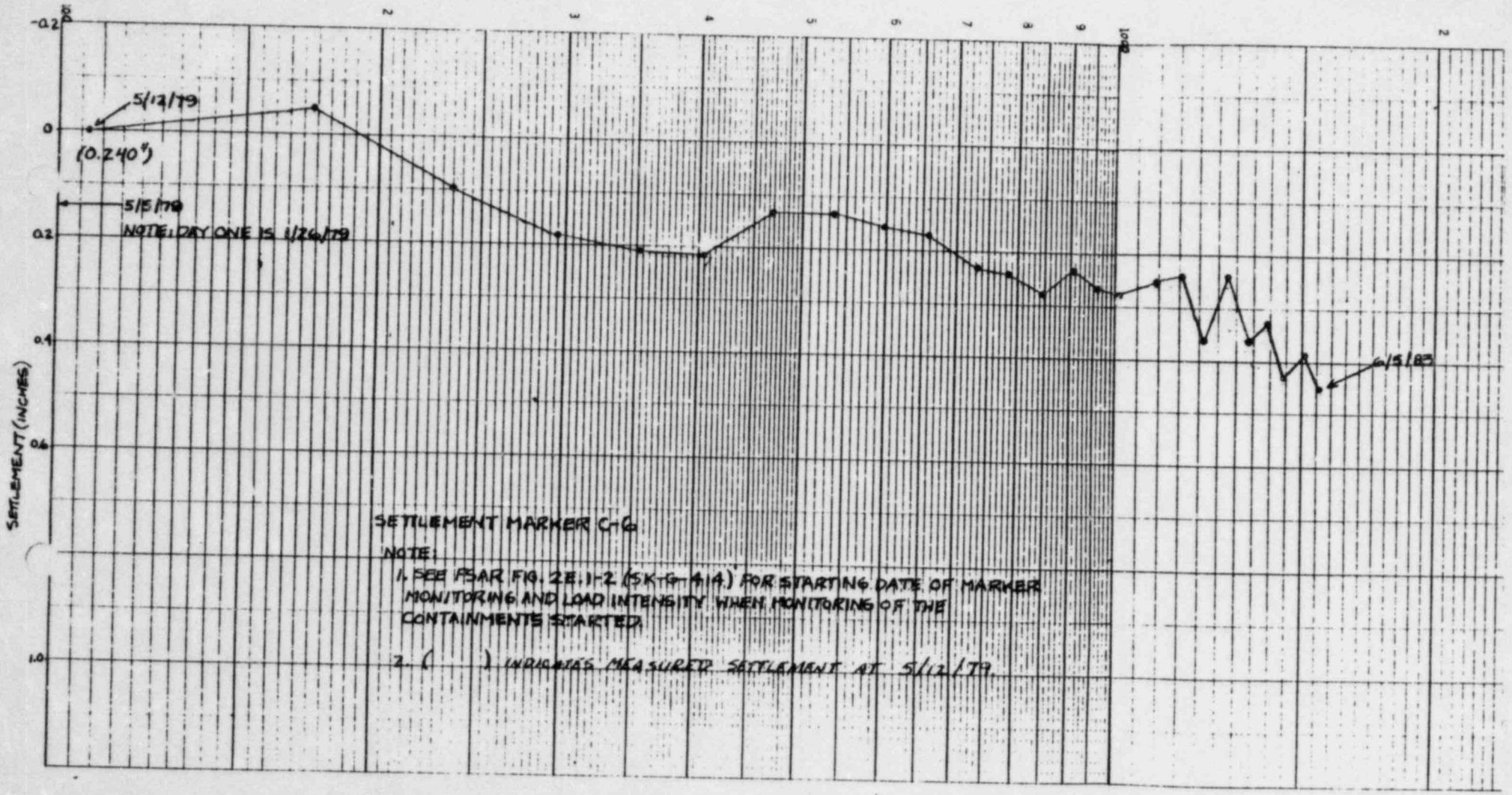

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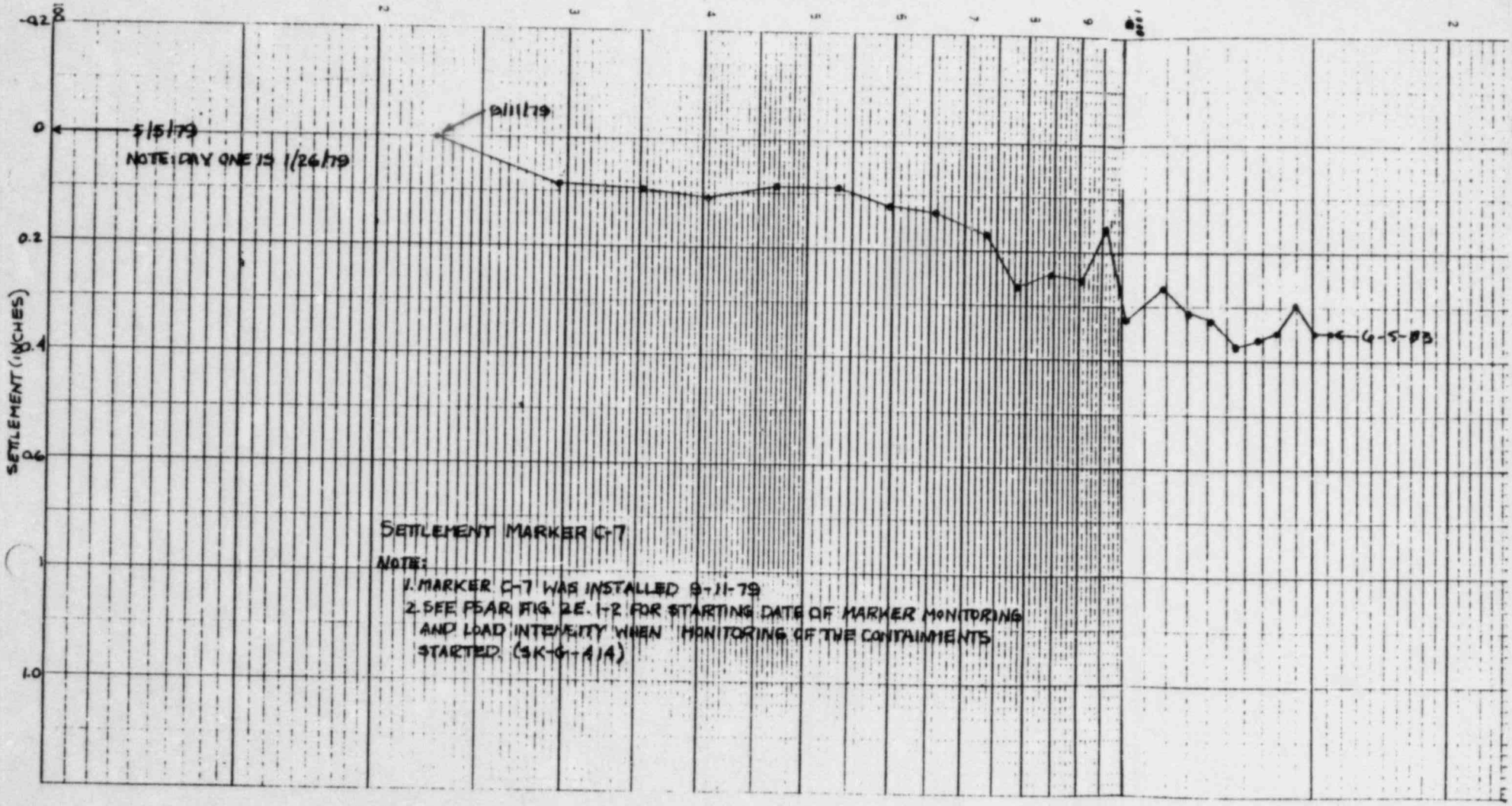

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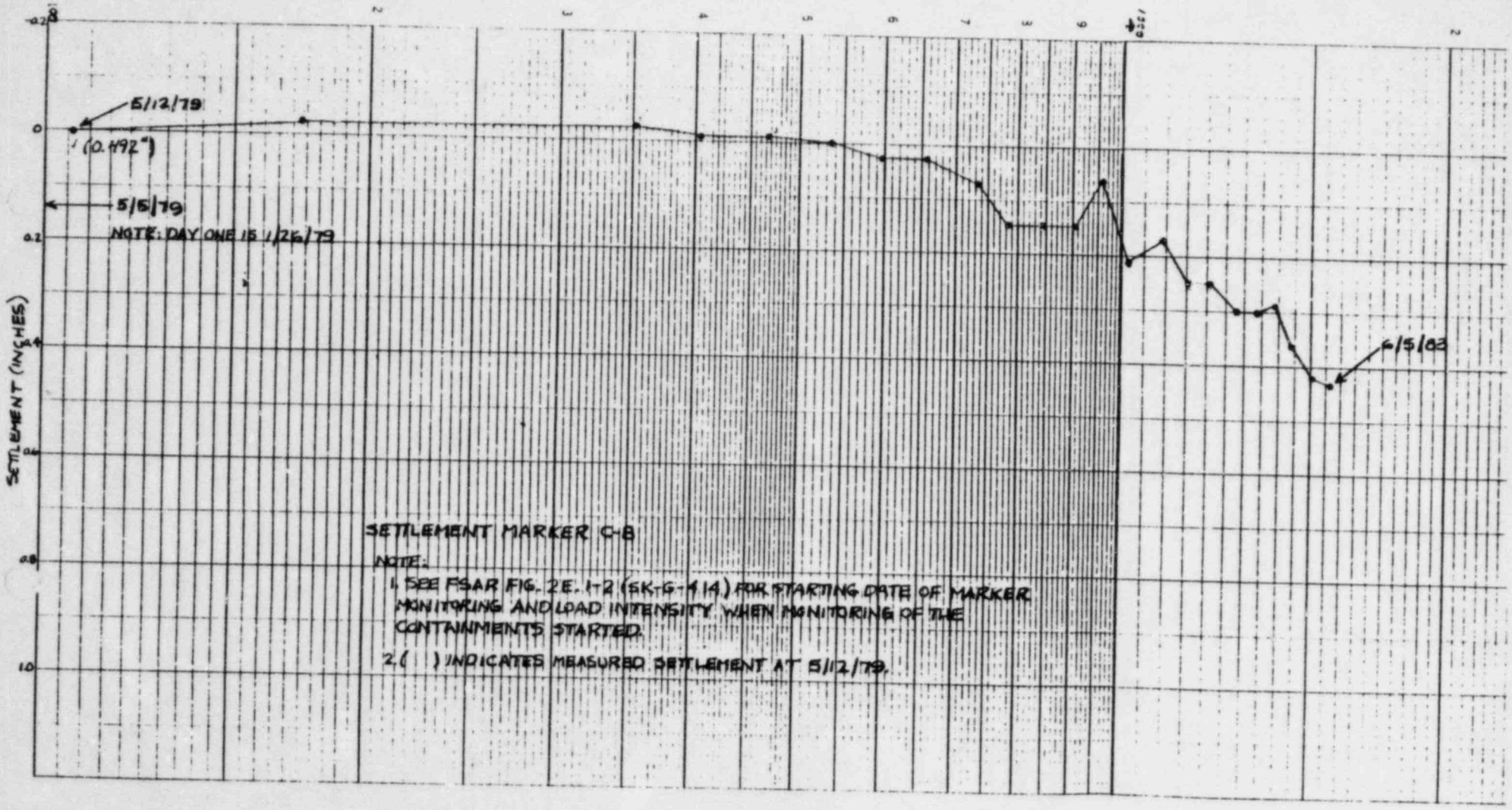

SETTLEMENT MARKER C-8

NOTE:

1. SEE FSAR FIG. 2E.1-12 (SK-G-414) FOR STARTING DATE OF MARKER MONITORING AND LOAD INTENSITY WHEN MONITORING OF THE CONTAINMENTS STARTED.
2. ( ) INDICATES MEASURED SETTLEMENT AT 5/12/79.

Amt to DMB 8/4/83

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

PRINCIPAL STAFF			
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A/RA		PAO	
DPRP		SLO	
DRMA		RC	
DRMSP			
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ML		FILE	
OL			

orig. +3

July 25, 1983

Mr. R. A. Hartfield
Chief, Management Information Branch
Office of Management and Program Analysis
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

MIDLAND ENERGY CENTER GWO 7020
NRC SCHEDULE
File: 0652 UFI: 53*54 Serial: CSC-6809
70*01

Attached is the July 1, 1983 information for updating the status of Midland Units 1 and 2 of the NRC Yellowbook.

The construction percent is 84% complete for both Units 1 and 2.

DBM/PFS/lrb

Attachment

cc: Mr. James G. Keppler, Regional Director, Region III
Mr. J. J. Harrison, Midland Project Inspector, Region III
Mr. Frederick C. Williams, Isham, Lincoln and Beale, Washington
Mr. Phil Steptoe, Isham, Lincoln & Beale, Chicago

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CONSTRUCTION STATUS:

APPLICANT'S CURRENT ESTIMATED FUEL LOADING DATE: 10/01/84
APPLICANT'S PREVIOUS ESTIMATED FUEL LOADING DATE: 06-00-81
APPLICANT'S ESTIMATED FUEL LOADING DATE AT CP ISSUANCE: 11-00-78
APPLICANT'S CURRENT ESTIMATED COMMERICAL OPERATION DATE: 2/28/85

APPLICANTS CONSTRUCTION COMPLETION ESTIMATE AS DEFINED IN CP: (EARLIEST) July 1, 1983
(LATEST) July 1, 1984

CURRENT ESTIMATED PERCENT CONSTRUCTION COMPLETE: 84%

COMMENTS REGARDING CURRENT CONSTRUCTION STATUS:

	ESTIMATED START	ACTUAL START	ESTIMATED COMPLETION	ACTUAL COMPLETION	ESTIMATED % COMPLETE
MOBILIZE AND PREPARE SITE:		3/73		8/73	100%
PLACE STRUCTURAL CONCRETE:		8/73	*		99%+
INSTALL REACTOR PRESSURE VESSEL:		4/78		5/78	100%
INSTALL LARGE BORE PROCESS PIPE:		4/76	6/84		99%
**INSTALL LARGE BORE PIPE HANGERS,RESTRAINTS AND SNUBBERS:		11/77	6/84		92%
INSTALL SMALL BORE PIPE:		1/77	7/84		95%
INSTALL CABLE TRAY:		4/77	*		99%+
INSTALL EXPOSED METAL CONDUIT:		4/77	6/84		92%
INSTALL POWER,CONTROL,INSTRUMENTATION AND SECURITY CABLE:		1/78	6/84		93%
INSTALL ELECTRICAL TERMINATIONS:		6/78	6/84		82%
CONDUCT REACTOR COLD HYDROSTATIC TEST:	1/84		1/84		
CONDUCT HOT FUNCTIONAL TEST:	5/84		7/84		
CONDUCT PREOP AND ACCEPTANCE TESTS NECESSARY FOR FUEL LOAD:		8/82	9/84		

*Concrete and Cable Tray are 99% complete with minimal remaining to be done as required.

**Percent complete is for large bore hangers. Restraints and snubbers are not included.

PLANT CHARACTERISTICS:

DOCKET NO:	05000329
CP NO. & DATE ISSUED:	CPR-81 / 12-14-72
CP EXPIRATION DATE:	12-01-84
APPLICANT:	CONSUMERS POWER COMPANY
PLANT LOCATION:	Midland, MI 48640
IE REGION:	III
AE:	BECHTEL
NSSS:	BABCOCK & WILCOX
CONSTRUCTOR:	BECHTEL
REACTOR TYPE:	PWR
DER (MWE):	492 (4,000,000 Lb/Hr process steam)

KEY PERSONNEL:

CORPORATE CONTACT:	J. W. Cook, Vice President
CORPORATE ADDRESS:	Projects, Eng & Construction 1945 W. Parnall Road Jackson, MI 49201
CORPORATE PHONE NO:	(517) 788-0453
NRC LPM:	D. HOOD
IE PRINCIPAL INSPECTOR:	
-CONSTRUCTION:	R. J. COOK (RESIDENT INSPECTOR)
-TEST AND STARTUP:	
IE RESIDENT INSPECTOR:	

INSPECTION STATUS:

TIME PERIOD

REPORT NUMBER	BEG DATE OF INSP.	END DATE OF INSP.

FUEL LOAD DATE CHANGES

AS REPORTED BY UTILITY:

REPORT DATE	NEW SCHEDULE	REASON FOR CHANGE REPORTED BY UTILITY
11-07-74	11-00-80	CONSTRUCTION SCHEDULE STRETCHOUT TO REDUCE CURRENT CASH OUTFLOW.
01-14-75	11-00-81	CONSTRUCTION SCHEDULE STRETCHED OUT TO REDUCE CURRENT CAST OUTFLOW.
09-00-80	12-00-83	PROJECT SCHEDULE REEVALUATION INCORPORATING OUTSTANDING LICENSING ISSUES.
03-31-83	02-09-85	PROJECT SCHEDULE RE-EVALUATION AND DEVELOPMENT OF CCP PLAN

LOCAL PUBLIC DOCUMENT ROOM:

GRACE DOW MEMORIAL LIBRARY
1710 W. ST. ANDREWS ROAD
MIDLAND MICHIGAN 48640

CONSTRUCTION STATUS:

APPLICANT'S CURRENT ESTIMATED FUEL LOADING DATE: 2/9/85
APPLICANT'S PREVIOUS ESTIMATED FUEL LOADING DATE: 11-00-81
APPLICANT'S ESTIMATED FUEL LOADING DATE AT CP ISSUANCE: 11-00-79
APPLICANT'S CURRENT ESTIMATED COMMERICAL OPERATION DATE: 8/9/85*

APPLICANTS CONSTRUCTION COMPLETION ESTIMATE AS DEFINED IN CP: (EARLIEST) December 1, 1983
(LATEST) December 1, 1984

CURRENT ESTIMATED PERCENT CONSTRUCTION COMPLETE: 84%

COMMENTS REGARDING CURRENT CONSTRUCTION STATUS:

	ESTIMATED START	ACTUAL START	ESTIMATED COMPLETION	ACTUAL COMPLETION	ESTIMATED % COMPLETE
MOBILIZE AND PREPARE SITE:		3/73		8/73	100%
PLACE STRUCTURAL CONCRETE:		8/73	**		99%+
INSTALL REACTOR PRESSURE VESSEL:		6/78		8/78	100%
INSTALL LARGE BORE PROCESS PIPE:		7/76	6/84		99%
***INSTALL LARGE BORE PIPE HANGERS,RESTRAINTS AND SNUBBERS:		12/77	6/84		92%
INSTALL SMALL BORE PIPE:		1/77	6/84		96%
INSTALL CABLE TRAY:		4/77	**		99%+
INSTALL EXPOSED METAL CONDUIT:		4/77	7/84		97%
INSTALL POWER,CONTROL,INSTRUMENTATION AND SECURITY CABLE:		11/78	7/84		93%
INSTALL ELECTRICAL TERMINATIONS:		6/78	7/84		82%
CONDUCT REACTOR COLD HYDROSTATIC TEST:	3/84		3/84		
CONDUCT HOT FUNCTIONAL TEST:	7/84		9/84		
CONDUCT PREOP AND ACCEPTANCE TESTS NECESSARY FOR FUEL LOAD:		10/82	2/85		

*Commercial Operation for both process steam and electrical

**Concrete and Cable Tray are 99% complete with minimal remaining to be done as required.

***Percent complete is for large bore hangers. Restraints and snubbers are not included.

PLANT CHARACTERISTICS:

DOCKET NO:	05000330
CP NO. & DATE ISSUED:	CPR-82 / 12-14-72
CP EXPIRATION DATE:	07-01-84
APPLICANT:	CONSUMERS POWER COMPANY
PLANT LOCATION:	Midland, MI 48640
IE REGION:	III
AE:	BECHTEL
NSSS:	BABCOCK & WILCOX
CONSTRUCTOR:	BECHTEL
REACTOR TYPE:	PWR
DER (MWE):	818

KEY PERSONNEL:

CORPORATE CONTACT:	J. W. Cook, Vice President Projects, Eng & Construction
CORPORATE ADDRESS:	1945 W. Parnall Road Jackson, MI 49201
CORPORATE PHONE NO:	(517) 788-0453
NRC LPM:	D. HOOD
IE PRINCIPAL INSPECTOR:	
-CONSTRUCTION:	R. J. COOK (RESIDENT INSPECTOR)
-TEST AND STARTUP:	
IE RESIDENT INSPECTOR:	

INSPECTION STATUS:

REPORT NUMBER	TIME PERIOD BEG DATE OF INSP.	TIME PERIOD END DATE OF INSP.

FUEL LOAD DATE CHANGES

AS REPORTED BY UTILITY:

REPORT DATE	NEW SCHEDULE	REASON FOR CHANGE REPORTED BY UTILITY
11-07-74	11-00-79	CONSTRUCTION SCHEDULE STRETCHED OUT TO REDUCE CURRENT CASH OUTFLOW ANNOUNCED BY UTILITY.
01-14-75	11-00-80	CONSTRUCTION SCHEDULE STRETCHED OUT.
09-11-79	06-00-81	DEVELOPMENT OF A TWO UNIT INTEGRATED TEST SCHEDULE.
09-00-80	07-00-83	PROJECT SCHEDULE REEVALUATION INCORPORATING OUTSTANDING LICENSING ISSUES.
03-31-83	10-01-84	PROJECT SCHEDULE RE-EVALUATION AND DEVELOPMENT OF CCP PLAN

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James W Cook
Vice President - Projects, Engineering and Construction

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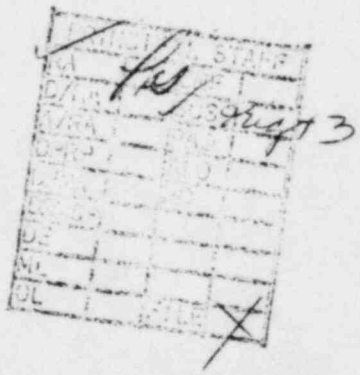
July 18, 1983



Harold R Denton, Director
Office of Nuclear Reactor Regulation
Division of Licensing
US Nuclear Regulatory Commission
Washington, DC 20555

MIDLAND ENERGY CENTER
MIDLAND DOCKET NOS 50-329, 50-330 -
SER OPEN ITEM RELATED TO CRACKING IN THE
REACTOR COOLANT SYSTEM MAKEUP NOZZLES -
FILE 0505.16, M1.9 SERIAL 23735

REFERENCE J W COOK LETTER TO H R DENTON (NRC) SERIAL 22343 DATED APRIL 13, 1983

This letter provides information on the subject of reactor coolant system makeup (MU) nozzles. The information was requested by the NRC during a telephone conference call on July 13, 1983, and responds to topics related to Open Item Number 8 of the Midland SER.

The referenced letter documents those actions already taken by the Company to address the issue of makeup nozzle cracking. In order to resolve the SER Open Item, the design specifications for the minimum continuous makeup flow need to be specified. Accordingly, Consumers Power Company commits to maintaining a minimum continuous makeup flow of between 1.5 and 3 gpm. At this flow rate, flow and thermal stratification should not occur in the makeup line, thereby avoiding thermal fatigue of the MU nozzle assembly. The basis for this conclusion is contained in the B&W report to Consumers Power Company which was enclosed with the above referenced letter. That report is titled "Babcock & Wilcox 177 Fuel Assembly Owner's Group Safe End Task Force Report on Generic Investigation of HPI/MU Nozzle Component Cracking," B&W Document Number 77-1141514-00.

It is expected that this information should provide the NRC with the information necessary to complete SER Open Item Number 8.

James W. Cook

JWC/MFC/lc

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AUG 1 1983

CONSUMERS POWER COMPANY
Midland Units 1 and 2
Docket No 50-329, 50-330

Letter Serial 23735 Dated July 18, 1983

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits information on continuous makeup flow to reactor coolant system makeup nozzles.

CONSUMERS POWER COMPANY

By J W Cook
J W Cook, Vice President
Projects, Engineering and Construction

Sworn and subscribed before me this 19th day of July 1983.

Beverly A. Avery
Notary Public
Jackson County, Michigan

My Commission Expires January 16, 1985

oc0483-0425a100

~~Office~~
② file

J A Mooney
Executive Manager
Midland Project Office

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

PRINCIPAL STAFF			
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D/RA		SCS	✓ orig+3
A/RA		PAO	
DPRP		SLO	
DRMA		RC	
DRMSP			
DE			
ML			
OL		FILE	✓

July 15, 1983

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

MIDLAND ENERGY CENTER GWO 7020
RESPONSE TO NRC REGION III QUESTIONS
OF JULY 14, 1983 MEETING
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6792
12*32

On July 14, 1983, the Region III Staff raised certain questions relating to drilling of the soil in the area of the Service Water Pump Structure, technical problems encountered in the drilling of Wells #502 and #503, the procedure for drilling in "Q" concrete, and certain comments in the Stone and Webster "Independent Assessment Report No. 41". The Staff requested that the Company respond in writing to these questions. The Staff also asked that the Company provide justification for continuing soils work in light of the above questions.

Although the Company recognizes the significance of the Staff's concern, we believe that the clarifications and proposed corrective actions provided in this response will satisfactorily resolve these concerns. The following explains the nature of the problems, answers the Staff's questions as we understand them, and provides a more detailed justification for continuing soils work.

ITEMS RELATING TO SERVICE WATER PUMP STRUCTURE

NRC Region III Staff requested information relating to the drilling of Well #521 and Piezometer #LS-7 in the vicinity of the Service Water Pump Structure.

JUL 18 1983

8307210208

Well #521 is a dewatering well near the Service Water Pump Structure. An excavation permit was properly obtained and executed in accordance with all applicable procedures before well drilling began. The location of the well was surveyed, verified and marked, as were underground utilities in the vicinity of Well #521. The drill rig was set up on a stake marking an underground utility rather than the stake designating Well #521. Spencer, White and Prentis and Bechtel Field Engineers verified this as the proper location. Quality Control verified that the drilling rig was positioned within allowable tolerances relative to this stake. When drilling proceeded, an obstruction was encountered at approximately elevation 619.5 feet. Drilling was stopped and gravel was found in the drill bit. It has been determined that the obstruction is most likely bedding material for a non-Q prestressed concrete pipe connecting the service water system to the cooling tower. It is not known whether the pipe itself was hit. An investigation is planned to inspect the pipe for damage.

In the case of piezometer #LS-7, drilling also occurred at a wrong location, as a result of misinterpreting a Field Change Request (FCR). Again, the excavation permit system procedures were followed. Prior to drilling, the field organization submitted an FCR to Project Engineering, asking for a change in the location of this piezometer, along with other wells, to avoid interferences with underground utilities and soldier piles. Project Engineering approved certain relocations, revised some proposed relocations, and added additional relocation. When the FCR came back from Project Engineering approved, the Field Engineers and QC inspector failed to notice the revised location for piezometer #LS-7 made by Project Engineering. As a result, the piezometer was drilled in an incorrect location.

As previously indicated, the excavation permit procedures were followed in the above two incidents. We believe that the incidents resulted from work processes which, although basically adequate, were not specific enough to avoid error. Corrective actions are as follows:

A. We are establishing a new procedure for identifying location markers. Markers for utilities or obstructions will be a different color from those marking drilling location. All responsible personnel will be trained in this procedure before further drilling is implemented.

B. We are requiring Bechtel Field Engineers to verify and sign for drill rig locations before drilling commences. These individuals will be responsible, on a single point basis, for making sure drilling occurs at the correct location.

C. Bechtel Field Engineers will be required to be present during field operations.

D. Spencer, White and Prentis (SW&P) has been directed to provide additional personnel to assure full coverage of field operations.

E. The PQCI's will be expanded adding clarity to the related inspection activities. This will require the QCE to compare coordinates on the location marker to design documents.

F. Bechtel and SW&P Field Engineers and QCE's will be trained to the new requirements established above.

The Staff also questioned why an MPQAD stop work order was not issued on Saturday, July 9, 1983 when drilling at an incorrect location for Well #521 was first discovered.

The incident relating to hole #521 resulted from a mistake by the Field Engineers in identifying the field markings for the drilling location. The excavation permit system and other applicable procedures were followed. Past work has been successfully carried out using the same procedures which were in place for this Well. After the incident was discovered, Bechtel Construction took immediate corrective action by stopping drilling and resurveying the location markers in the vicinity. Although we recognized the seriousness of this incident, particularly in light of the past drilling problems at Midland, MPQAD did not feel that the incident alone warranted a stop work order.

The second incident, relating to Piezometer #LS-7 was discovered on Monday, July 11, 1983. The actual drilling began on Saturday, July 9, 1983. Shortly after discovering that the drilling was at the wrong location, a verbal directive stopping all SWPS related drilling was issued. A written direction followed that afternoon.

The two different location errors, although caused by different circumstances, indicate that issues existed which must be resolved prior to continuing drilling by Spencer, White and Prentis. The stop work order would have been issued by MPQAD on this basis alone, regardless of whether the NRC discussions had occurred on July 11, 1983. The corrective action described above will be in place before affected drilling work resumes.

TECHNICAL PROBLEMS ENCOUNTERED IN THE DRILLING OF WELLS #502 and #503

During the process of drilling dewatering Well #502, problems were encountered with materials caving into the hole. Because of our inability to keep the hole open, we decided to abandon this well.

Dewatering Well #503 was started approximately the same time that problems with Well #502 were experienced. Dewatering Well #503 has not experienced problems similar to those noted for Well #502. Nevertheless, because the two wells are only five feet apart, we suspended drilling on Well #503, and conducted a technical evaluation of alternatives for completing wells in that area. An acceptable approach towards completing Well #503 in accordance with existing procedures has been determined.

To avoid caving of holes in this area, future holes will be drilled using one of the following methods: (1) Use of a "Becker" hammer drill, which allows the hole to be cased and drilled at the same time, or (2) Use of smaller diameter wells similar to those used in the interior of the SWPS. We believe either of these methods will solve the problem relative to the dewatering wells on the east side of the SWPS.

PROCEDURES FOR DRILLING IN Q-CONCRETE

The NRC was presented with information during the July 14, 1983 meeting pertaining to a stop work order concerning drilling in Q-concrete. PQCI C-1.60, Rev. 6, Concrete Drilling and Cutting of Reinforcing Steel, was considered inadequate to cover inspection of concrete drilling for work performed by FSO Direct Hire Work Forces. A recent FCR (C-5880 to Specification C-231) allows holes to be drilled in "Q" concrete and does not require QC inspection when a ground fault detector and carbide bit are used. The present PQCI revision does not require QC verification of these attributes; it only requires sampling inspection to be performed for drilling in "Q" listed concrete and block walls.

A stop work order for concrete drilling by FSO Direct Hire Work Forces was required until the PQCI could be revised and implemented. The PQCI's applicable to Mergentime and SW&P work requires 100 percent QC inspection and are not affected by this FCR.

The PQCI is being revised to require verification of the drilling method utilized in "Q" concrete and block walls. This PQCI will be revised prior to resuming work.

Further, a QAR is being issued by MPQAD to evaluate the impact of the PQCI's use for drilled holes in the balance of the plant and whether corrective action is required for previous work performed. Concrete drilling inspection plans for HVAC and B&W will also be evaluated for adequacy as a close-out to this QAR.

STAFF CONCERNS WITH STONE AND WEBSTER COMMENTS IN REPORT NO. 41

The Region III Staff expressed concerns over a number of items noted by Stone and Webster in the "Independent Assessment of Underpinning Report No. 41." The company's response to those concerns is as follows:

A. Page 3 - Quality Control, Documentation and Records

Concern: Timely resolution of outstanding NCR's continues to be a nagging problem.

Response: A discussion was held with the Region III Staff relative to the number of NCR's issued and time required for resolution (Attachment 1). A program is in place to identify adverse trends and take corrective action. Significant improvements have been realized as evidenced by the attached charts and considerable emphasis is being placed in these areas by all Soils Remedial Organizations to improve the results. Personnel have been assigned the responsibility in each action organization to coordinate responses and make sure that follow-up commitments are made within their respective organizations. Action is also taken during the Weekly Project Soils Management Meetings, as required, to assure continuing improvement in addressing quality items and closure of NCR's.

B. Item 3 - Notes of 6/27/83 Meeting

Concern: Use of dry-pack grout for pier leveling plates in lieu of pressure grout.

Response: Dry-pack grout is used for temporary pier leveling plates. As previously discussed with the staff, pressure grouting will be used for all permanent pier leveling plates.

C. Item 4 - Notes of 6/27/83 Meeting

Concern: Use of superplasticizer concrete.

Response: As previously agreed, CPCo will submit the concrete mix design using superplasticizer and receive NRC concurrence prior to using this mix.

D. Item 7 - Notes of 6/27/83 Meeting

Concern: Grouting of void between existing fill and West Auxiliary Building Foundation.

Response: The attached report (Attachment 2) addresses the grouting of the gap encountered between the soil and the Auxiliary Building Foundation.

E. Item 8 - Notes of 6/27/83 Meeting

Concern: Slope layback extending under the Unit 1 EPA.

Response: The limits of the drift north of Piers E/W 8 were at the discretion of the Resident Geotechnical Engineer (RGE) and the design drawings recognized the RGE's responsibility to authorize changes as necessitated by field conditions. Since the work was completed in accordance with quality requirements, a Non-Conformance Report was not issued.

F. Item 6 - Notes of 6/28/83 Meeting

Concern: Specification requirement for furnishing grout.

Response: Project Engineering dispositioned NCR FSO-286 relative to furnishing grout by clarifying the requirements and Mergentime Procedure MCP-35.000 will be revised accordingly.

G. Item 2 - Notes of 6/29/83 Meeting

Concern: Electrical IPIN's.

Response: A QA reinspection of IR's with associated IPIN's in the Auxiliary Building monitoring system is being conducted. The status of this reinspection was discussed with R. Landsman and R. Gardner on July 14, 1983.

H. Item 3 - Notes of 6/29/83 Meeting

Concern: Number of attached changes to drawings.

Response: MPQAD Soils had raised a question regarding the number of unincorporated changes to drawings in QAR #F-326 dated 6/20/83. This QAR is open. As part of the closure to this QAR, consideration will be given to the fact that CPCo Volume II Quality Assurance Program Manual Procedure #6-1 sets a limit of four attachments to a drawing for design documents prepared by CPCo. The final closure to the open QAR will satisfactorily address the quality concern related to the number of unincorporated attachments to drawings.

Concern: Use of FCR's and NCR's.

Response: The project adopted a position in June, 1983 to clearly establish the requirement that NCR's are required for "after the fact" FCR's; ie. FCR's written to obtain approval of "as built" conditions which do not conform to design requirements. This position clearly indicates that the Field Engineer is responsible for causing an NCR to be initiated whenever it is desired to use an FCR to get approval of an "as-built" condition which is not in accordance with design requirements. This requirement has been incorporated in Bechtel Field Procedures FPD-2.000 as Revision 9. (This revision is in the final distribution as of this date.) In addition, MPQAD Procedure F-2M, Control of Nonconforming Items, has been revised (Revision 6-Effectivity of 8/29/83) and requires an NCR to be written for any item that is nonconforming and "is at a point in the construction process where it should be in compliance with the applicable design or program requirements and it is not." These actions will programmatically require that NCR's are written for "after the fact" FCR situations.

Stone and Webster indicated that the term "field as-built condition" in this item referred to the original constructed conditions which are encountered during the underpinning work activities and not as a result of current work activities.

I. Item 3 - Notes of 6/30/83 Meeting

Concern: Acceptability of the pumped grout test program for pier leveling plates.

Response: The pumped grout test program has been completed and the results of this program are included as Attachment 3.

J. Item 4 - Notes of 6/30/83 Meeting

Concern: Over excavation under the Unit 1 EPA.

Response: Refer to Item E.

K. Item 2 - Notes of 7/1/83 Meeting

Concern: Number of outstanding drawing changes.

Response: Refer to Item H.

L. Item 3 - Notes of 7/1/83 Meeting

Concern: Pumped grout test program.

Response: Refer to Item I.

M. Item 4 - Notes of MPQAD 6/28/83 Meeting

Concern: Instruction memorandum on issuing QC hold tags.

Response: The memorandum in question did not provide programmatic directions for issuing QC hold tags, but addressed action by FSO and MPQAD to avoid confusion that may occur when hold tags are placed.

DISCUSSION OF JUSTIFICATION FOR CONTINUING SOILS WORK

Because of the concerns previously discussed in this letter, the Region III Staff has asked whether the soils work at Midland should be allowed to continue. We recognize and acknowledge the Region's concerns, which we share, with aspects of the performance of soils remedial work thus far. We are mindful of the need for continuing close attention, and extensive management involvement, to correct deficiencies and avoid errors. As previously described, steps are being taken to correct the deficiencies of concern to the Staff, as expressed in meetings this week.

On the question of whether these concerns warrant an overall stoppage of soils remedial work at Midland, we believe the answer is no. In our opinion, the concerns, while valid, do not run deep enough or are not widespread enough to call into question the overall integrity of the work, or the soundness of as-built hardware.

In our opinion the most serious of the various items cited by the NRC are the drilling incidents. We acknowledge that there have been drilling problems at the Midland Site in the past; however, the two drilling incidents discussed above occurred after a period of successful implementation of involved procedures. The drilling rig mislocations that occurred appear to be caused primarily by too narrow a view of the inspection requirements and lack of specific verification of proper drill rig locations by both field engineers and QC personnel. The entire corrective actions listed previously will, we believe, prevent recurrence of this and possible related problems. In addition, the drilling has been stopped until the corrective actions noted herein are implemented.

Another item referenced by the NRC is an MPQAD stop work order related to drilling in "Q" concrete. Corrective actions, including the issuance of a revised PQCI, are being taken. This represents a case where our Quality Organization identified a problem and stopped work until corrective action has been taken.

Additionally, the NRC had concerns about comments in Stone and Webster's Report No. 41. None of these items resulted in a Stone and Webster nonconformance. By contrast, when deemed appropriate, Stone and Webster has issued nonconformances in carrying out their responsibilities as an independent assessor. We take seriously the need to consider all Stone and Webster comments, and where appropriate, initiate corrective action in our work activities. Without understating the significance of Stone and Webster's comments, we do not believe any of them question the basic adequacy of the work in the soils area.

In summary, while we have not achieved perfection, the quality of our final product is meeting design requirements and commitments. Our Quality Organization and Field Engineers are finding and correcting problems. The substantial upgrading of our quality effort in 1982 has achieved noticeable and acceptable results. The Stone and Webster 90-day assessment of the underpinning work has not identified any major problems. Indeed, Stone and Webster determined that the initial underpinning work, which constitutes the significant activities presently being accomplished, was being performed with a high degree of quality and since this report was issued, Stone and Webster has not advised us of any situation which would change this assessment. Based on all of these factors and in consideration of the overall quality of the work, we believe the soils work at Midland should continue. Continuing basic attention to detail by the Soils Organization with overview and involvement by Stone and Webster and NRC Region III will insure immediate identification and resolution of concerns and provide adequate assurance that the soils activities are successfully completed.

JAMooney

NRC/work3

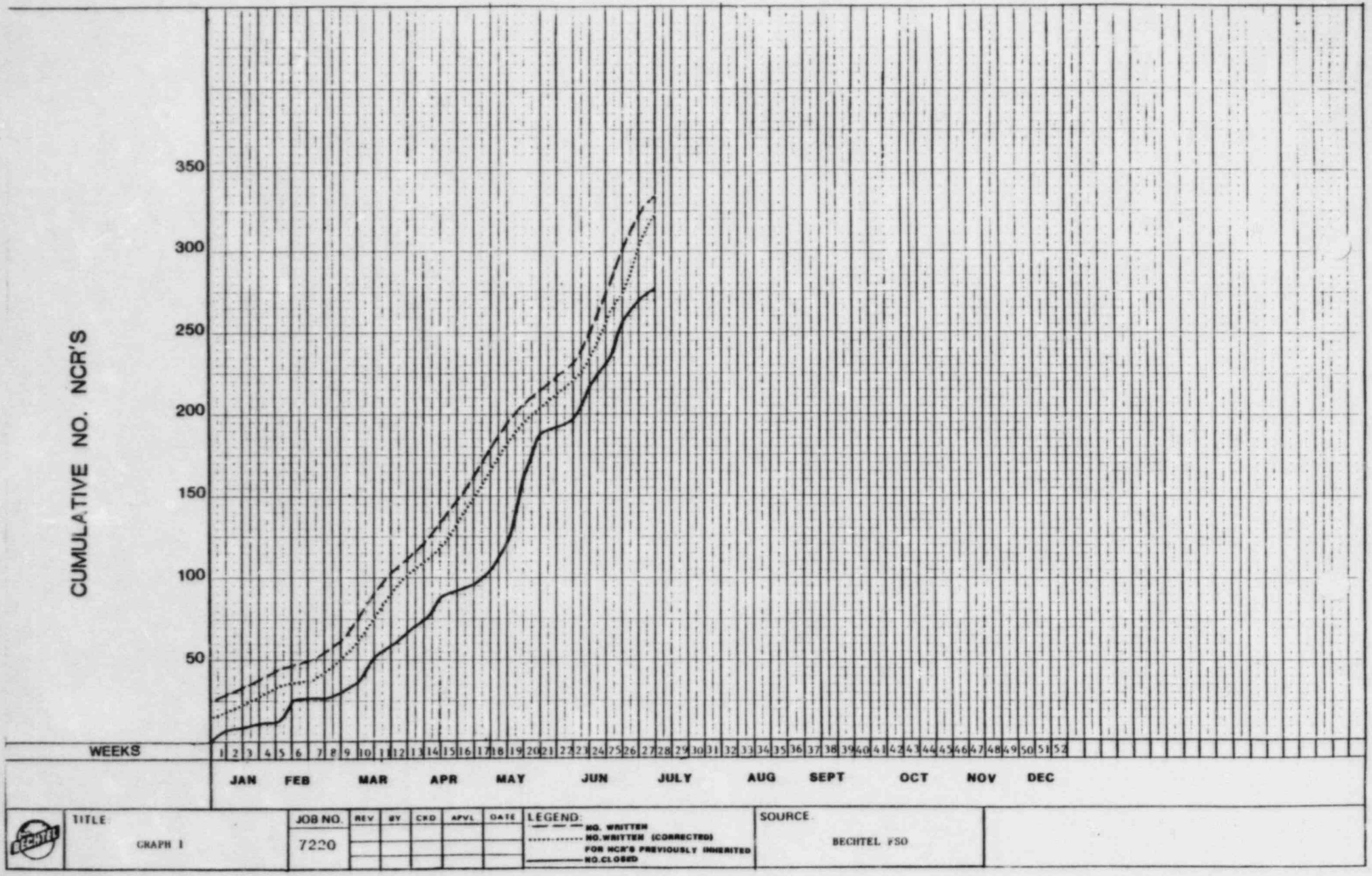
ATTACHMENT - 1

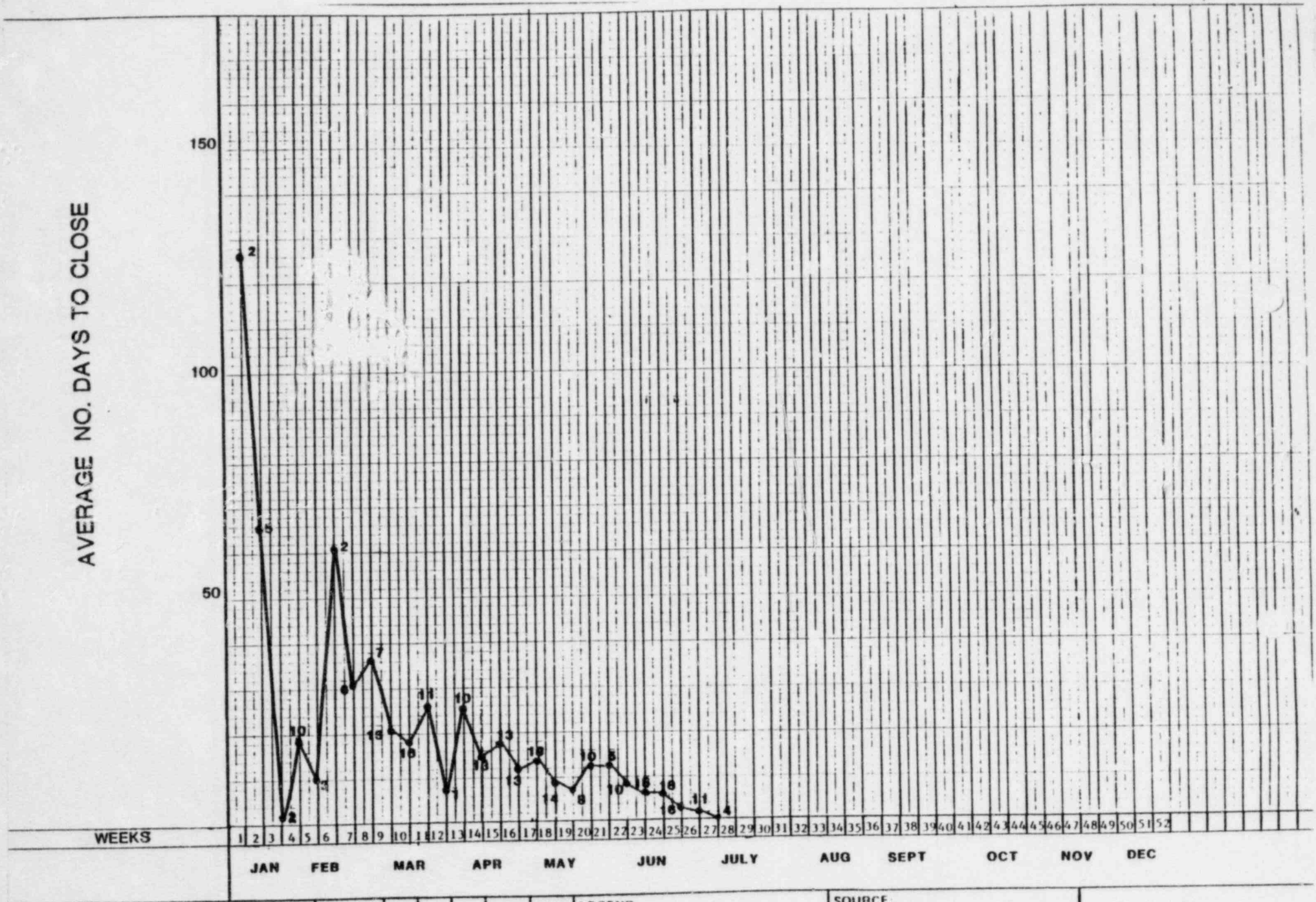
EXPLANATION OF GRAPHS 1 AND 2

The weekly periods begin with Week 1, January 1 through January 15, 1983, and end with Week 27, July 10 through July 16, 1983.

Graph 1: The cumulative number of NCR's is plotted for each week. The broken/slashed line represents all FSO NCR's written. The dotted line represents FSO NCR's written and corrected for those NCR's inherited from the Balance of Plant. These "inherited" NCR's predate the FSO organization and represent long term Non-"Q" soil replacement. The solid line represents the number of NCR's closed.

Graph 2: The average time to close an NCR for a given week is plotted for each week. The number shown beside each point is the number of NCR's used that week to determine the average.


CUMULATIVE NO. NCR'S
350
300
250
200
150
100
50
WEEKS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
JAN
FEB
MAR
APR
MAY
JUN
JULY
AUG
SEPT
OCT
NOV
DEC
TITLE
GRAPH 1
JOB NO.
7220
REV
BY
CKD
APVL
DATE
LEGEND:
NO. WRITTEN
NO. WRITTEN (CORRECTED) FOR NCR'S PREVIOUSLY INHERITED
NO. CLOSED
SOURCE
BECHTEL FSO



TITLE	JOB NO.	REV	BY	CKD	APVL	DATE	LEGEND:	SOURCE
GRAPH 2	7220							BECHTEL FSO

ATTACHMENT 2

MIDLAND UNITS 1 AND 2 - JOB 7220
RESIDENT GEOTECHNICAL ENGINEER REPORT

Date 6-22-83 Page 1 of 2
Shift DAY
A3

No.	Description	Remarks
	PIERS W9, W11, W12 ALSO E9, E11, E12	
(1)	WJE CONTINUED 8HRS DIAL GAUGE SETTING RDGS. OF TOP & TIP OF THE PIERS. TESTING OF WEDGES CONTINUED	
	PIER PIT W-8 (ACCESS DRIFT)	NOTE REG. ITEM #3
(2)	THE PIER PIT HAS BEEN COVERED TEMPORARILY WITH PLYWOOD.	RGE NOTED THAT A SMALL VOID 1/4" TO 1/2", 2' TO 4' WIDE WAS LOCATED DIRECTLY UNDER MUD MAT AND ABOVE 18"± THICK LAYER OF SAND. THE EXTENT OF THESE VOIDS HAS NOT BEEN DETERMINED YET BUT IT IS EXPECTED THAT THIS INSPECTION SHOULD BE COMPLETED ON 6/23/83.
(3)	MERGENTIME EXTENDED EXCAVATION NORTH OF PIER PIT. THE TOE WAS EXTENDED TO WITHIN THE DISTANCE OF 3' FROM NORTH EDGE OF THE BRACE RD'S. 2'-0"± BERM WAS PROVIDED WITH A NEARLY VERT. CLAY FACE ABOVE THE DRIFT FLOOR AND 1:1 ± SLOPE IN CLAYEY FILL WAS EXCAVATED DUE NORTH. IT WAS NOTED THAT 18"± THICK LAYER OF SAND WAS LOCATED UNDER THE MUD MAT & FILL CONCRETE. PART OF THE MUD MAT WAS ALSO REMOVED.	
	EXCAVATION FOR THE (N-S) BULKHEAD (WEST SIDE)	
(4)	STARTED CHIPPING GROUT AT THE (N-E) SECTION OF THE EXCAVATION, EAST OF THE EASTERN DRIFT SET LAGGING. (THIS GROUT WAS POURED IN THE SLOPE LAYBACK AT THE ~~EAST~~ EAST END OF THE DRIFT)	
	PIER PIT W-8 ACCESS DRIFT (CONTINUED)	
(5)	NOTE: EXPOSED DSB-2W AT THE (N-E) SECTION. SOME SATURATED CLAYEY MATERIAL WAS NOTED AT THE DSB-2W CASING. THERE WAS NO INDICATION THAT CHIPPING OF THE ADJACENT GROUT DAMAGED THIS DSB.	
(6)	RGE ADVISED THAT AN EXCESSIVE MVMT. (SETTLMT.) OF THE STRUCTURE HAS BEEN RECORDED AT DSB-2W, AND THAT ROUTINE REJACKING ON PIER W-9, DUE TO THE MVMT OF THE STRUCTURE, WOULD BE REQUIRED.	
	PIER W-9	
(7)	COMPLETED ROUTINE REJACKING DUE TO THE MVMT. OF STRUCTURE ON NITE SHIFT TODAY. APPLIED 110% OF SPEC LOAD AND HELD IT FOR 30 MINS. ALL WEDGES WERE FOUND TIGHT (COULD NOT BE MADE LOOSE WITH A CLAW HAMMER). TOTAL SETTMT. OF TOP OF PIER W.R.T. STRUCTURE TO-DATE WAS 0.480". IT WAS DECIDED TO DRIVE WEDGES	

FOR INFORMATION ONLY
FS-C03-03
7220

Signed Richard R. Cosby Date 6-22-83
Reviewed by J.C. Wanzeck Date 6-30-83

Distribution
BAPE- E. STEEL
PGE- J. ANDERSO

MIDLAND UNITS 1 AND 2 - JOB 7220
RESIDENT GEOTECHNICAL ENGINEER REPORT

Date 6-22-83 Page 2 of 2
Shift DAY
A3

No.	Description	Remarks
(7) (CONTIN)	AND DEPRESSURIZE THE JACKS AFTER 0.002" SETTMT IN A PERIOD OF 60 MINS. MINIM WAS RECORDED RSE ADVISED RGE TO TERMINATE THE REJACKING. THE PRESSURE DROP DURING DRIVING OF THE WEDGES WAS 675 PSI. FINAL PRESSURE OF 25 PSI WAS REACHED BY 18:45 HRS	
	PIER-W-10	
(8)	NO ACTIVITY NOTED AT THE PIER TODAY	
	PIER KC-2	
(9)	CURING OF PIER CONCRETE CONTINUED	
(10)	UPPER TELL-TALE P. HAS BEEN DRYPACKED	
	PIER E-8	
(11)	THE UPPER PIT SECTION WAS COVERED WITH PLYWOOD	
	PIER E-8 (ACCESS DRIFT), AREA NORTH OF PIER E-8	
(12)	NOTE: RGE AGREED TO REVISE THE PROPOSED NORTH SLOPE FROM 1:1 TO 1HOR : 3VERT AND THUS LIMIT THE EXCAVATIONS MINIM UNDER AUX BLDG. THE WRITER DISCUSSED THIS REVISION WITH MESSRS L. WILLIAMS & KILGORE THIS MORNING.	
	EXCAVATION FOR (N-S) BULKHEAD (EAST SIDE)	
(13)	STARTED BREAKING OUT A SECTION OF "KAYBACK GROUT" AT THE (N-W) SECTION.	
(14)	LAID OUT LOCATION OF HILTI BOLTS AT P'S (WEST SIDE)	
	PIER E-10	
(15)	COMPLETED LOAD TRANSFER, 110% OF SPEC LOAD, AT 3:00 PM TODAY AFTER "0.009" SETTMT CRITERIA IN 24 HRS" WERE REACHED AND SATISFIED TOTAL SETTMT OF TOP OF PIER WRT. STRUCTURE WAS .172" RSE ADVISED THAT THE JACKS WOULD BE ACTIVE FOR A LONGER PERIOD OF TIME (WEDGES WILL NOT BE DRIVEN) AND WTE WOULD READ GAUGES EVERY 8 HRS. RGE WILL NOT PARTICIPATE IN THE READING OF THE GAUGES.	
	PIER KC-11	
(16)	UPPER TELL-TALE: DRYPACKING HAS BEEN REPLACED	

FOR INFORMATION ONLY
RS-003-03
7220

Signed Richard F. Cosley Date 6-23-83
Reviewed by JoWanzeck Date 6-30-83

Distribution
RAPE- B. STEEL
PGE- J. ANDERSO[illegible]

MIDLAND UNITS 1 AND 2 - JOB 7220
RESIDENT GEOTECHNICAL ENGINEER REPORT

Date 6-23-83 Page 1 of 2
Shift DAY
A3

No.	Description	Remarks

PIERS: W9, W11, W12 ALSO E9 E11 & E12

(1) WTE CONTINUED BHRS DIAL GAUGE SETTLMT. RDGS. of TOP & TIP of THE PIERS.

(2) NOTE: RSE ADVISED RGE THAT "ROUTINE RE-JACKING, DUE TO THE MVMT. of THE STRUCTURE" WOULD BE ACTIVATED TO 110% of SPEC LOADS ON PIERS W9, W11 & W12. RE-JACKING of W9, W11 & W12 STARTED AT 11:07AM, 2:35PM & 5:11PM RESPECTIVELY.

(3) THE FOLLWING RESULTS WERE NOTED ON DAY & NITE SHIFTS

PIER No	TOTAL SETTMT. TO DATE (DAY SHIFT)	TOTAL SETTMT. TO DATE (NITE SHIFT)	NUMBER of WEDGE SHIFTS 110%	125%*
W9	.488"/110%	.513/125% *	0	(2)
W11	.697"/110%	.708/125%	0	0
W12	.344"/110%	.366/125%	0	(2)

(4) Δ4: -0.002" (DAY SHIFT)
: -0.005" (NITE —)

(*) RSE DECIDED TO INCREASE THE LOAD from 110% TO 125% of SPEC. LOAD AT APPROX 8PM.

NOTE: 4 HR READINGS WERE TAKEN ON ALL THREE PIERS BY END OF THE NITE SHIFT.

DUE TO EXCESSIVE MVMT. of STRUCT THE "ROUTINE RE-JACKING" STATUS WAS CHANGED TO "NON-ROUTINE"

PIER PIT W-8

(5) CONTINUED WORK ON SHAFT REBARS AND CLEAN UP of THE PITS. PLACING of THE CONCRETE HAS AGAIN BEEN DELAYED DUE TO PROBLEMS WITH INSTALL. of REMAINING RE-BARS.

PIER W-10

(6) NO ACTIVITY NOTED AT THE PIER TODAY

PIER KC-2

(7) NO ACTIVITY NOTED AT THE PIER TODAY

ACCESS DRIFT TO PIER PIT W-8

(8) NO ACTIVITY AT NORTH OR SOUTH SIDES of THE PIT EXCAVATION FOR (N-S) BULKHEAD (N-E SECTION OF ACCESS DRIFT PIT W-8)

Remarks: NOTE: REG. NORTH SIDE OF ACCESS DRIFT (PIER PIT W-8) RSGEE CHECKED EXTENT OF THE 1/4 TO 1/2" GAPS UNDER THE MUDMAT ALONG NORTH LIMIT OF LAYBACK EXCAV. WITH 1/4" x 1" LATH PROBE. 4'-6" MAX DEPTH of THE GAP WAS NOTED. STEEL TAPE PENETRATED UP TO 12' IN THE GAPS IN PROX of EXT. (N-S) ℄ OF THE PIT W-8

FOR INFORMATION ONLY
RS 003-03 7220

Signed Richard R Cosby Date 6-24-83
Reviewed by JoWanzeck Date 6-30-83

Distribution
RAPE- E. STEEL
PGE- J. ANDERS.

MIDLAND UNITS 1 AND 2 - JOB 7220
RESIDENT GEOTECHNICAL ENGINEER REPORT

Date 6-23-83
Shift DAY
A3

Page 2 of 2

No.	Description	Remarks
(9)	MERGENTIME HAS BEEN DRILLING HOLES FOR HILTI BOLTS AT 1st & 2nd POST PL^s (N-E CORNER OF THE DRIFT)	
(10)	NO ADDITIONAL EXCAVATION FOR THE (N-S) BULKHEAD IN PROGRESS TODAY	
	PIER E-8	
(11)	HAMMERHEAD SECTION OF PIT - HAS BEEN COVERED WITH PLYWOOD	
	ACCESS DRIFT TO PIER E-8 & EXCAVATION FOR (N-S) - BULKHEAD	
(12)	NOTE: RGE DISCUSSED THE STATUS OF BULKHEAD EXCAVATION WITH RSG&EL MERGENTIME. IT WAS AGREED TO PERMIT AN ADDITIONAL EXCAV AT (N-W) SECTION OF THE ACCESS DRIFT INCL BREAKING OUT OF 18" ± DRICE FILL CONCRETE & MUD MAT IN (S-W) DIRECTION. THIS SPACE WAS REQUIRED TO INSTALL BULKHEAD PL^s & POSTS (ROOM TO TORQUE THE BOLTS)	
	PIER E-10	
(13)	STRUCTURE SUPPORTED ON "ACTIVE JACKS" AT 110% OF SPEC LOAD. READINGS HAVE BEEN TAKEN AT 1 8HRS TIME INTERVALS	
	PIER KC-11	
(14)	CURING OF THE UPPER TELL-TALE PL DRYPACK CONTINUED	
(15)	RGE (R CASBY & E GRAY) COMPLETED PREPARATION OF "AS BUILT" EXTENT OF EXCAVATIONS UNDER AUX BLDG. ALONG THE NORTH SIDE OF ACCESS DRIFTS TO PIERS E-8 & W-9. TODAY SKETCHES WERE PREPARED	
		(3) SHEETS OF SKETCHES ATTACHED TO THIS REPORT

FOR INFORMATION ONLY

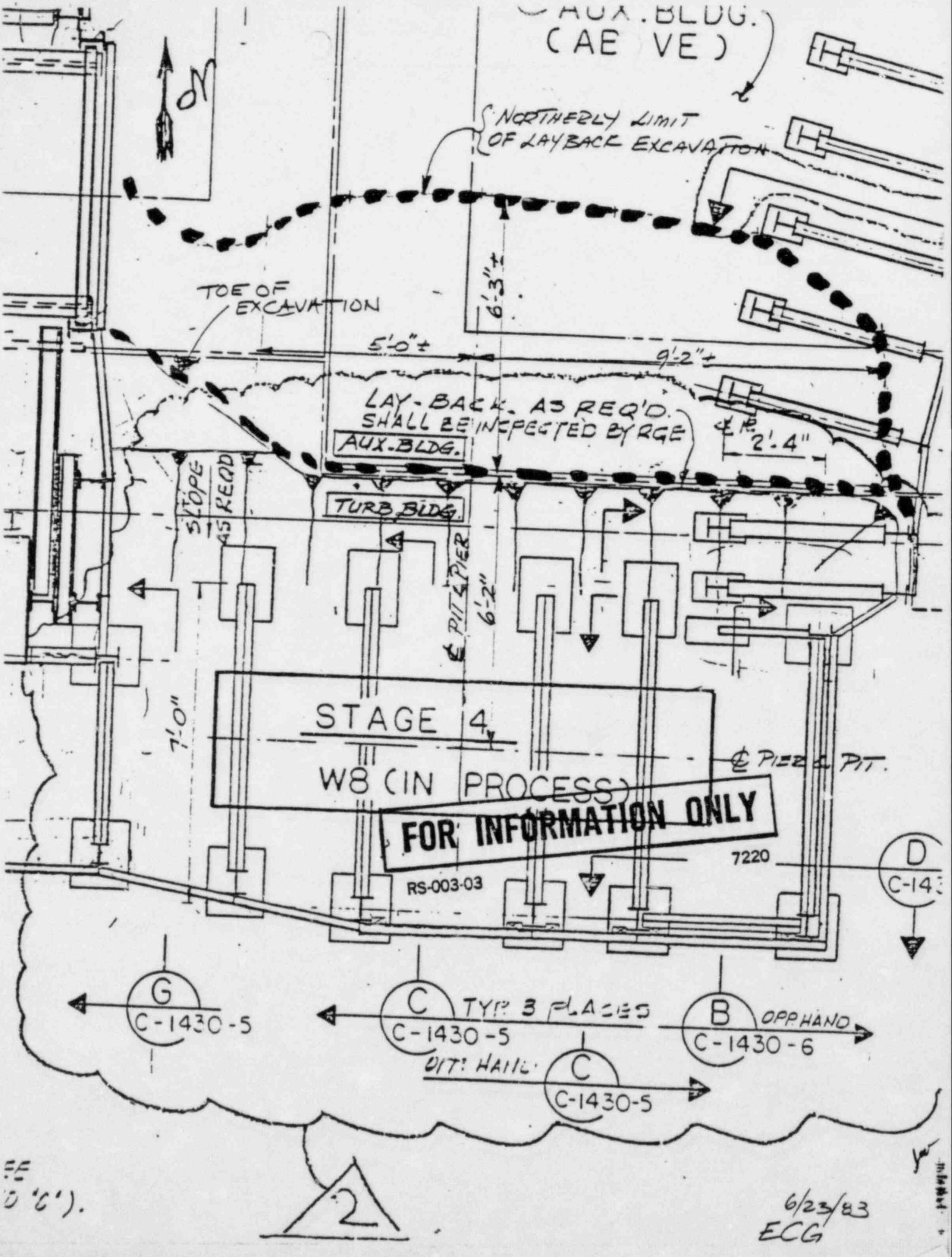
8307010303

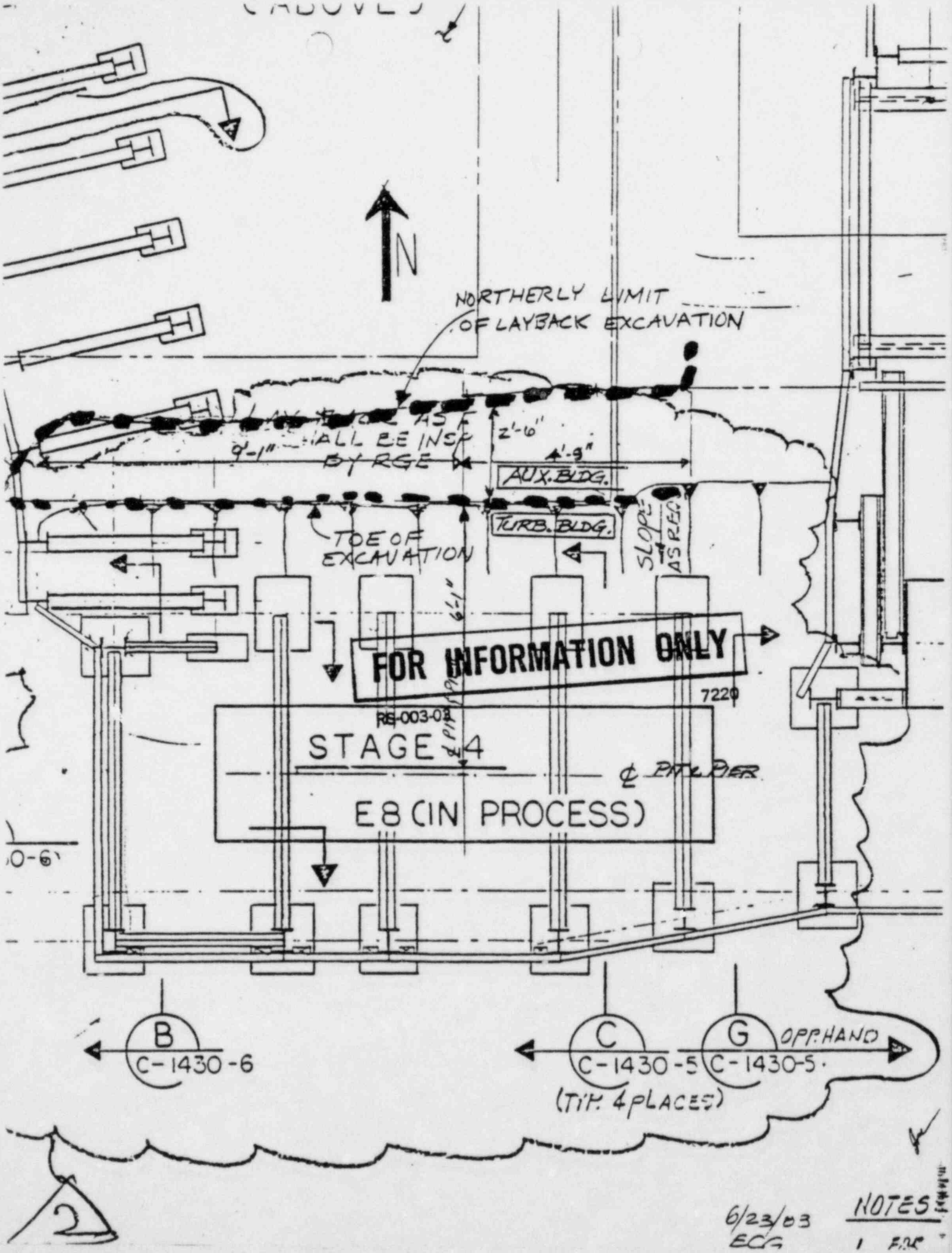
7220

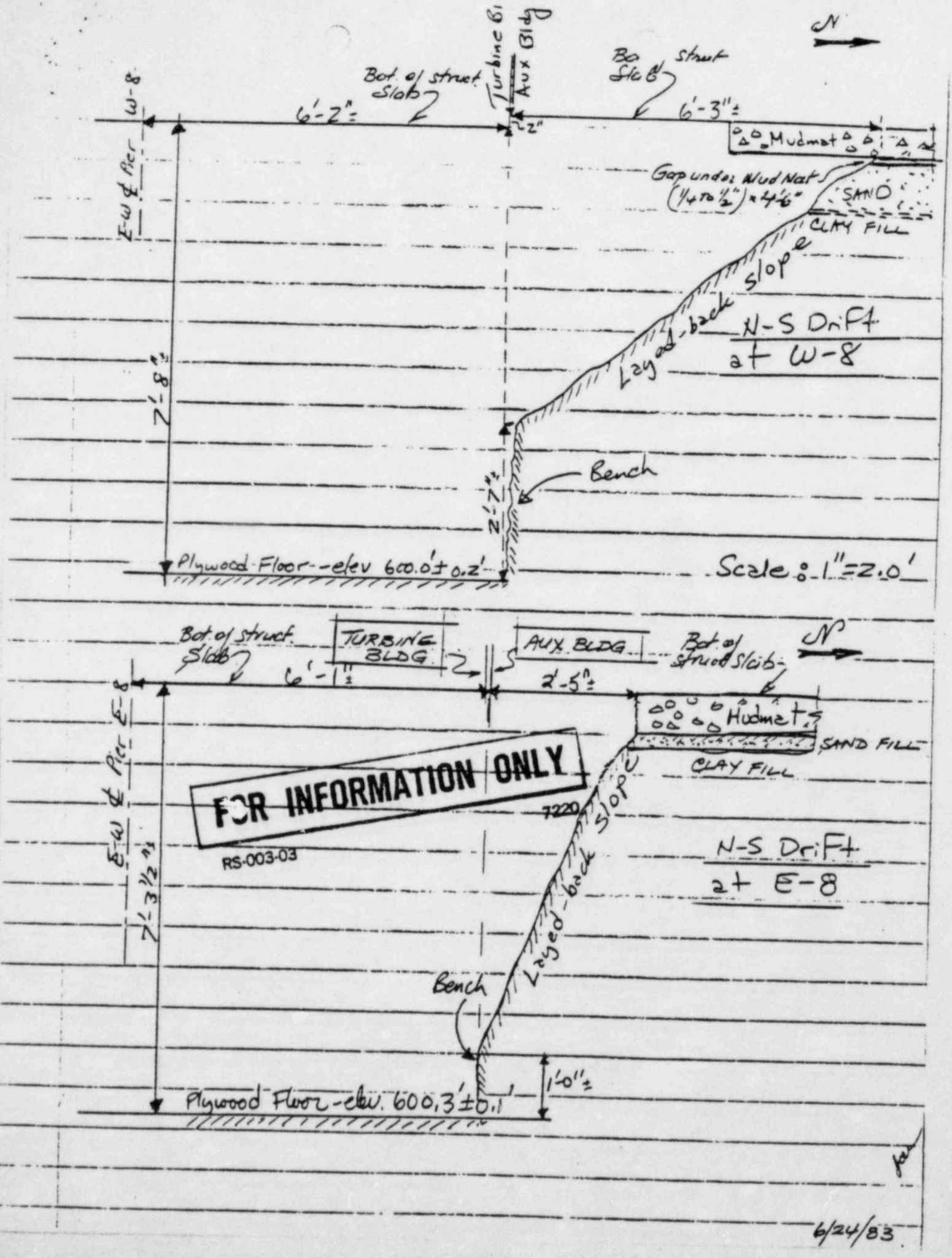
Signed Richard R. Casby Date 6-24-83

Reviewed By JeWanyeil Date 6-30-83

Distribution
RAPE- E. STEIN
PGE- J. ANDERS.


AUX. BLDG.
(AE VE)
NORTHERLY LIMIT OF LAYBACK EXCAVATION
TOE OF EXCAVATION
6'-3"±
5'-0"±
9'-2"±
LAY-BACK AS REQ'D. SHALL BE INSPECTED BY RGE
2'-4"
AUX. BLDG.
TURB BLDG.
SLOPE AS REQ'D
℄ PIT & PIER
6'-2"
7'-0"
STAGE 4
W8 (IN PROCESS)
℄ PIER & PIT.
FOR INFORMATION ONLY
7220
RS-003-03
D
C-14
G
C-1430-5
C
TYP. 3 PLACES
C-1430-5
B
OPP HAND
C-1430-6
DIT. HAIL
C
C-1430-5
2
6/23/83
ECG


N
NORTHERLY LIMIT
OF LAYBACK EXCAVATION
9'-1"
ALL BE INSP
BY RGE
2'-6"
4'-9"
AUX. BLDG.
TURB. BLDG.
TOE OF
EXCAVATION
SLOPE AS REQ'D
6'-1"
FOR INFORMATION ONLY
7220
RE-003-03
STAGE 4
℄ PIPE PIER
E8 (IN PROCESS)
B
C-1430-6
C
C-1430-5
G
OPP. HAND
C-1430-5
(TYP. 4 PLACES)
2
6/23/03
ECG
NOTES
1


N
Bot. of struct. Slab
Turbine Bldg
Aux Bldg
Bot of struct Slab
6'-2"±
1'-2"
6'-3"±
W-8
E-W ℄ Pier
7'-8"±
Mudmat
Gap under Mud Mat (1/4 to 1/2") x 4'-6"
SAND
CLAY FILL
slope
Layed-back
N-S Drift at W-8
2'-7"±
Bench
Plywood Floor -- elev 600.0' ± 0.2'
Scale: 1" = 2.0'
Bot of struct. Slab
TURBINE BLDG
AUX. BLDG
Bot of struct Slab
6'-1"±
2'-5"±
N
E-8
E-W ℄ Pier
7'-3 1/2"±
Mudmat
SAND FILL
CLAY FILL
FOR INFORMATION ONLY
RS-003-03
7220
slope
Layed-back
N-S Drift at E-8
Bench
1'-0"±
Plywood Floor - elev. 600.3' ± 0.1'
6/24/83

MIDLAND UNITS 1 AND 2 - JOB 7220
RESIDENT GEOTECHNICAL ENGINEER REPORT

Date 6/26/83 Page 1 of 1
Shift NIGHT - E
A3

No.	Description	Remarks
	West Shaft	FOR INFORMATION ONLY
	Pier KC-2	
1.	No activity	
	Pier W8	
1.	No activity	
	Pier W9	
1.	"Non-routine" repacking at 125% S.L. Continued. As of 12:56 a.m. pier top movement was 13 mil in last 48 hours. 4 hour readings continued.	
1	Pier W10 Started placing jacks.	
	N-S Bulkhead North of W8	
1.	Filled void north of layback area.* 180 gals of neat cement grout (3/4 water : 1) were used. grout pressures ranged from approx. 20 to 80psi Signed QC IR and stated that RGE concurred with F.E. grouting operation was acceptable.	* See sketch attached.
	QC hold on bearing PL on knee brace* of 2nd set	* PL improperly shimmed " on QC tag.
	East Shaft	
	Pier KC-11	
1.	Started placing jacks on top of pier.	
	Pier E8	
1.	No activity	
	Pier E10	
1.	110% S.L. maintained. 8 hour readings Continued. As of 12:35 a.m. movement was 3 mils in last 24 hours.	
	N-S Bulkhead North of E8	
1.	QC hold on bearing PL on 2nd post due to gap between PL & Str. Conc. wider than 1/16".	

Signed Alan Tang / Sid Wagner Date 6/27/83

Reviewed By ______ Date ______

Distribution
RAPE- E. GTIK
PGE- J. ANDER

ATTACHMENT C
TO MCP 15.000

FOR INFORMATION ONLY

GROUT PLACEMENT PLAN

Prepared By: [illegible] (MFE)

Approved By: [illegible] (RSG PE)

[illegible] (RGE)

Location: 11' NORTH OF WEST 8

Plate Orientation: N/A

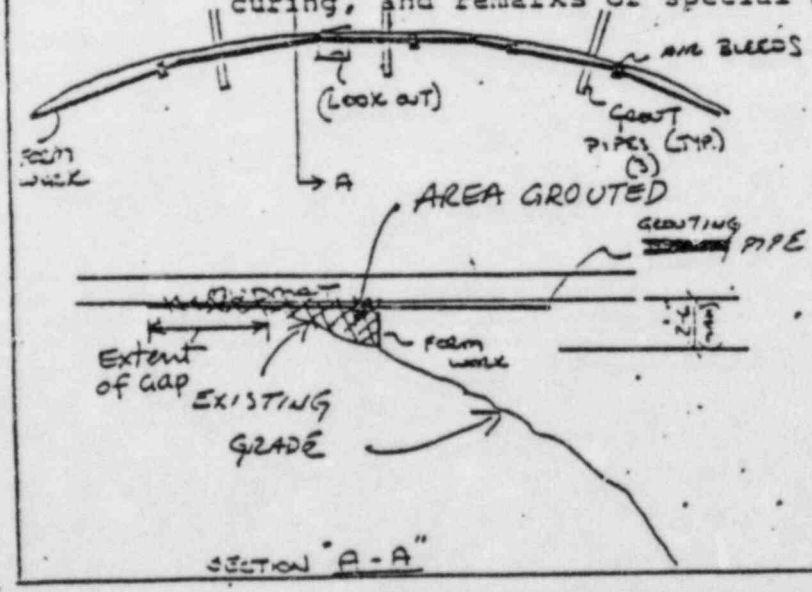
Type of Grout: CEMENT

Method of Grout Placement:

- ☐ Gravity
- ☐ Pressure - Hand Pump
- ☒ Pressure - Mechanically Driven Pump

Maximum Grout Pressure: 150 -- (For pressure grout placement with a mechanically driven pump only.)

Sketch: (Indicate plate orientation, location of forms, location of vent holes and/or vent pipes, grouting sequence to avoid air entrapment, location of grout pipes, edge treatment for curing, and remarks or special notes.)



FORM CURE

NOTE:

1. PIPE LOCATIONS MAY VARY DUE TO RESISTANCE WHILE BEING PLACED.
2. AIR BLEEDS AS NECESSARY
3. OBSERVATION PORTS AS REQUIRED.
4. FORMWORK MAY VARY DEPENDING ON SOIL CONDITIONS (ACTUAL).
5. MAX. SPACING OF GROUT TUBE 10'.

▨ AREA GROUTED.

F7220-C195-28-7 (E)

ATTACHMENT FOR DAILY REPORT 6/26/83
NIGHT SHIFT (E.)

ATTACHMENT-3

REPORT

of the

OVERHEAD FLUID GROUTING

TEST PROGRAM

Located at

Consumers Power Company

Midland Nuclear Power Plant

Midland Units 1 & 2

July 15, 1983

8307210264

TABLE OF CONTENTS

OVERHEAD FLUID GROUTING TEST PROGRAM
REMEDIAL UNDERPINNING
MIDLAND UNITS 1 & 2

I. EXECUTIVE SUMMARY OF TEST PROGRAM

A. Purpose of Test

To insure proper pressure grout placement on the permanent underpinning piers, a series of tests simulating leveling plate installations has been performed using different concrete surface preparations, different methods for venting air, and different grouting techniques for the placement of grout.

B. Summary of Test Results

All pressure grouted test plates provided a fully satisfactory grout pad. None of the special surface preparations appeared to have had any affect on reducing the amount of entrapped air. Multiple injection points seemed to induce more entrapped air than the single injection point. An expanded metal/leadwool forming system had more disadvantages than advantages. The performance of the Masterflow #713 grout and the equipment used all proved to be more than adequate for these tests.

C. Summary of Conclusions

The pressure grouting with Masterflow #713 provided a quality product equal to or better than drypacking with Masterflow #713. The overhead pressure grouting of steel plates can successfully be performed using conventional materials, equipment, and methodology already available and in use on the project. Successful pressure grouting can be accomplished using a single centrally located grout injection point thru the steel plates and by bulkheading around the periphery of the plate with wooden forms.

II. SCOPE OF TEST PROGRAM

A. Objectives

1. To determine the quality of a grout pad that can be achieved by overhead pressure grouting. Of particular concern was the minimizing of voids created by air being entrapped in the grout at the interface between the existing concrete surface and grout surface

2. To determine the optimum methods of surface preparation, formwork and grout placement.

II SCOPE OF TEST PROGRAM

B. Location

Testing was performed in a portion of the northeast corner of the Midland Jobsite Poseyville Laydown Area.

C. Test Facilities

The simulation of actual conditions which exist under a structure being underpinned was accomplished by utilizing concrete blocks (crane counter weights) cribbed by other concrete blocks to create two test bays. (See Exhibit D - Photographs #1 and #5).

D. Personnel

The Mergentime personnel during grouting consisted of four (4) craftsmen, a foreman, and a superintendent. The drypack crew consisted of five (5) craftsmen, a foreman, and a superintendent. In addition to the Mergentime personnel, observers were present from Bechtel's FSO Field engineering and MPQAD for all of the grout placements. Part time observers included Mergentime Field Engineering, Stone & Webster Independent Assessment Team, U .S. Testing (for testing) and Consumers Power Company.

III TEST PROCEDURES

A. Layout of Test Plates

Eight (8) test plates were laid out four (4) in each of the two simulation bays. The north simulation bay test plates were installed to test a multiple injection point system of grout placement under varying bulkheading and concrete preparation conditions. The South simulation bay test plates were installed to test the single grout injection point system with various concrete surface preparations. One plate was formed on three sides and drypacked with Masterflow #713 as a comparison to the pressure grouting techniques. (See Exhibit #A for Grouting Plan Arrangement).

B. Description of Test Plates, Formwork, and Surface Preparation Area*

All test plates were made of ½" x 3'5" x 5'8" steel plates and were held in position by eight (8) 3/4" diameter Hilti kwik bolt expansion anchors. The plates were positioned 1½" beneath the concrete slab by means of short pieces of pipe sleeves placed over the anchor bolts. The sleeves also facilitated easier test plate removal. The steel test plates were sized to represent the maximum size anticipated for actual conditions. In addition, four plates were notched to represent the worst geometric conditions anticipated. The concrete underslab surface was lightly greased

*Also see Exhibit A and Photographs #9 thru #12 of Exhibit D

III. TEST PROCEDURES (Cont'd)

with Union 76 - Multipurpose grease. This was used as a bond breaker. The grease was brushed on with a 2½" wide paint brush with 1½" bristles. The underslab concrete surfaces above each plate had a combination of surface preparations consisting of grooves cut in the concrete, forming either a figure X, H, or 3 parallel lines or no surface preparation at all. The cut grooves were installed as air venting systems with the grooves extending well beyond the forming at the edges of the steel plates.

Test plates #1 thru #4 had four grout injection points down the center of each plate. Plates #1 and #4 were formed on four sides (bulkheaded) with 2 x 4 lumber and were sealed to the underslab concrete using a silicone caulking. Plates #2 and #3 were bulkheaded using expanded metal backed with leadwool packing. This system of bulkheading also required 2 x 4 framing to retain the expanded metal. In addition to these cut grooves, the 2 x 4 bulkheading had ½" square vents cut into its top surface. These vents were later plugged with wood plugs or leadwool. The backup framing for Plate #2 and #3 had long slots approximately 3/4" deep cut along its top edge to aid in the passage of air thru the leadwool packing.

Test plates #6 thru #8 had one grout injection point each. All were conventionally bulkheaded with 2 x 4 lumber and silicone caulking. Test plate #6 had an injection point at its center and the underslab concrete was prepared by roughening it with a chisel bit tool to simulate an irregular surface. Test plate #7 had an injection point at its center with a pipe extension which protruded up into a 1½" diameter hole cored into the underslab concrete. This was done to provide a positive means of limiting grout loss to the area of the cored hole in the event leakage resulted from failure of the injection shut-off valve. In addition, an "X" groove pattern was cut across the hole extending to each corner. Test plate #8 had one injection point located 3" in from the northwest corner. The underslab concrete was left in its original condition.

Test plate #5 was drypacked utilizing Masterflow #713 grout. This test plate was bulkheaded on the north, south, and east sides with all drypacking being done from the west side. In addition to test plate #5, two additional drypack test plates were prepared from this same location and they were numbered 5A and 5B. Test plate #5A was made with Masterflow #713 grout mix while test plate #5B was made using a 1:1 ratio sand/cement drypack mix.

C. Description of Grouting

The flowable grout used was Masterflow #713 mixed in accordance with Mergentime Grouting Procedure MCP 15.000 (See Exhibit D - Photograph #2 and Exhibit E). Where multiple injection points were used, grouting progressed south to north.

III TEST PROCEDURES (Cont'd)

The grouting was accomplished using an Airplaco model #HG-5, hand operated grout pump, in a five gallon plastic pail. The grout pump was connected to the plate injection point by a flexible hose using Chicago type couplings. Attached to the steel test plate injection nipple was a shut-off valve and a Chicago type coupling. (See Exhibit D - Photographs #4 and #7). Air vents were plugged only after a good flow of grout passed through them. After all vents were plugged the pump was used to apply and maintain a static pressure of 9 to 15 lbs. until the injection point valve was closed.

U.S. Testing was present at the start of grouting and drypacking each day and to take flow cone tests and to make strength cubes (see Exhibit D - Photograph #3) for verification of material characteristics (see Exhibit C). It should be noted that no curing was performed on the grout test pads and that they were all stripped within approximately 20 hours of being placed.

D. Post Test Observations

All test plates were removed the day after placement. The grease bond breaker worked well, however, most test plate grout pads were cracked or otherwise broken during the process of removal.

The results of all test plates grouted with Masterflow #713 were satisfactory. The utilization of various patterns of specially cut grooves in the underslab concrete appeared to have had no influence on relieving entrapped air. In certain instances air bubbles were entrapped continuously across a cut groove. The larger (over ½" diameter and 1/8") air bubbles appeared almost exclusively on the plates with four (4) injection points. (See Exhibit D - Photograph #27). Since the first injection point generally filled the bulk of each test area it appears that these bubbles may be portions of a larger bubble that was formed when grout was placed from a previous injection point. There is no definite pattern on entrapped air bubbles other than they appear to be radially oriented about one or more of the three subsequent injection points.

Both the wood form and expanded metal/leadwool bulkhead methods effectively contained the grout and provided adequate avenues for escaping air. The wood forms left a neat uniform grouted edge while the Expanded metal/leadwool created a void area approximately 3/4" back from the test plate edge. (See Exhibit D - Photograph #28).

The wood plug system used to plug the bulkhead air vents worked well at all locations where it was used. Although the leadwool plugs were satisfactory, in some locations they were pushed as much as 3/4" to 1" into the grout pad itself and thus leaving a void. Also leadwool was used at the only two vent areas that showed evidence of grout leakage after grout shut-off.

III TEST PROCEDURES (Cont'd)

Minor dripping of a clear amber fluid was noted from all pressure grouted test plates, starting at approximately half way thru the grouting time period and extending well beyond completion of grouting. This was apparently bleed water and a visual inspection of the pads could find no damage or voids as a result of the fluid.

E. Test Results

Plate No.	Grouting Time	Grouting Pressure	Plate Deflection	% of Voids Over ½" Ø	Remarks
1	35 min.	13 psi	3/16 to 1/4	0.9	Many small surface bubbles noted
2	27 min.	12 psi	3/16 to 1/4	0.5	Contained large and deep trapped air pockets
3	39 min.	15 psi	1/4 to 3/8	0.7	Contained air bubbles apparently formed from subsequent injection points
4	40 min.	9 psi	0 to 1/8	1.2	Contained large shallow air pockets
5 (DP)	1 to 1½ hr	n/a	None	14.0	Poor consolidation at east edge of pad
5A (DP)	Not Avail	n/a	3/16 to 1/4	7.0	Poor consolidation at east edge of pad
5B (DP)	2 to 2¼ Hr	n/a	3/16 to 1/4	0.1	Actual Void Area is 2.5% When Lost Contact Area is Included
6	25 min.	12 psi	1/16 to 1/8	0.8	Experienced No Problem Filling Irregularities Chipped Into Concrete Surfaces
7	20 min.	12 psi	1/8 to 3/16	0.5	Appears to have had plate movement during grouting
8	30 min.	10 psi	1/8 to 1/4	0.9	Poor consolidation appears to have resulted form excessive grout flow distance

*See Exhibits B and D for additional photographs and test results evaluations.

III TEST PROCEDURES (Cont'd)

Dates of Testing:

- o Plates 1 thru 5 were grouted on 6-28-83 and removed on 6-29-83
- o Plates 5 thru 8 were grouted on 6-29-83 and removed on 6-30-83
- o Plate 5A was drypacked on 6-30-83 and removed on 7-1-83
- o Plate 5B was drypacked on 7-6-83 and removed on 7-7-83

IV. CONCLUSIONS

All pressure grouted test plates provided a fully satisfactory grout pad for transfer of loading into or from an overhead concrete structure. Based upon the comparison of the seven (7) pressure grouted test plates, it appears that the single centrally located injection point type of test gives the best product.

Test plate #7 had a special condition of a pipe extension of the injection nipple up into a 1½" drilled hole in the underslab concrete. No advantages to this system were noted in the resultant underslab/grout contact surface to merit further consideration.

Two drypack test plates were made using Masterflow #713 for comparison purposes. Neither of these two test plates proved to be better than the pressure grouted test plates. Proper consolidation of the drypack on the far side of the test plate and behind anchor bolts appears to be the weak areas for these plates. A third drypack test plate was made using a 1 to 1 sand/cement ratio which proved to be the best test plate except for a loss of contact area in the northwest corner, apparently a result of the plate moving during final stages of drypacking.

One problem noted from the pressure grouting and from two of the three drypack test plates, was the elastic bowing of the ½" steel test plates resulting from the induced pressures. The least affected pressure grout test plate was #4, on which grouting was stopped with a static pressure, indicated at the grout pump, of approximately 8 to 10 psi. All other plates were stopped at static pressures of 12 psi±. It should be noted that only eight (8) expansion bolts were used to support the test plates and that no attempts were made to restrain or limit plate deflections (bowing). It should also be noted that the static shut-off pressure was measured on a 0 to 60 psi pressure dial attached to the grout pump discharge. (See Exhibit #D - Photograph #4). This static pressure includes approximately six (6) feet of head between the gage and the overhead test plate. Consequently ten (10) pounds per square inch pressure at the gage should mean four (4) psi actual pressure within the grout bed itself. Thus it appears that minimal pressure (sufficient to force grout to flow out the bulkhead air vents) is all that is necessary to achieve grout placements.

IV CONCLUSIONS (Cont'd)

An observation noted was that the pressure gage attached to the grout pump indicated high pressure peaks during the initial stages of pumping. This pressure could not have built up under the plates, since all the vents were open during this stage of pumping. This "peaking" was due to a combination of rapid pumping and line losses during the initial filling. As the vents were closed and pumping slowed, the pressures stabilized in the line, reflecting pressures actually transferred to the grouted plates. (This "peaking" phenomena will be a consideration in gage range selection in permanent pier grouting.)

No advantages were noted by use of the expanded metal/leadwool system over the more conventional wooden bulkhead system. A major disadvantage was, however, noted in that there was a definite loss in available grout pad size in the leadwool system. Consequently production plates utilizing this bulkhead system would require larger sized plates to makeup for the lost grout pad area.

The Union 76 multipurpose grease was used as a bondbreaker on the underslab concrete surface and performed its function. The use of this grease as opposed to normal pre-soaking or the use of the weld crete could be expected to result in a larger amount of air entrapped in the grout concrete contact surface due to the grease being impervious and thus not allowing any air to be absorbed by the concrete.

On the whole the amount of small air pockets noted were about equivalent to what might be expected on a vertically formed surface poured with air entrained concrete. A quantitative value for percentage of lost contact surface, due to air or just no contact, was determined by physical measurements of the void areas larger than ¼" equivalent diameter. The results of these measurements for plates #1 thru #4 and #6 thru #8 show a range of from 0.5 percent to 1.2 percent loss. Inclusion of all void areas less than 1/4" Ø should not amount to any more than double the values calculated or in other words a maximum of 2.4 percent loss in total.

The hand pumping of the grout was a satisfactory method for placement of the grout. It was an easy method to control the placing of grout as well as being mobile and requiring little in the way of support facilities or maintenance during placement.

The Masterflow #713 grout proved to be an acceptable mix in terms of its net physical characteristics as well as the finished product. It should be noted that although the Mergentime Procedures for grouting (MCP 15.000) and drypacking (MCP14.000) were utilized as guidelines, absolute adherence was not expected, nor was it guaranteed by quality control inspections. In particular, no bonding to existing concrete was desired, no grout placement plan was utilized, and no attempts were made to properly cure the test plate grout pads.

IV CONCLUSIONS (Cont'd)

It should be noted also that the expansion anchor bolts were installed at varying depths and in several instances spacer washers had to be utilized in order to tighten the nut without bottoming out on the the threads.

The bowing or elastic bending of virtually all of the test plates was to be expected, but should not be a source of concern. Bowing of the test plates showed up on both the pressure grouted plates as well as the dry-packed plates. To date, no problems have been noted in the Auxiliary Building Underpinning work with drypacked leveling plates. Bowing of pressure grout plates will not be a problem either since the bowing can easily be eliminated by the installation of plate bracing before grout placement.

V. RECOMMENDATIONS

Utilization of leadwool as a form of bulkheading for pressure grouting should be kept as an option for areas where the more conventional wood bulkheading can not be utilized. There may be instances during grouting where the use of leadwool will provide the best and most reasonable means of stopping grout movement. Care will still have to be exercised to ensure that use of leadwool does not reduce the required effective bearing area of the grout pad.

An option, although not tested, that should prove equally as good as the single injection point system would be a dual injection point system (At 1/3 points down the center of plate). This system would use two grout pumps both of which are pumped either simultaneously in a manner so as not to form air pockets/bubbles as noted in Section III D of this report.

Grouting pressure should be kept near the minimal required to obtain grout flow through the air vents. To avoid possible plate bowing or excessive bracing of plates, slow stroking of the handpump to eliminate impulse loading should be utilized.

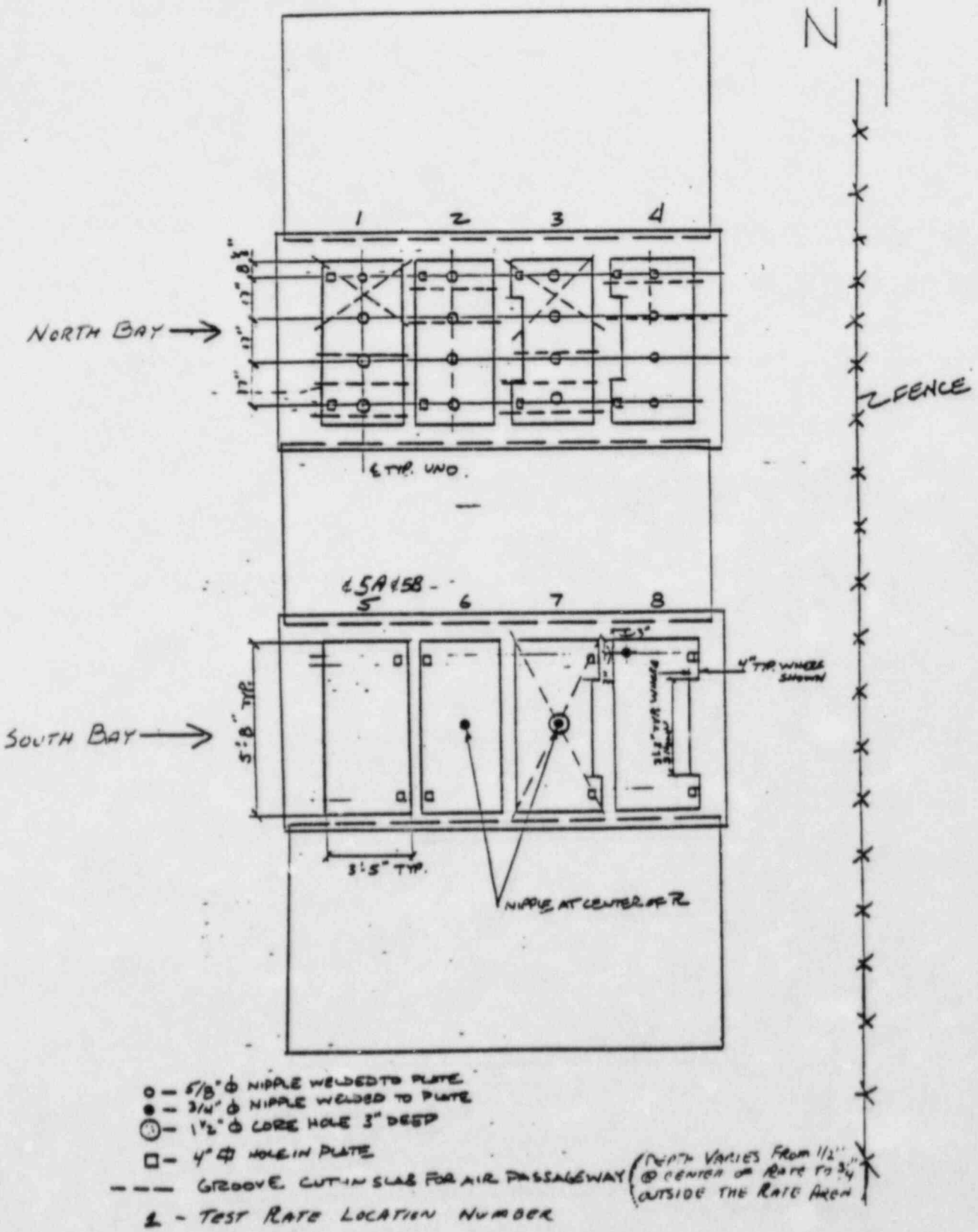
OVERHEAD FLUID GROUTING TEST PROGRAM

EXHIBIT A

GROUTING PLAN ARRANGEMENT

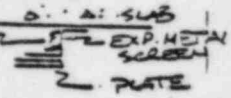
PLATE SETTING PLAN ARRANGEMENT

ATTACHMENT A Sheet 1 of 2



FORMWORK

PLATE NO.	FORMWORK
1	WOOD FORMS CAULKED W/ SILICONE CAULK
2	EXPANDED METAL SCREEN W/LEAD WOOL
3	EXPANDED METAL SCREEN W/LEAD WOOL
4	WOOD FORMS CAULKED W/ SILICONE CAULK
5	WOOD FORMS (DRYPACK PLATE)
6	WOOD FORMS CAULKED W/SILICONE CAULK
7	WOOD FORMS CAULKED W/ SILICONE CAULK
8	WOOD FORMS CAULKED W/ SILICONE CAULK



NOTES

1. ALL PLATES WITH THE EXCEPTION OF NO. 5 WILL HAVE 12 VENT HOLES BETWEEN THE SLAB AND THE TOP OF THE FORM EVENLY SPACED AROUND THE PERIMETER OF THE PLATE. THESE HOLES WILL BE PLUGGED WITH WOOD WHEN A STEADY STREAM OF GROUT FLOWS FROM THEM.

2. ALL PLATES WILL BE PRESSURE GROUTED BY HAND PUMP WITH THE EXCEPTION OF PLATE NO. 5 WHICH WILL BE DRYPACKED.

3. SLAB AREA TO BE GROUTED OR DRYPACKED AGAINST WILL BE GREASED FOR EASY REMOVAL OF PLATE AND GROUT/DRYPACK.

4. GROUT/DRYPACK WILL BE MASTERFLOW 713.

5. HILTI EXPANSION ANCHORS WILL HAVE A SMOOTH PIPE SLEEVE ON THEM BETWEEN THE LEVELING PLATE AND THE SLAB TO PERMIT EASY REMOVAL OF THE PLATE AND GROUT/DRYPACK.

6. ALL SLAB SURFACES TO BE GROUTED/DRYPACKED WILL BE PREPARED BY REMOVING SURFACE LAITANCE WITH A WIRE BRUSH WITH THE EXCEPTION OF THE SLAB @ PLATE NO. 6 WHICH WILL BE ROUGHENED WITH A HILTI DRILL W/ CHISEL TIP.

7. PLATE NO. 7 WILL HAVE AN ADDITIONAL PIECE OF PIPE ATTACHED AT THE NIPPLE PROJECTING UP INTO A DRILLED CAVITY.

OVERHEAD FLUID GROUTING TEST PROGRAM

EXHIBIT B

FIELD EVALUATION OF VOID AREAS

PLATE NO. 1

1. Peripherial bubbles about nipples?

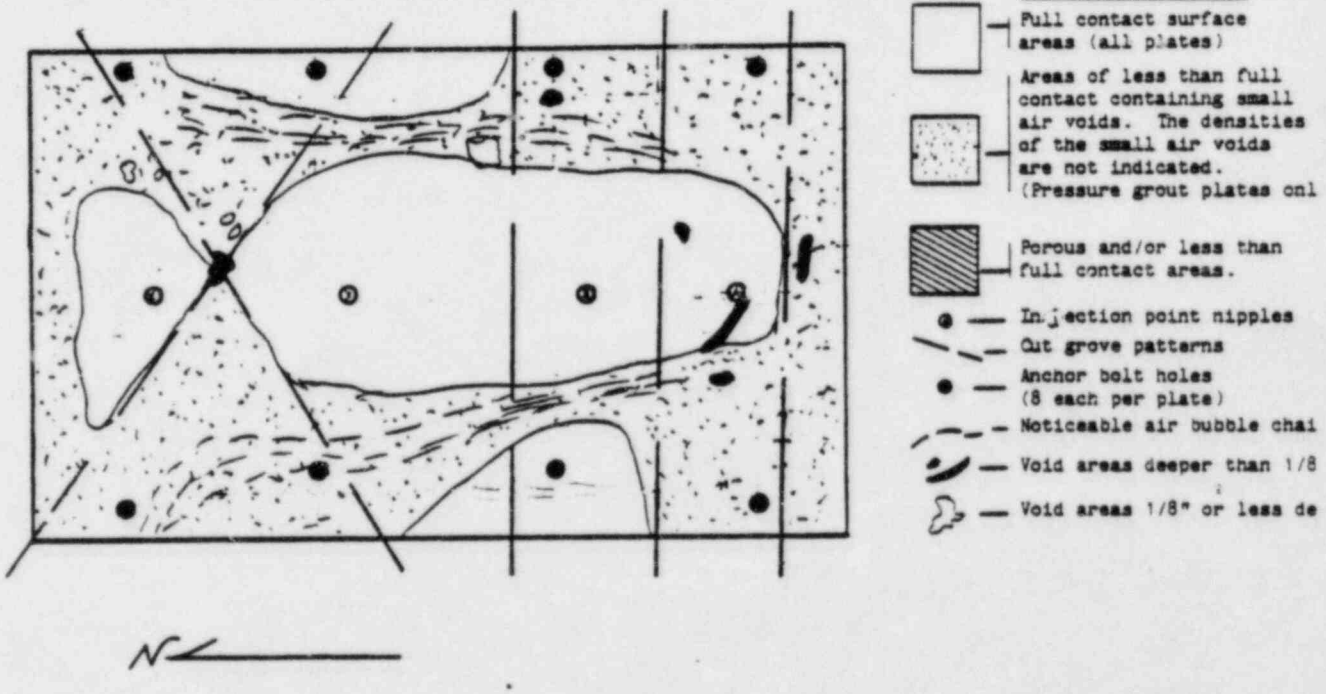
#1 (South)	No (Peripheral bubbles from #2 over hole)	#3	No
#2	Yes - Towards #1	#4 (North)	No

2. Air noted in underslab notch grout projections? Yes

3. Grout leakdown at air vent holes? No, but lead wool hole plugs extending into grout slab 3/4" past plate edge.

4. Noticeable general air bubble pattern? Yes

Visual interpretation sketch (no scale):



5. Calculated void area in excess of 1/4" Ø nominal sizing = 0.9% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

North ½: Poor, (satisfactory), good, excellent
South ½: Poor, (satisfactory), good, excellent

7. General evaluation of test plate: For some reason, this plate has a lot of little air bubbles and they form chains of flow lines. This is by far the worst of the plates (#2, #3, & #4) placed on same day as far as general appearance and numbers of small bubbles are concerned. The cut grooves appear to have had little, if any effect on the pattern of these bubbles. This was the last plate done on this day.

PLATE NO. 2

1. Peripherial bubbles about nipples?

   #1 (South) No #3 No

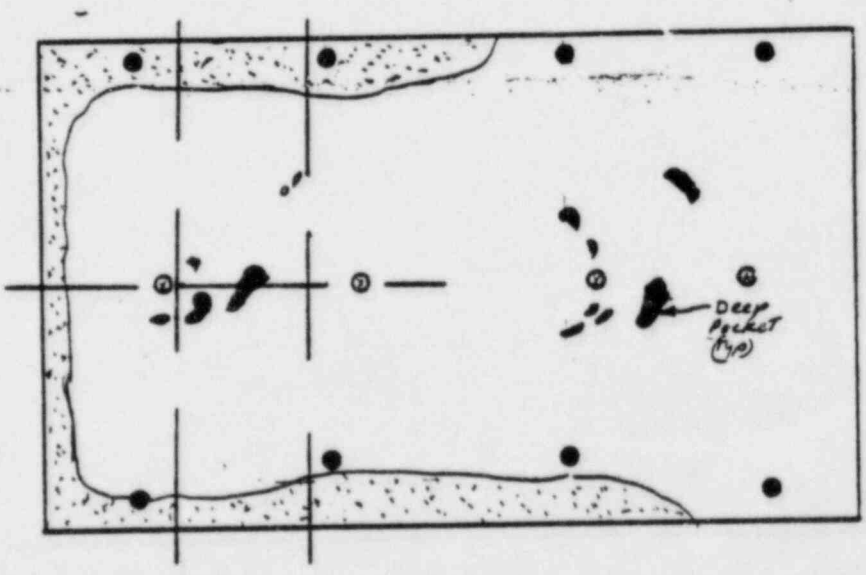
   #2 Yes, Several (one $2\frac{1}{2}$" x $1\frac{1}{2}$") #4 (North) Yes, (two 1" x $\frac{1}{2}$" & $3\frac{1}{2}$" x $\frac{1}{2}$")

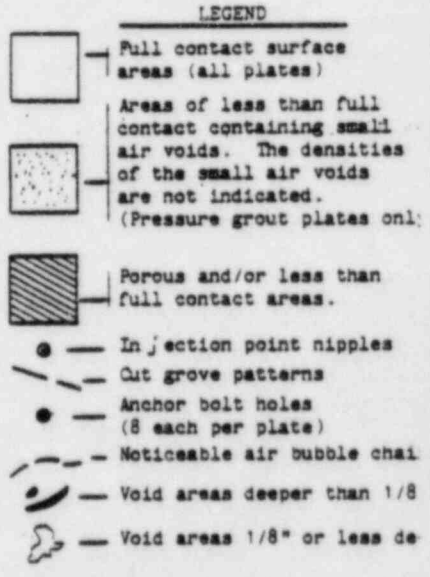
2. Air noted in underslab notch grout projections? Yes, Minor

3. Grout leakdown at air vent holes? n/a
   Leadwool/exp. metal bulkhead

4. Noticeable general air bubble pattern? Yes, minor

Visual interpretation sketch (no scale):





N

5. Calculated void area in excess of 1/4" Ø nominal sizing = .05% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North $\frac{1}{2}$: Poor, satisfactory, (good), excellent
   South $\frac{1}{2}$: Poor, satisfactory, (good), excellent

7. General evaluation of test plate: The grooved end seemed to have more small air bubbles than the non-grooved end. Both ends had several large trapped air pockets. In general, the non-grooved end looked better. Steel plate size should be increased to account for approximately 3/4" to 1"± grout pad loss, due to lead-wool packing.

PLATE NO. 3

1. Peripherial bubbles about nipples?

   #1 (South) No #3 Yes, 4 deep approx. 1½" long

   #2 Yes, one (2½" x 1½") #4 (North) Yes, shallow & minor

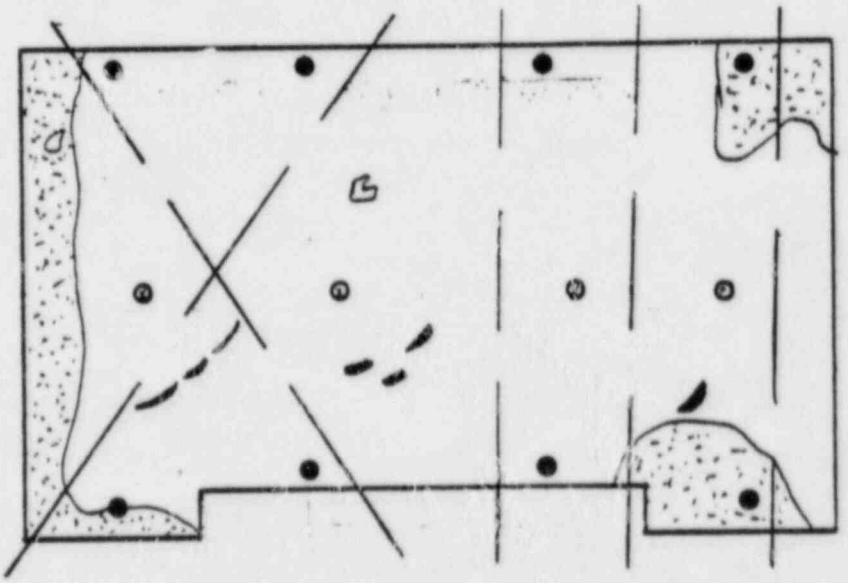
2. Air noted in underslab notch grout projections? Yes, minor

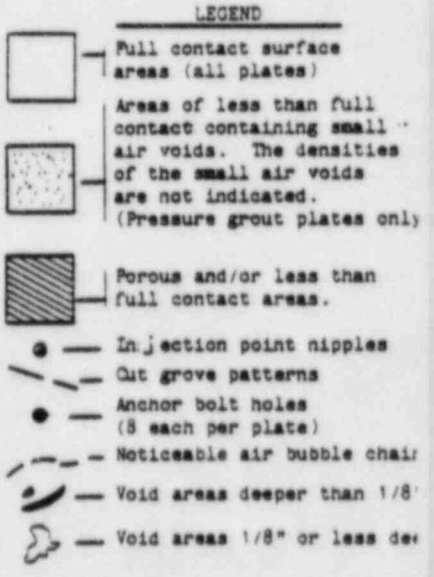
3. Grout leakdown at air vent holes? n/a

   Lead wool/Exp. metal bulkhead

4. Noticeable general air bubble pattern? Yes, minor

Visual interpretation sketch (no scale):





N

5. Calculated void area in excess of 1/4" Ø nominal sizing = 0.7% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North ½: Poor, satisfactory, (good) excellent

   South ½: Poor, satisfactory, (good) excellent

7. General evaluation of test plate: Overall grout/cement contact surface is good; however, the leadwool packing bulkhead undercuts the grout pad so plate size would have to be increased. No noticable difference between the cut groove patterns.

PLATE NO. 4

1. Peripherial bubbles about nipples?

   #1 (South) No #3 No

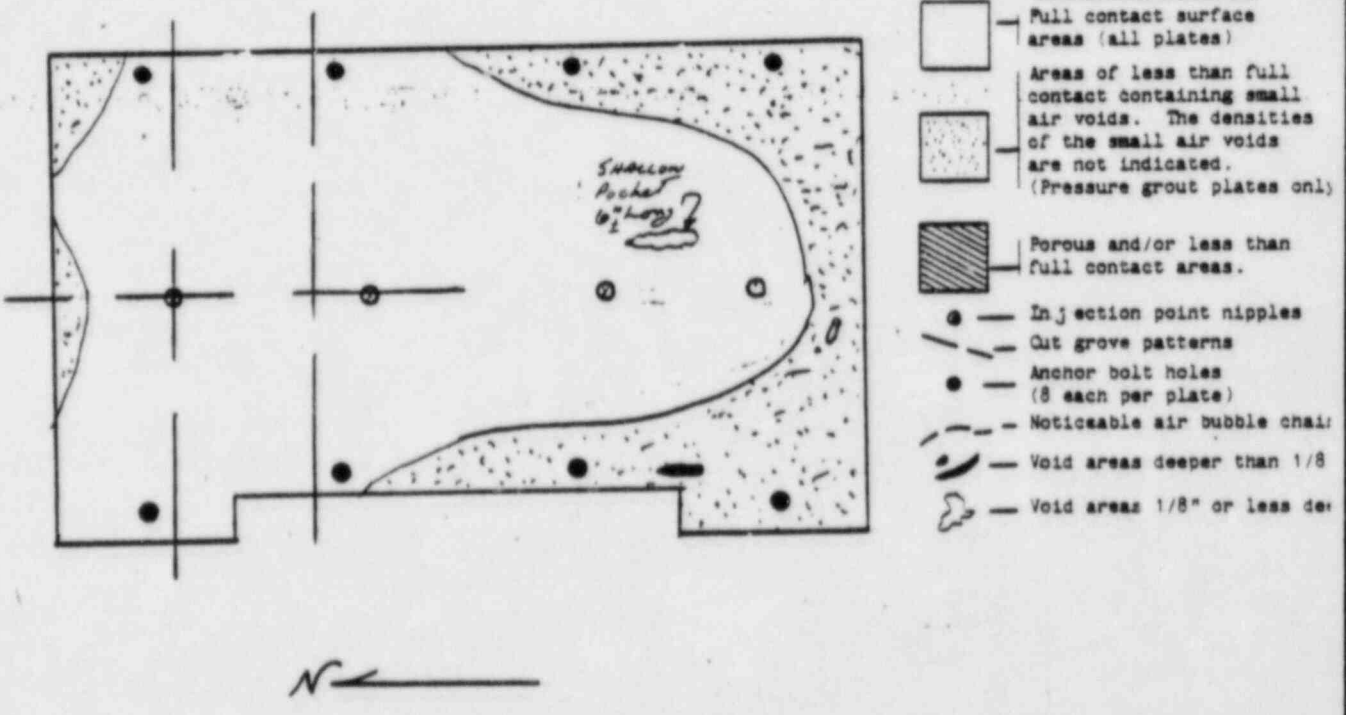
   #2 No #4 (North) Yes, one

2. Air noted in underslab notch grout projections? Yes

3. Grout leakdown at air vent holes? No, one wood plug too deeply inserted, though.

4. Noticeable general air bubble pattern? Yes

Visual interpretation sketch (no scale):



5. Calculated void area in excess of 1/4" Ø nominal sizing = 1.2% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North ½: Poor, satisfactory, (good) excellent

   South ½: Poor, satisfactory, (good) excellent

7. General evaluation of test plate: The wooden bulkhead with wooden grout hole plugs seem to have worked quite well. No major advantages noted for grooved half.

PLATE NO. 5 - Masterflow #713 Drypack

1. Peripherial bubbles about nipples?

   #1 (South) n/a #3 n/a

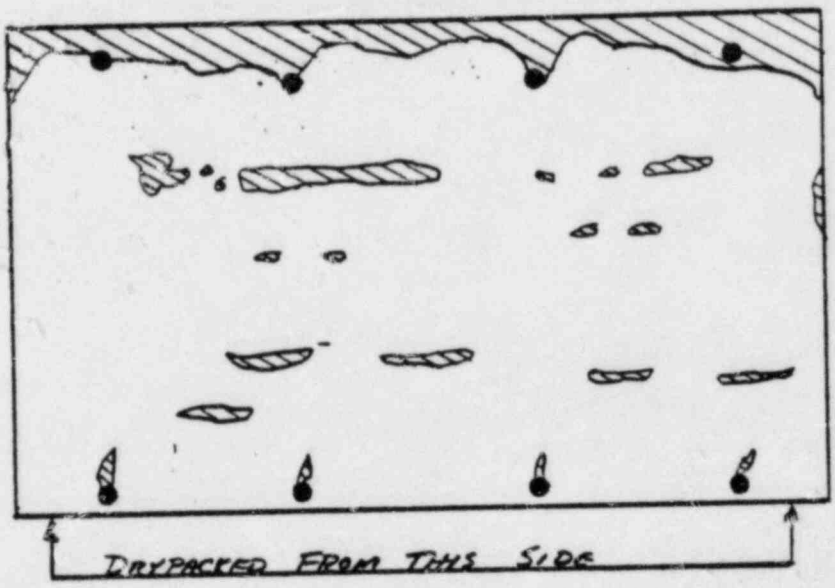
   #2 n/a #4 (North) n/a

2. Air noted in underslab notch grout projections? n/a

3. Grout leakdown at air vent holes? n/a

4. Noticeable general void pattern? Yes

Visual interpretation sketch (no scale):



LEGEND

- Full contact surface areas (all plates)
- Areas of less than full contact containing small air voids. The densities of the small air voids are not indicated. (Pressure grout plates onl
- Porous and/or less than full contact areas.
- Injection point nipples
- Cut grove patterns
- Anchor bolt holes (8 each per plate)
- Noticeable air bubble chai
- Void areas deeper than 1/8
- Void areas 1/8" or less de

5. Calculated void area in excess of 1/4" Ø nominal sizing = 14.0% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North ½: (Poor) satisfactory, good, excellent
   South ½: Poor, (satisfactory) good, excellent

7. General evaluation of test plate: General appearance of concrete/ grout contact surface is lesser than the worst fluid pumped grout test plate.

PLATE NO. 5A - Masterflow #713 Drypack

1. Peripherial bubbles about nipples?

   #1 (South) n/a #3 n/a

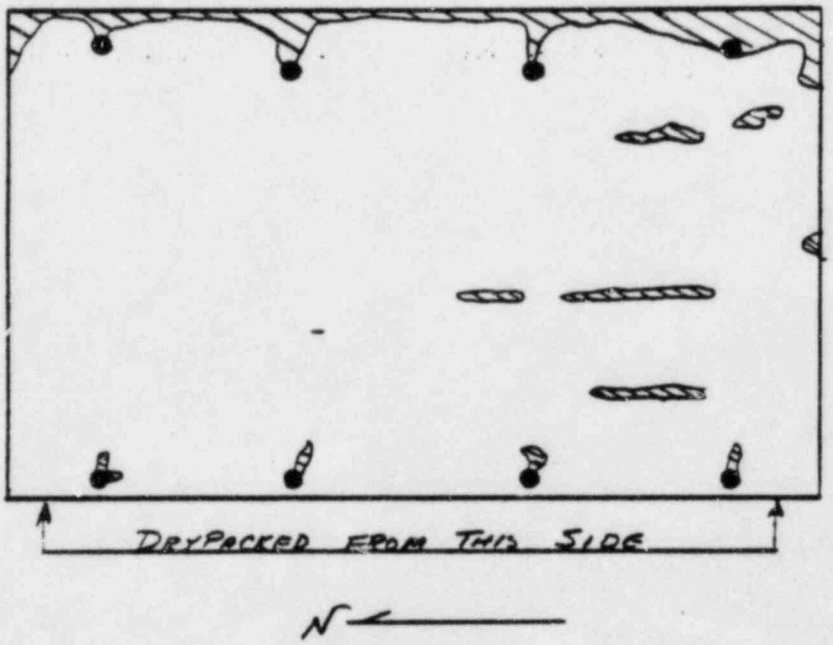
   #2 n/a #4 (North) n/a

2. Air noted in underslab notch grout projections? n/a

3. Grout leakdown at air vent holes? n/a

4. Noticeable general void pattern? Yes

Visual interpretation sketch (no scale):



LEGEND

- Full contact surface areas (all plates)
- Areas of less than full contact containing small air voids. The densities of the small air voids are not indicated. (Pressure grout plates onl
- Porous and/or less than full contact areas.
- Injection point nipples
- Cut grove patterns
- Anchor bolt holes (8 each per plate)
- Noticeable air bubble chai
- Void areas deeper than 1/8
- Void areas 1/8" or less de

5. Calculated void area in excess of 1/4" Ø nominal sizing = 7.0% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North ½: Poor, satisfactory, (good), excellent
   South ½: Poor, (satisfactory) good, excellent

7. General evaluation of test plate: General appearance of contact surface is not as good as best pumped grout test plate, but as good as the worst.

PLATE NO. 5B - Sand/Cement Drypack

1. Peripherial bubbles about nipples?

   #1 (South) n/a #3 n/a

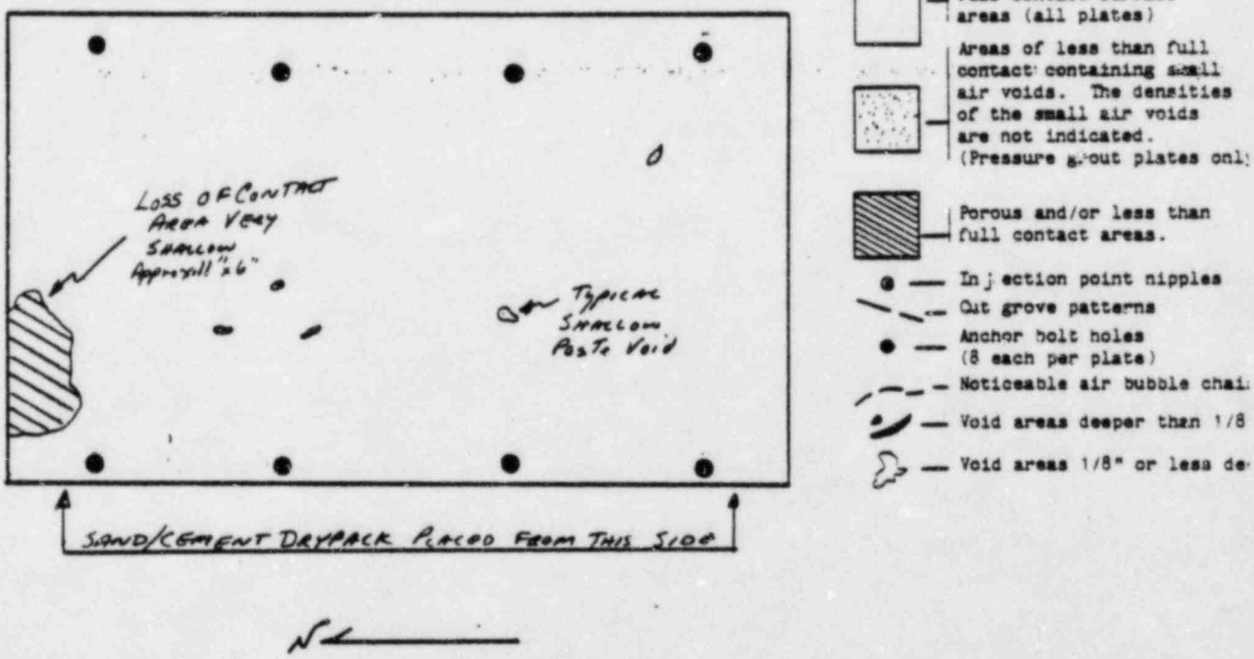
   #2 n/a #4 (North) n/a

2. Air noted in underslab notch grout projections? n/a

3. Grout leakdown at air vent holes? n/a

4. Noticeable general void pattern? No

Visual interpretation sketch (no scale):



5. Calculated void area in excess of 1/4" Ø nominal sizing = 2.49% percent of surface area. Neglecting lost contact area = 0.1%

6. General quality evaluation of grout/concrete contact area.

   North ½: Poor, satisfactory, (good), excellent

   South ½: Poor, satisfactory, good, (excellent)

7. General evaluation of test plate: Good sound plate, most voids were in surface paste only. Test plate was solid, however, it appears that some, if not all of the West side anchor bolts have slipped some in the final stages of packing. Basic grout pad thickness is 1½", but West face is 1 3/4" at N&S ends and 2" at midpoint. This is probably when large lost contact area was developed.

PLATE NO. 6

1. Peripherial bubbles about nipples?

   #1 (South) n/a #3 n/a

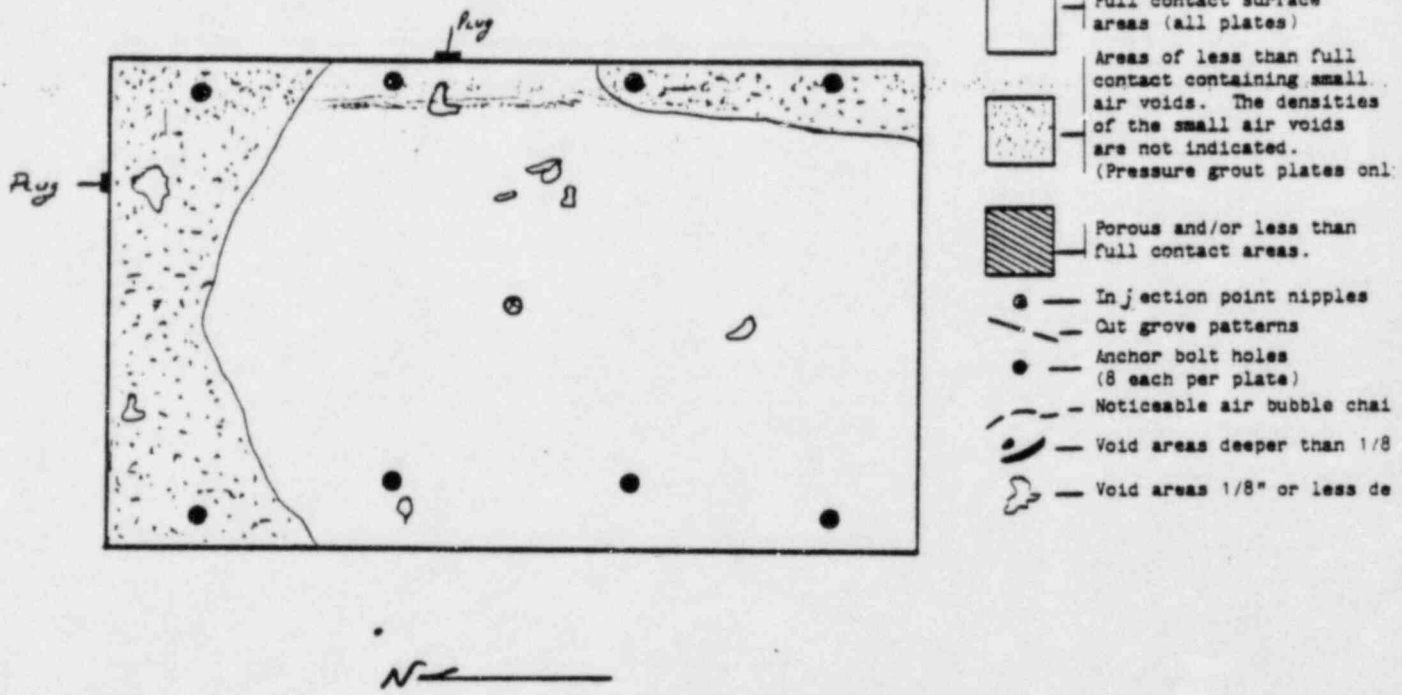
   #2 n/a #4 (North) n/a

2. Air noted in underslab notch grout projections? n/a

3. Grout leakdown at air vent holes? Yes, at 2 locations, both are lead wool plugs (3" x 2") at North end east plug & 1½" x ½" at East side north middle plug , both are shallow depressions.

4. Noticeable general air bubble pattern? Yes, minor

Visual interpretation sketch (no scale):



5. Calculated void area in excess of 1/4" Ø nominal sizing = 0.8% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North ½: Poor, satisfactory, (good) excellent
   South ½: Poor, satisfactory, (good) excellent

7. General evaluation of test plate: The scarrified contact surface is so irregular that it is hard to evaluate with grooved and non-grooved test plates. Again, the lead wool grout plugs penetrate into grout slab at approximately 3/4". Overall evaluation is that this appears to be one of the better looking less flawed test plates.

PLATE NO. 7

1. Peripherial bubbles about nipples?

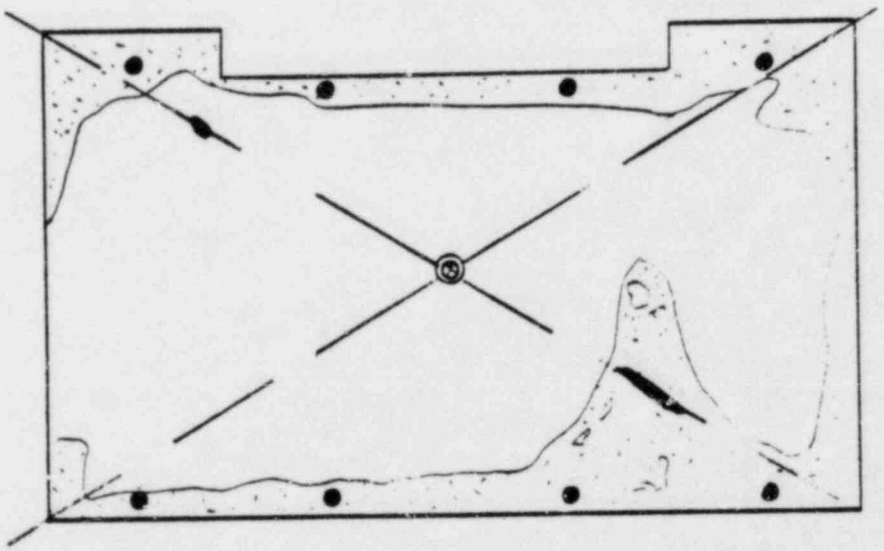
#1 (South)	n/a	#3	n/a
#2	No	#4 (North)	n/a

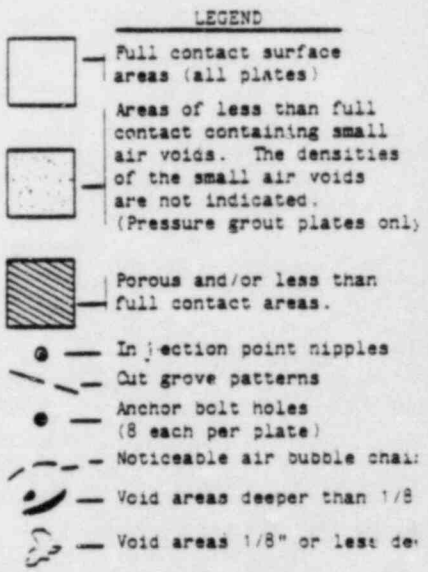
2. Air noted in underslab notch grout projections? Yes

3. Grout leakdown at air vent holes? No

4. Noticeable general air bubble pattern? Yes, minor

Visual interpretation sketch (no scale):





N

5. Calculated void area in excess of 1/4" Ø nominal sizing = 0.5% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

North ½: Poor, satisfactory, (good) excellent
South ½: Poor, satisfactory, (good) excellent

7. General evaluation of test plate: The expansion bolts on the East side appear to have pulled or never were snug at 1½". Grout pad thickness increased up to 2½" nominally. Overall evaluation is as good as plate #6. No advantage noted due to fountain or cut grooves.

PLATE NO. 8

1. Peripherial bubbles about nipples?

   #1 (South) n/a #3 n/a

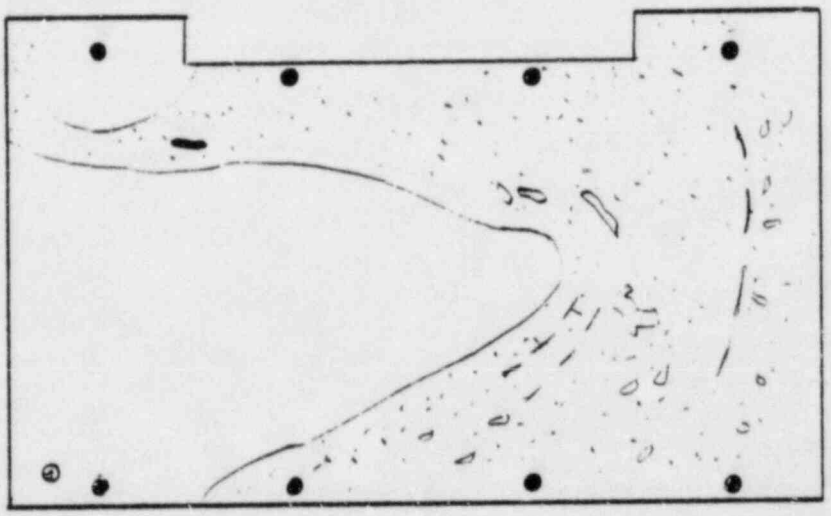
   #2 n/a #4 (North) No, (in West corner)

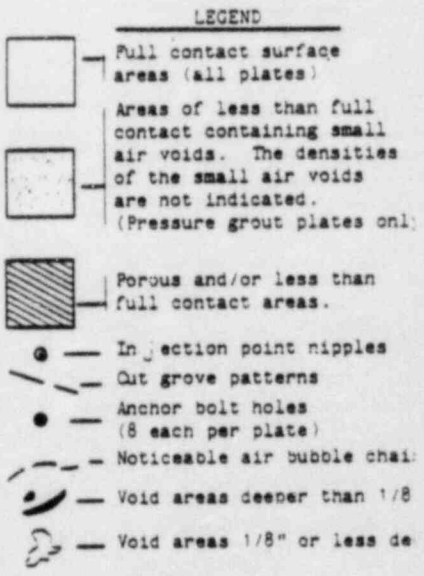
2. Air noted in underslab notch grout projections? n/a

3. Grout leakdown at air vent holes? No

4. Noticeable general air bubble pattern? Yes

Visual interpretation sketch (no scale):





N

5. Calculated void area in excess of 1/4" Ø nominal sizing = 0.9% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North ½: Poor, satisfactory, (good), excellent

   South ½: Poor, (satisfactory), good, excellent

7. General evaluation of test plate: General condition evaluation is that this plate is no worse than plate #1. One injection nipple in the corner gives a lesser quality product than one in the middle of the plate.

OVERHEAD FLUID GROUTING TEST PROGRAM

EXHIBIT C

LABORATORY TEST DATA

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220

REPORT OF NON-SHRINK GROUT TESTS

INFORMATION

TEST ONLY

1. Placement Identification: NON-Q (TRAINING)	Lot No.: *B2662Q3	Exp. Date: 9-84	2. Date Placed: 6-28-83	
3. Placement Location: POSEYVILLE LAY DOWN AREA				
3A. PLANT DATA — Source: MELCENTIME HANDMIXER	Grout Brand & Type: MASTERBUILDERS MASTERFLOW 713 FLOW GROUT			
4. Mix: 713 Flow Grout	5. Class: II	6. "Q" List: ☐ Yes ☒ No	7. Required Strength: 4000 PSI At 28 Days	
8. Test Data At: @ HANDMIXER IN POSEYVILLE LAY DOWN AREA	9. Stopwatch: 695	Calibration Date: 11-3-83		
10. Flow Data CRD 611-80 Time of Efflux (Sec.) No. 1: 19.1 No. 2: 27.1 No. 3: 31.1 Average: 25.8 Sec	11. Flowcone: 498	Calibration Date: 7-22-83		
12. Thermometer: 211	Calibration Date: 9-5-83	13. Temp.: Grout: 61 °F	14. Temp.: Air: 67 °F	15. Initials: LH SF 6-28-83
16. Initial Curing Thermometer: 790	Calib. Date: 10-26-83	17. Time of Testing: 1331 Hrs at 1 Bags	18. Time of Molding: 1343 Hrs	
19. Initial Curing ~~ASTM-C-31-80~~ SF 6-28-83: 71 °F To 77 °F	20. Stripped ASTM-C109-75: 6-29-83 At 1135 Hrs	21. Initials: SF 6-29-83		

COMPRESSIVE STRENGTH DATA ASTM-C-109-75

22. Specimen Identification	23. Date Molded	24. Date Tested	25. Age	26. Total Load in Pounds	27. Actual Cube Dim.	28. Actual Cube Area	29. Type of Break	30. Cure: Field	30. Cure: Lab	31. Strength PSI
G164 – 2491	6-29-83	7-1-83	3	16,750	2x2	4.0	A	1	2	4,188
2492			3	16,450	2x2	4.0	A	1	2	4,112
2493			3	16,450	2x2	4.0	A	1	2	4,112
Average		7-1-83	3							4,170 ~~4110~~ SF 7-1-83
2494		7-5-83	7	25,200	2x2	4.0	A	1	6	6,300
2495			7	26,150	2x2	4.0	A	1	6	6,538
2496			7	26,300	2x2	4.0	A	1	6	6,575
G164 Average	6-29-83	7-5-83	7							6,470

32. Specimen Size: ☒ 2" x 2" Cube ☐ Other

37. Remarks: * NON-ACCEPTED GROUT

33. Age (Days)	34. Tested By	35. Checked By	36. Reviewed by Q.C.
3	RZ	RTB 7-1-83 SF 7-2-83	
7	(RTB) KK	RTB 7-5-83 SF 7-6-83	

38. Laboratory Supervisor Signature: | 39. Date:

Type of Breaks: A-Cone, Mortar Failure C-Shear, Mortar Failure E-Other

QCF-74 Rev. 1

G-0213-1

UNITED STATES TESTING COMPANY, INC.

TRAINING - INFO ONLY!

CEMENT LOCATION: POSEYVILLE LAYDOWN AREA DATE 6-28-83

CEMENT IDENTIFICATION: NON "Q" TRAINING GROUT TYPE: MASTER BUILDERS 713 FLOW GROUT MASTER FLOW

FLOW DATA CRD-C-611-80/QCP-18

Test Number #	1	2	3	4
Set Number #	LH 6-28-83 AM G-164	G-164		
Time of Sample	1312	1331		
Ambient Temperature (°F)	71	67		
Grout Bag Temperature (°F)	75	75		
Water Temperature (°F)	66	44		
Mix Temperature (°F)	73	61		
Flow Data				
First (sec.)	22.8	19.1		
Second (sec.)	42.4	27.1		
Third (sec.)	*	31.1		
. (sec.)		25.8		
Tested By	SF, LH 6-28-83	SF, LH 6-28-83		

Equipment Data	M & TE Number	Calibration Due Date
Flow Cone	498	7-22-83
Thermometer	211	9-5-83
Stopwatch	695	11-3-83

Lot Number: B2662Q3 Expiration Date: 9-84 IR No. N/A

Struck off @ 1435 Hrs. on 6-28-83, after initial set.

Workability ended @ N/A Hrs. on N/A

Remarks:

"NON-ACCEPTED" GROUT

* BROKE EARLY

mold Q 1343

INFORMATION

TEST ONLY

Checked by: SF

Date: 6-29-83

MEI 123W 6-3-83

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220

REPORT OF NON-SHRINK GROUT TESTS

) INFORMATIO...
TEST ONLY

1. Placement Identification: NON "Q" -- TRAINING	Lot No.: B266203 Exp. Date: 9-84	2. Date Placed: 6-29-83	
3. Placement Location: POSEYVILLE LAYDOWN AREA			
3A. PLANT DATA — Source: MERGENTIME HAND MIXER		Grout Brand & Type: MASTER BUILDERS MASTERFLOW 713 FLOW GROUT	
4. Mix: 713 FLOW GROUT	5. Class: II	6. "Q" List: ☐ Yes ☑ No	7. Required Strength: 4000 PSI At 28 Days
8. Test Data At: MERGENTIME HANDMIXER POSEYVILLE LAYDOWN AREA		9. Stopwatch: 695	Calibration Date: 11-3-83
10. Flow Data CRD 611-80 Time of Efflux (Sec): No. 1 18.5 No. 2 24.7 No. 3 29.3 Average 24.2 Sec		11. Flowcone: 498	Calibration Date: 7-22-83
12. Thermometer: 211	Calibration Date: 9-5-83	13. Temp.: Grout: 63 °F	14. Temp.: Air: 78 °F — 15. Initials: SF, LH 6-29-83
16. Initial Curing Thermometer: 783	Calib. Date: 12-16-83	17. Time of Testing: 1307 Hrs at 1 Bags	18. Time of Molding: 1320 Hrs
19. Initial Curing ~~ASTM-C-31-68~~ LH 6-29-83: 74 °F To 78 °F		20. Stripped ASTM-C109-75: 6-30-83 At 1025 Hrs	21. Initials: SF 6-30-83

COMPRESSIVE STRENGTH DATA ASTM-C-109-75

22. Specimen Identification	23. Date Molded	24. Date Tested	25. Age	26. Total Load in Pounds	27. Actual Cube Dim.	28. Actual Cube Area	29. Type of Break	30. Cure: Field	30. Cure: Lab	31. Strength PSI
G-166 2515	6-29-83	7-2-83	3	14,475	2x2	4.0	A	1	2	3,619
2516	1	1	3	14650	2x2	4.0	A	1	2	3,662
2517			3	14,475	2x2	4.0	A	1	2	3,619
G-166 Average	6-29-83	7-2-83	3							3,630
2518	1	7-6-83	7	25,000	2x2	4.0	A	1	6	6250
2519		1	7	23,000	2x2	4.0	A	1	6	5,750
2520			7	23,500	2x2	4.0	A	1	6	5,875
G-166 Average	6-29-83	7-6-83	7							5,960

32. Specimen Size: ☒ 2" x 2" Cube ☐ Other

37. Remarks: * NON-ACCEPTED GROUT

33. Age (Days)	34. Tested By	35. Checked By	36. Reviewed by Q.C.
3	PB	PB 7-6-83 SF 7-7-83	
7	KD	NS 7-8-83 SF 7-7-83	

38. Laboratory Supervisor Signature | 39. Date

G/M-0213-1

Type of Breaks: A-Cone, Mortar Failure C-Shear, Mortar Failure E-Other

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UNITED STATES TESTING COMPANY, INC.

INFORMATION TEST ONLY

CEMENT LOCATION: POSEYVILLE LAYDOWN AREA DAT

CEMENT IDENTIFICATION: NON "Q" TRAINING GROUT TYPE: MASTER BUILDERS 713 FLOW GROUT / MASTER FLOW

FLOW DATA CRD-C-611-80/QCP-18

Test Number #	1	2	3	4
Set Number #	G-166			
Time of Sample	1307			
Ambient Temperature (°F)	78			
Grout Bag Temperature (°F)	74			
Water Temperature (°F)	46			
Mix Temperature (°F)	63			
Flow Data				
First (sec.)	18.5			
Second (sec.)	24.7			
Third (sec.)	29.3 -			
Fourth (sec.)	24.2 -			
Tested By	SF, LH 6-29-83			

Equipment Data	M & TE Number	Calibration Due Date
Flow Cone	498	7-22-83
Thermometer	211	9-5-83
Stopwatch	695	11-3-83

Lot Number: *B2662 03 Expiration Date: 9-84 IR No. N/A

Struck off @ 1400 Hrs. on 6-29-83, after initial set.

Workability ended @ N/A Hrs. on N/A

Remarks:

*"NON-ACCEPTED" GROUT

4000 PSI @ 28 DAYS

molded @ 1320

Checked by: SF

Date: 6-30-83 7-6-83

MEI 123W 6-3-83

INFORMATION

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220

REPORT OF NON-SHRINK GROUT TESTS

TEST ONLY

1. Placement Identification: NON "Q" – TRAINING	Lot No.: B246202 *	Exp. Date: 9-84	2. Date Placed: 6-29-83	
3. Placement Location: POSEYVILLE LAYDOWN AREA				
13A. PLANT DATA	Source: MERGENTIME HAND MIXED		Grout Brand & Type: MASTER BUILDERS MASTERFLOW 713 DRYPACK	
4. Mix: 713 DRY PACK	5. Class: II	6. "Q" List: ☐ Yes ☑ No	7. Required Strength: 4000 PSI At 28 Days	
8. Test Data At: MERGENTIME HANDMIXED POSEYVILLE LAYDOWN AREA		9. Stopwatch: N/A	Calibration Date: N/A	
10. Flow Data CRD 611-80 Time of Efflux (Sec): No. 1 N/A No. 2 N/A No. 3 N/A Average N/A Sec			11. Flowcone: N/A	Calibration Date: N/A
12. Thermometer: 211	Calibration Date: 9-5-83	13. Temp.: Grout: 87 °F	14. Temp.: Air: MIX 82 / PLACEMENT 77 °F	15. Initials: SF, LH 6-29-83
16. Initial Curing Thermometer: 758	Calib. Date: 9-22-83	17. Time of Testing: 1442 Hrs at 1 Bags	18. Time of Molding: 1444 Hrs	
19. Initial Curing ASTM-C-31-69: ____ °F To ____ °F		20. Stripped ASTM-C109-75: ____ At ____ Hrs	21. Initials	

COMPRESSIVE STRENGTH DATA ASTM-C-109-75 TAMPER: 741 / 8-3-83

22. Specimen Identification	23. Date Molded	24. Date Tested	25. Age	26. Total Load in Pounds	27. Actual Cube Dim.	28. Actual Cube Area	29. Type of Break	30. Cure: Field	30. Cure: Lab	31. Strength PSI
G-168F 2539	6-29-83	7-2-83	3	35,150	2x2	4.0	A	3	0	8788
2540	1	1	3	35,100	2x2	4.0	A	3	0	8,775
2541			3	35,150	2x2	4.0	A	3	0	8,788
G-168F Average	6-29-83	7-2-83	3							8,780
2542	1	7-6-83	7	39,000	2x2	4.0	C	7	0	9,750
2543		1	7	39,500	2x2	4.0	C	7	0	9,875
2544			7	37,000	2x2	4.0	C	7	0	9,250
G-168F Average	6-29-83	7-6-83	7							9,630

32. Specimen Size: ☒ 2" x 2" Cube ☐ Other

37. Remarks: * "NON-ACCEPTED GROUT"

33. Age (Days)	34. Tested By	35. Checked By	36. Reviewed by Q.C.	
3	LH	D 7-6-83 SF 7-5-83		@ DURING 6-30-83 SPECIMEN PICK UP OF 2&4 HOLD MOLDS WERE MOLDS USED COVERING MOLDS REPLACED SINCE THEY WERE REMOVED BY SOMEONE AFTER MIXING
7	BW	D 7-9-83 SF 7-7-83		
				38. Laboratory Supervisor Signature / 39. Date

Type of Breaks: A-Con Mortar Failure C-Shear. Mortar Failure E-Other

QCF-74 Rev. 1

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220

REPORT OF NON-SHRINK GROUT TESTS

INFORMATION
TEST ONLY

1. Placement Identification: NON "Q" — TRAINING. Lot No.: * B2474P3 Exp. Date: 8-84				2. Date Placed: 7-1-83
3. Placement Location: POSEYVILLE LAYDOWN AREA				
3A. PLANT DATA	Source: HAND MIXED BY MERGENTIME		Grout Brand & Type: MASTER BUILDERS MASTERFLOW 713 DRYPACK	
4. Mix: 713 DRYPACK	5. Class: II	6. "Q" List: ☐ Yes ☒ No	7. Required Strength: 4000 PSI At 28 Days	
8. Test Data At: HAND MIXED BY MERGENTIME POSEYVILLE LAYDOWN AREA		9. Stopwatch: N/A	Calibration Date: N/A	
10. Flow Data CRD 611-80 Time of Efflux (Sec): No. 1 N/A No. 2 N/A No. 3 N/A Average N/A Sec			11. Flowcone: N/A	Calibration Date: N/A
12. Thermometer: 211	Calibration Date: 9-5-83	13. Temp.: Grout: 77 °F	14. Temp.: Air: MIX 70 / PLACEMENT 78 °F	15. Initials: 7-1-83 SF, LH
16. Initial Curing Thermometer: 779	Calib. Date: 10-26-83	17. Time of Testing: 1020 Hrs at 1 Bags		18. Time of Molding: 1022 Hrs
19. Initial Curing ASTM-C-31-68: 67 °F To 81 °F		20. Stripped ASTM-C109-75: 7-2-83 At 1442 Hrs		21. Initials: SF 7-2-83

COMPRESSIVE STRENGTH DATA ASTM-C-109-75 TAMPER: 741 / 8383

22. Specimen Identification	23. Date Molded	24. Date Tested	25. Age	26. Total Load in Pounds	27. Actual Cube Dim.	28. Actual Cube Area	29. Type of Break	30. Cure: Field	30. Cure: Lab	31. Strength PSI
G-171F 2563	7-1-83	7-4-83	3	33,000	2x2	4.0	A	3	0	8,250
2564	〃	〃	3	31,250	2x2	4.0	A	3	0	7,812
2565	〃	〃	3	30,250	2x2	4.0	A	3	0	7,562
G-171F Average	7-1-83	7-4-83	3							7,870
2566	〃	7-8-83	7	33,500	2x2	4.0	A	7	0	8,375
2567	〃	〃	7	33,500	2x2	4.0	A	7	0	8,375
2568	〃	〃	7	33,500	2x2	4.0	A	7	0	8,375
G-171F Average	7-1-83	7-8-83	7							8,380

32. Specimen Size: ☒ 2" x 2" Cube ☐ Other

37. Remarks: * "NON-ACCEPTED" GROUT

33. Age (Days)	34. Tested By	35. Checked By	36. Reviewed by Q.C.
3	PB	RS 7-6-83 SF 7-5-83	
7	RTB	RS 7-12-83 SF 7-11-83	

38. Laboratory Supervisor Signature: | 39. Date:

Type of Breaks: A-Cone, Mortar Failure C-Shear, Mortar Failure E-Other

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF NON-SHRINK GROUT TESTS

INFORMATION TEST ONLY

1. Placement Identification: Mergentime Training — Lot No.: NA — Exp. Date: NA
2. Date Placed: 7-6-83
3. Placement Location: Poseyville Laydown Area

3A. PLANT DATA — Source: Mergentime Hand Mix — Grout Brand & Type: AETNA Type I Cement and Sand

4. Mix: Cement/Sand Dry Pack
5. Class: II
6. "Q" List: ☐ Yes ☑ No
7. Required Strength: 4000 PSI At 28 Days
8. Test Data At: Poseyville Laydown Area Mergentime
9. Stopwatch: NA — Calibration Date: NA
10. Flow Data CRD 611-80 Time of Efflux (Sec): No. 1 NA No. 2 NA No. 3 NA Average NA Sec
11. Flowcone: NA — Calibration Date: NA
12. Thermometer: 211 — Calibration Date: 9-5-83
13. Temp.: Grout 70 °F
14. Temp.: Air min 75 placement 78 °F
15. Initials: KH BW 7-6-83
16. Initial Curing Thermometer: 256 — Calib. Date: 9-22-83
17. Time of Testing: 1835 Hrs at 1 Bags
18. Time of Molding: 1835 Hrs
19. Initial Curing ~~ASTM-C-31-69~~ ASTM-C-31-64 BW 7-6-83: 58 °F To 82 °F
20. Stripped ASTM-C109-75: 7-7-83 At 11:05 Hrs
21. Initials: KH BW 7-7-83

COMPRESSIVE STRENGTH DATA ASTM-C-109-75 — Tamper 241 8-3-83; #4 Sieve 239 9-18-83

22. Specimen Identification	23. Date Molded	24. Date Tested	25. Age	26. Total Load in Pounds	27. Actual Cube Dim.	28. Actual Cube Area	29. Type of Break	30. Cure Field	Lab	31. Strength PSI
G-184F 2692	7-6-83	7-9-83	3	35,500	2x2	4.0	A	3	0	8,875
2693	|	|	|	36,500	2x2	4.0	A	3	0	9,125
2694	|	|	|	~~35,500~~ 35000 (4 7-?-83)	2x2	4.0	A	3	0	8,750
Average		7-9-83	3							8,920
2695		7-13-83	7							
2696	|	|	|							
2697	|	|	|							
G-184F Average	7-6-83	7-13-83	7							

32. Specimen Size: ☑ 2" x 2" Cube ☐ Other

37. Remarks

33. Age (Days)	34. Tested By	35. Checked By	36. Reviewed by Q.C.
3	KH	BW 7-12-83 / JF 7-?-83	

38. Laboratory Supervisor Signature — 39. Date

Type of Breaks: A-Cone. Mortar Failure C-Shear. Mortar Failure E-Other

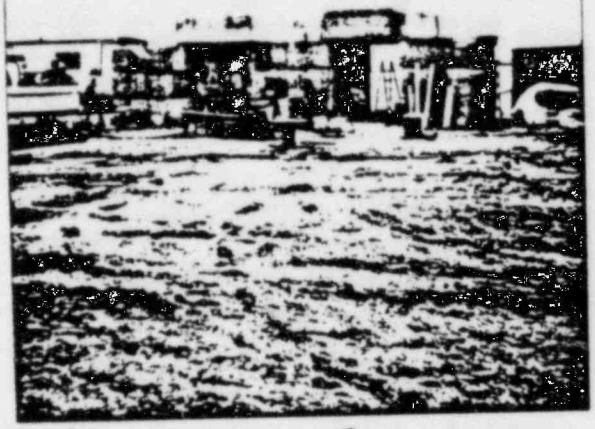
QCF-74 Rev. 1

OVERHEAD FLUID GROUTING TEST PROGRAM

EXHIBIT D

PHOTOGRAPHICS

#1 N



6/28/83 GROUTING TEST SITE @ POSEYVILLE YARD.

#2 N

6/28/83 GROUT MIX STATION FOR TEST RATES #1 THRU #4 POSEYVILLE YARD

#3 N

6/28/83 U.S. TESTING - FLOW CONE SETUP FOR TEST RATES #1 THRU #4 ONE SUCCESSFULL TEST TAKEN FOR ALL RATES PER MCP1600 SECT. 11.2

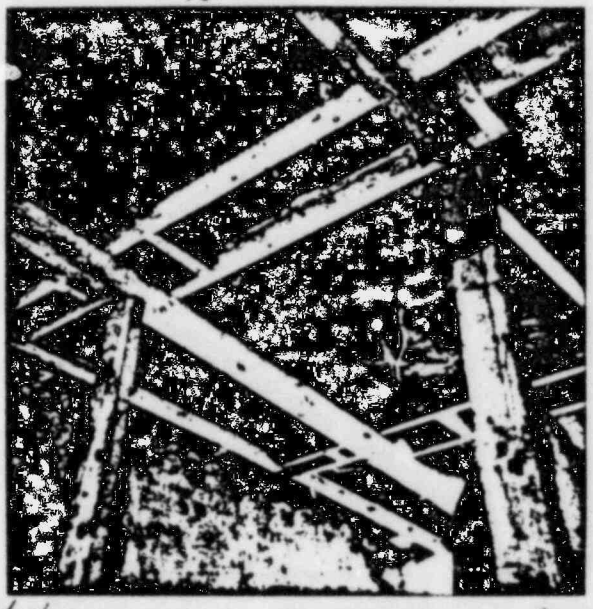
#4 N

6/28/83 GROUT PUMP SET UP
PUMP = FAIRLACO MODEL #HG-5, S.N. - 82112, PRESSURE GAGE 0-60PSI 2½"Ø DIAL
ALL APPEAR TO BE IN GOOD CONDITION.

N ← #5

6/28/83 GROUTING TEST SITE NORTH BAY (RATES #1—#4)
LOOKING EAST SHOWING WIND BREAK ON FAR END AND BULKHEAD WITH BRACING

N ← #1



6/28/83 WOODEN BULKHEAD AT RATES #2 & #3. BOTH WITH LEAD WOOL/EXP. METAL BEHIND

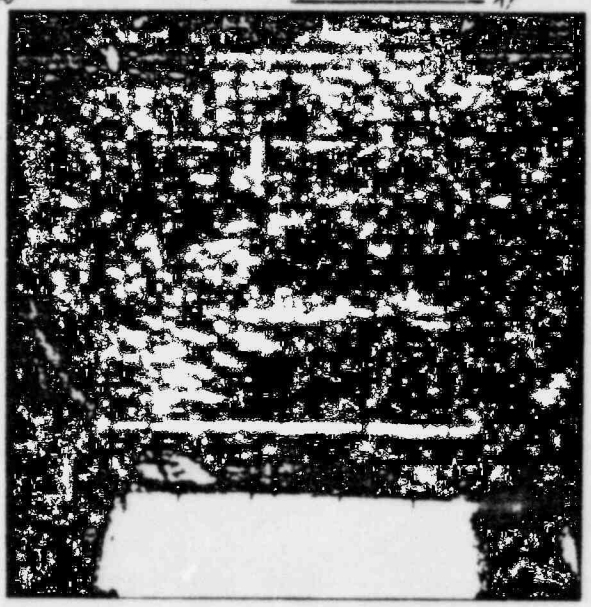
#7 → N

6/28/83 TYPICAL GROUT NIPPLE SET-UP WITH C.P. COUPLING, PIPE NIPPLE, VALVE and WELDED NIPPLE. (SHOWN @ RATE No. 4)

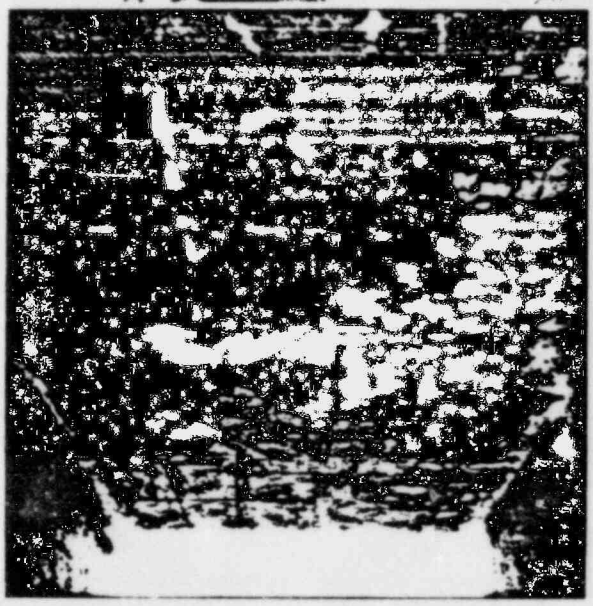
#8 → N

6/28/83 WOOD BULKHEAD WITH AIR VENTS PLUGGED @ EAST SIDE OF RATE No. 4. RATES SUPPORTED BY ANCHOR BOLTS ONLY

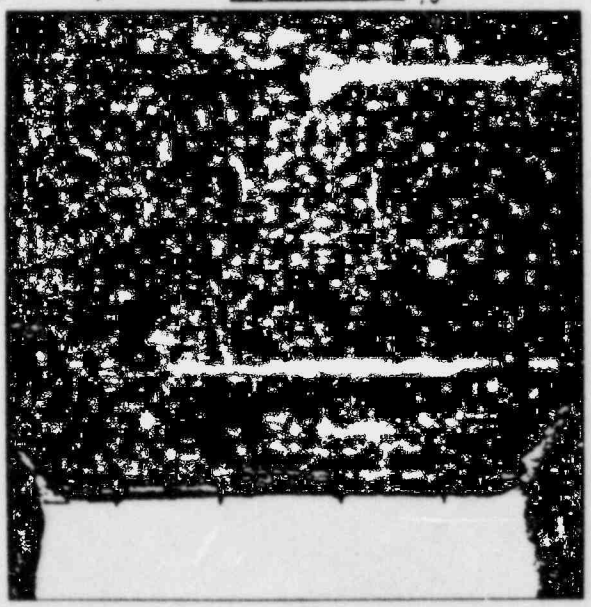
3



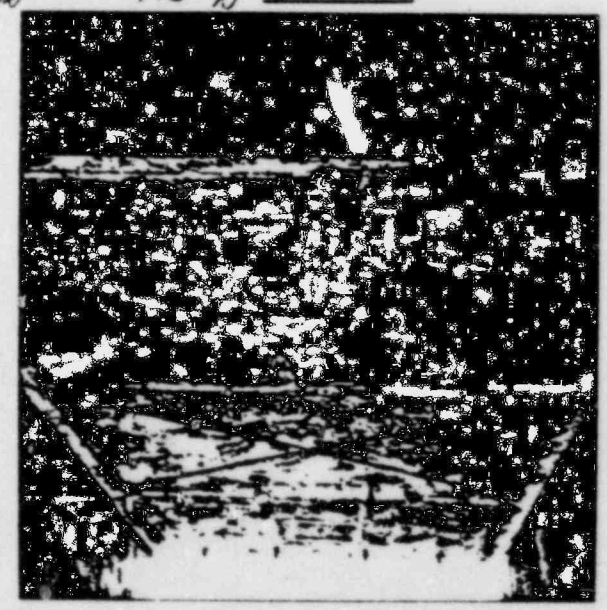
7/2/83 North Bay underslab looking West. Cut Groove patterns visable.



7/2/83 North Bay underslab looking East. Cut Groove patterns visable



7/2/83 South Bay underslab looking West. Scarified Pad #6 and Drypack Pad #5(BSN) at far end



7/2/83 South Bay underslab looking East. Scarified and cut grooves visable.

1

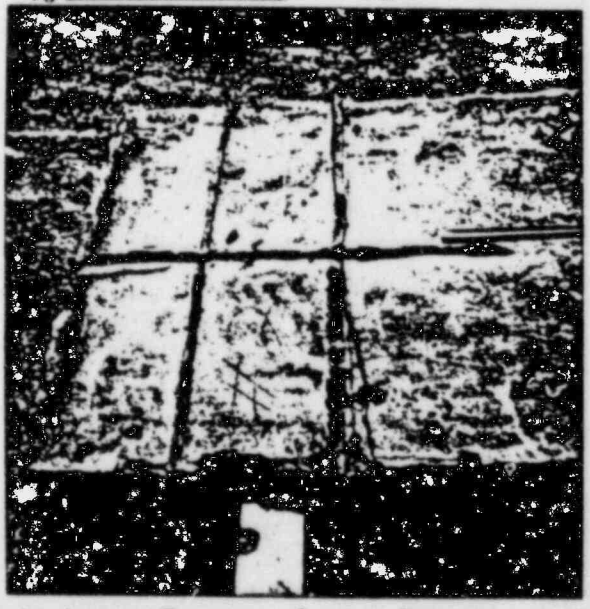
N ← #13

6/29/83 PLATE No. 1 (NORTH END)
CONCRETE CUT "X" PATTERN, 4 NIPPLES FOR PLATE, WOOD BULKHEAD

N ← #14

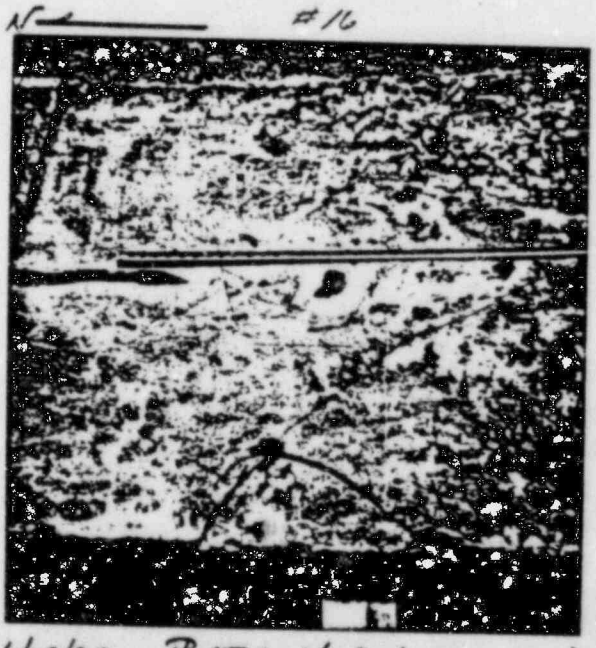
6/29/83 PLATE No. 1 (SOUTH END)
CONCRETE CUT PARALELL LINES, 4 NIPPLES FOR PLATE, WOOD BULKHEAD

N ← #15



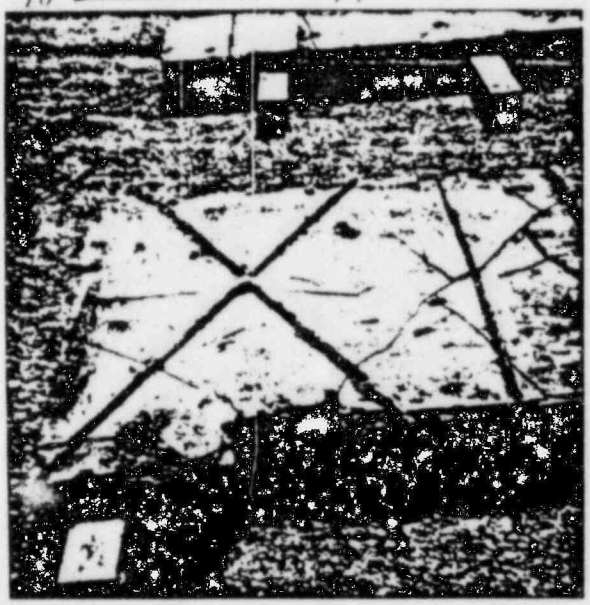
6/29/83 PLATE No. 2 (NORTH END)
CONCRETE CUT "H" PATTERN
LEAD WOOL/EXP. METAL BULKHEAD
4 GROUT NIPPLES FOR WHOLE PLATE

N ← #16



6/29/83 PLATE No. 2 (SOUTH END)
NO CONCRETE CUT, 4 NIPPLES,
LEAD WOOL/EXP. METAL BULKHEAD

N ← #17

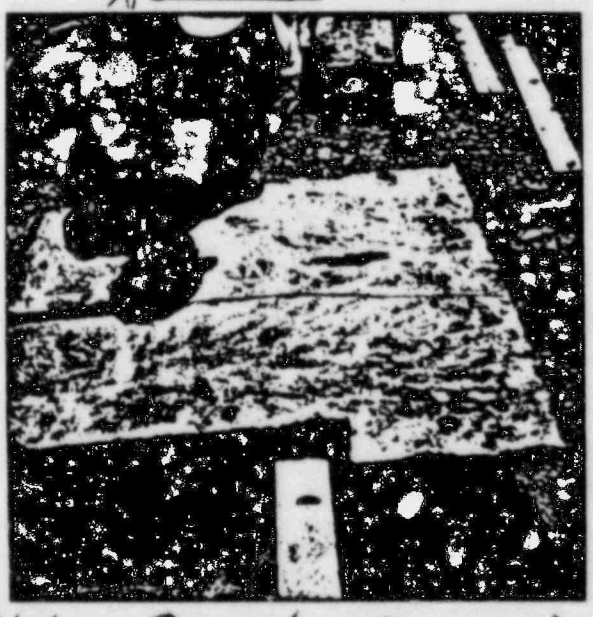


6/29/83 RATE No. 3 (NORTH END)
CONCRETE CUT "X" PATTERN, 4 NIPPLES FOR RATE, LEADWOOL/EXP. METAL

N ← #18

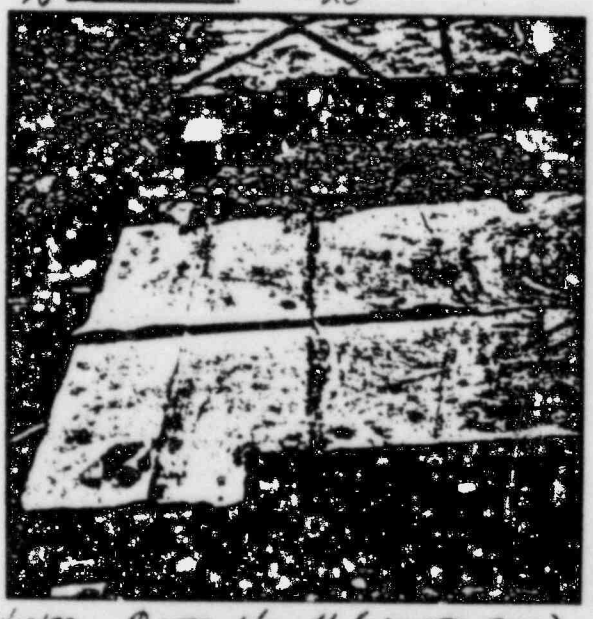
6/29/83 RATE No. 3 (SOUTH END)
CONCRETE PARALELL LINES, 4 NIPPLES FOR RATE, LEAD WOOL/EXP. METAL BULKHEAD

N ← #19



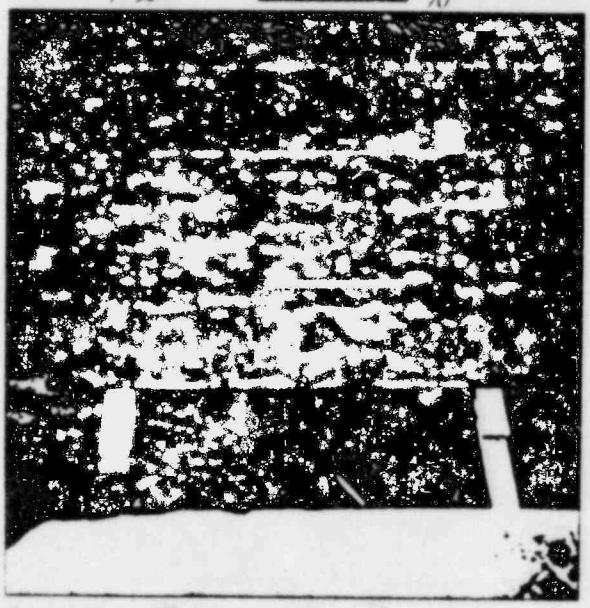
6/29/83 RATE No. 4 (SOUTH END)
NO CONCRETE CUT, 4 NIPPLES FOR RATE, WOOD BULKHED

N ← #20



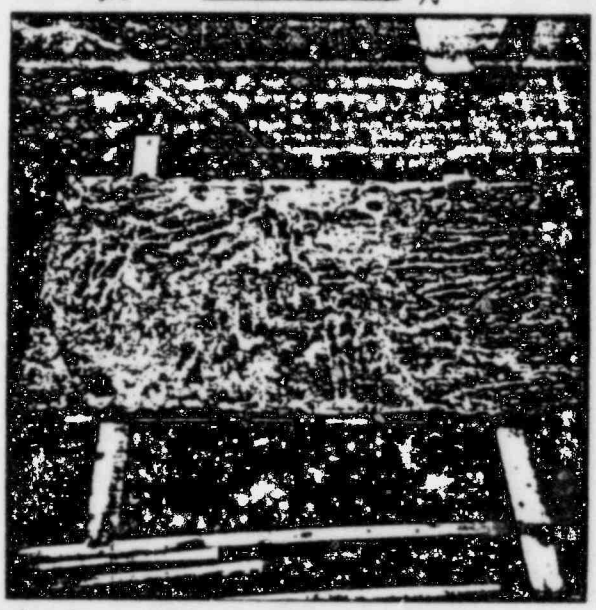
6/29/83 RATE No. 4 (NORTH END)
CONCRETE CUT "H" PATTERN, 4 NIPPLES FOR RATE, WOOD BULKHEAD

#21 → N



6/30/83 PLATE No. 5
TEST PLATE WITH 713 MASTERFLOW DRY PACK (BEFORE STEEL PLATE REMOVAL)

#22 → N



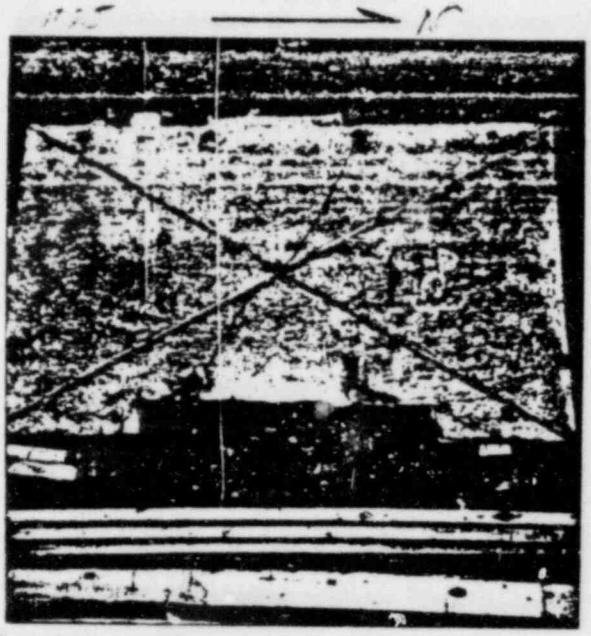
6/30/83 PLATE No. 6
TEST PLATE WITH CHISEL PREP. ON CONCRETE SURFACE

N #23 → N

7/2/83 PLATE No. 5A (SOUTH END)
SECOND DRYPACK TEST PLATE AT SAME LOCATION ALSO USING MASTERFLOW #713

N #24 → N

7/2/83 PLATE #5A (NORTH END)
SECOND DRYPACK TEST PLATE AT SAME LOCATION AS PLATE #5



6/30/83 RATE No. 7
TEST RATE WITH CORE HOLE IN SLAB @ CENTER.

7/1/83 RATE No. 8
TEST RATE WITH GROUTING NIPPLE IN NORTH WEST CORNER

7/1/83 RATE No. 2
NOTING PERIPHERALLY ORIENTED AIR HOLES AROUND INJECTION HOLE #2 (from SOUTH END)

7/1/83 TEST RATE No. 2
SHOWING LOST GROUT PAD AREA DUE TO LEAD WOOL PACKING TYPE BULKHEAD

7/7/83 PLATE No. 5B (SOUTH END)
3RD DRYPACK TEST PLATE BUT MADE WITH SAND/CEMENT MIX #713

7/7/83 PLATE No. 5B (NORTH END)
3RD DRYPACK TEST PLATE BUT MADE WITH SAND/CEMENT MIX NOT #713

7/7/83 PLATE No. 5B (NORTH WEST CORNER)
APPEARANT LOSS OF CONTACT AREA 2 11"x6". THE N.B. APPEAR TO HAVE SLIPPED ON THE WEST SIDE (1½" TO 2" GROUT PAD)

OVERHEAD FLUID GROUTING TEST PROGRAM

EXHIBIT E

PROCEDURE #MCP-15.000 (EXCERPT)

10.1.1 Forms will be mortar tight and well braced.

QAP

10.1.2 Sufficient air relief holes of adequate size will be provided to avoid entrapment of air as determined by the MFE and concurred with by the RSG FE.

10.1.3 If required, forms will be caulked to prevent leakage of grout and loss of head.

10.2 When pouring grout in a form, the form will be extended high enough to facilitate rapid, continuous and complete filling of the space to be grouted.

11.0 MIXING

QAP

11.1 The approximate amount of water/bag to be used for mixing grout will be as listed in Attachment B.

11.1.1 Graduated buckets or containers will be used for determining quantity of water.

11.2 The subcontractor will determine the amount of water to be used in the grout mix at the beginning of each days production, for each type of grout used, excluding Set 45, based on the flow cone tests performed by the contractor's approved testing agency. Acceptance criteria for flow cone tests will be as shown in Attachment B. The amount of water added to Set 45 will always be as listed in Attachment B. | 8 | 8

11.3 Any time the amount of water to be used in the grout mix needs to be adjusted, the adjusted amount of water will be based on the results of a flow cone test performed by the contractor's approved testing agency. The subcontractor will notify the RSG FE when additional flow cone tests are required.

11.4 Discard any grout batched for flow cone tests that does not pass the test requirements given in Attachment B.

11.5 Compressive strength test cubes will be cast by the contractor's approved testing agency at the beginning of each days production for each type of grout used. The subcontractor will notify the RSG FE when grout test cubes are required.

11.6 A paddle mixer, vertical shaft vane mixer, or Jiffler-type mixer revolving at less than 300 rpm will be used for mixing grout. In no case will the grout be mixed by hand.

F7220-C195-28-7(Q)

QAP

11.7 Water to be used for mixing will be potable water (i.e., drinking water) having a temperature range indicated in Attachment B.

11.8 Grout as mixed will be between temperature ranges specified in Attachment B. The use of ice water in hot weather and warm water in cold weather is recommended.

11.9 Place at least 90% of the water in the mixer first, then with the mixer operating, steadily add grout and water and mix for the time period shown in Attachment B. If lumps exist, mixing may be continued one additional minute beyond the times listed in Attachment B. If lumps still exist, the grout will be filtered through a 1/8" mesh sieve or discarded.

11.10 Do not mix a grout quantity greater than what can be placed in approximately 15 minutes.

QAP

11.11 Grout will not be re-tempered. Discard any material that becomes unworkable.

12.0 PLACING

QAP

12.1 The grouting sequence for structural plates will be in accordance with approved grout placement plan (Attachment C). Grout placement operations will be observed by the RSG FE for compliance with the approved plan.

12.2 Grout will be placed quickly and continuously to avoid segregation, bleeding, and change in the initial set.

QAP

12.3 During the grout operation, the surfaces which are to come in contact with grout will have a temperature range as indicated in Attachment B.

12.4 Sufficient head will be maintained so that all the spaces become full with grout.

QAP

12.5 Subcontractor may drill additional holes in the form to determine whether grout has filled all the spaces. These holes shall be plugged by wood, ethafoam or cork once the grout starts oozing out of these holes.

12.6 When grout is being placed by means of tube, the tube will be withdrawn slowly in such a manner that the end of the tube is always in grout. Sufficient holes in the form will be provided to facilitate in making this determination. These holes shall be plugged by wood, ethafoam, or cork once the grout starts oozing out of these holes.

F7220-C195-28-7(Q)

12.9.4 For grouting spin lock rock bolts, a steel plate with two keyholes for inserting grout tube and de-air tube will be used. The grout tube will be inserted to the top of the thrust ring. Grout will then be pumped with a hand pump until grout starts oozing out of the de-air tube. The grout tube will be gradually removed once grout starts oozing from the de-air tube. Discharge of grout in a steady stream from the de-air tube is positive proof that the entire hole is filled and entire area of the bolt, including seams, is well grouted. Plug the de-air tube and continue pumping briefly. Then plug the grout hole.

12.9.5 For grouting hollow core spin lock rock bolts, a steel plate with one keyhole for inserting grout tube (for bolting to surface above) or de-air tube (for bolting to surface below) will be used. The hollow tube in the rock bolt is the de-air tube (for bolting to surface above) or the grout tube (for bolting to surface below). Grout will be pumped with a hand pump until grout starts oozing from the de-air tube. Discharge of grout in a steady stream from the de-air tube is positive proof that the entire hole is filled and entire area of the bolt is well grouted. Plug the de-air tube and continue pumping briefly. Then plug the grout hole.

13.0 PRESSURE GROUTING

13.1 The grouting sequence for structural plates will be in accordance with approved grout placement plan (Attachment C). Grout placement operations will be observed by the RSG FE for compliance with the approved plan.

13.2 Pressure grouting will be used where necessary and at the Subcontractor's option. Pressure grouting will be necessary where indicated on the approved grout placement plan (Attachment C) and at other locations determined by the MFE and concurred with by the RSG FE.

13.3 The pump must be a positive displacement type, such as the piston, or a progressive cavity type.

13.4 The pump, the hose, and the nozzle will first be rinsed with water.

F7220-C195-28-7(-)

QAP

13.5 The grout to be used will be made into a slurry and pumped through the line prior to pumping grout to ensure that neither water nor cement are removed from the grout during pumping, and that the pump and hose will not clog. Slurry will be discarded.

13.6 If a nozzle is not used on a mechanically driven grout pump, first pump water through the line, followed by a pig, and immediately followed by a pump grade grout.

13.7 Grout pressure will be monitored when using mechanically driven pumps to place grout. Maximum grout pumping pressure will be 40 psi or as noted on the approved grout placement plan (Attachment C).

13.7.1 Pressure gauges for monitoring grout pressures will be supplied and calibrated by the Contractor. The range of the gauge will be between 0 and 100 psi (maximum).

13.8 On mechanically driven grout pumps, a pressure gauge will be installed on the pump discharge line, for indicating to the operator incipient line blockage or a plugged insert pipe.

13.9 When grout is pumped into place, grouting is started at the far end of the space to be grouted or as shown on the approved grout placement plan (Attachment C).

13.10 As the grout is pumped in, the nozzle will be backed out slowly so that it always remains within the grout, preventing air entrapment.

14.0 CURING

QAP

14.1 After placement, the grout will be cured in accordance with the methods and temperatures listed in Attachment B until the grout has attained its specified compressive strength.

F7220-C195-28-7

ATTACHMENT B
To MCP 15.000 | 6

	Embecc 636	Masterflow 713	Masterflow 814	Set 45
Quantity of Water Per Bag	1.26 gals.*	1.32 gals.*	2.55 gals.*	0.5 gals.
Water Temperature	32°F to 80°F	32°F to 80°F	32°F to 80°F	32°F to 8
Grout Temperature	45°F to 70°F	45°F to 70°F	45°F to 75°F	50°F to 8
Surface Temperature	45°F to 85°F	55°F to 85°F	55°F to 85°F	50°F to 8
Curing Temperature	45°F to 75°F	45°F to 85°F	45°F to 85°F	50°F to 8
Curing Method	Cover exposed grout with clean wet rags (not burlap) a minimum of 3 days then apply appropriate Contractor approved and supplied curing compound.	Cover exposed grout with clean wet rags (not burlap) a minimum of 3 days then apply appropriate Contractor approved and supplied curing compound.	Cover exposed grout with clean wet rags (not burlap) a minimum of 3 days then apply appropriate Contractor approved and supplied curing compound.	Air dry. Do not us curing compound. not wet c
Flow Cone Values	25 ±5 Sec.	25 ±5 Sec.	25 ±5 Sec.	N/A
Mixing Time	2-3 Min.	2-3 Min.	Until Uniform 3 Min. Max.	1-1 1/2

*These are recommended quantities of water to be added and may be adjusted as specified in Section 11.2 and 11.3 of this procedure.

F7220-C195-28-4(Q)

Consumers Power Company

James B Falahee
Vice Chairman of the Board

General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • (517) 788-0600

orig +13

PRINCIPAL STAFF			
RA		ENF	
D/RA		ECS	
A/RA		PAO	
~~ERP~~		SLO	
ORMA		RC	
ORMSP			
DE			
ML			
OL		FILE	

July 15, 1983

Mr. James G. Keppler
Regional Director
Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Dear Mr. Keppler:

As I advised you late yesterday afternoon by telephone, the Dow Chemical Company notified Consumers Power Company that it was exercising "its right of termination, effective immediately, by reason of Consumers Power's inability to meet the commercial steam operation date as defined in Section 9(B)1 of the General Agreement." I first learned of this action by Dow Chemical as a result of a telephone call at approximately 4:30 PM yesterday from Mr. Wayne M. Hancock, General Counsel of Dow Chemical Company. Mr. Hancock advised me that Dow's written notice of termination and a copy of the complaint filed against Consumers Power Company in the Midland Circuit Court had been hand-delivered to Mr. James W. Cook's office in Jackson at 4:00 PM yesterday. Mr. Cook was at the Midland Plant site.

I am enclosing copies of the notice of termination and the Complaint for Declaratory Judgment. In summary, the Complaint for Declaratory Judgment asked that the General Agreement be cancelled and all remaining obligations of Dow under the General Agreement be discharged. In addition, Dow is seeking damages from Consumers Power Company in the amount of $60,000,000.

Obviously in the short time which has been available, Consumers Power Company has not fully evaluated the impact of the Dow Chemical Company's notice of termination and declaratory judgment action. We do not agree with the allegations contained in the declaratory judgment complaint and will deny the same. As to construction of the Plant, we are continuing on the schedule we have previously announced.

I would be pleased to respond to any further questions you may have regarding this situation.

Yours very truly,

JBF:im
Enc.

JUL 18 1983

CC: Harold R. Denton
JDSelby
JWCook

8407260159

DOW CHEMICAL U.S.A.

MIDLAND, MICHIGAN 48640

July 14, 1983

Mr. James W. Cook
Vice President
Projects, Engineering and Construction
Consumers Power Company
1945 West Parnell Road
Jackson, Michigan 49201

Dear Mr. Cook:

Pursuant to Section 9(E) of the June 21, 1978, General Agreement between Consumers Power and The Dow Chemical Company, notice is hereby given that Dow exercises its right of termination, effective immediately, by reason of Consumers Power's inability to meet the commercial steam operation date as defined in Section 9(B)1 of the General Agreement. This notice of termination is given with full reservation of Dow's legal rights, including the attached Complaint for Declaratory Judgment And Other Relief which Dow will be filing today in the Circuit Court for the County of Midland, Michigan. Should Consumers Power wish to discuss this notice or the matters raised in Dow's Complaint, Dow stands willing to do so.

Sincerely,

R. A. Gaska

R. A. Gaska, Manager
Specialty Products Manufacturing,
Energy & Utilities
47 Building

Attachment

caj

STATE OF MICHIGAN
IN THE CIRCUIT COURT FOR THE COUNTY OF MIDLAND

THE DOW CHEMICAL COMPANY, Plaintiff, v. CONSUMERS POWER COMPANY, Defendant.	)	COMPLAINT FOR DECLARATORY JUDGMENT AND OTHER RELIEF File No. 83-00- -CK-

Herbert H. Edwards (P13112)
and Kirkland & Ellis
Attorneys for Plaintiff

A. Introduction

1. By this Complaint and based upon the facts alleged herein and based upon its information and belief, plaintiff, The Dow Chemical Company, seeks a declaratory judgment declaring its legal rights and obligations with respect to the June 21, 1978 General Agreement for the sale of steam to Dow by defendant, Consumers Power Company, from its Midland Nuclear Facility currently under construction. Specifically, Dow seeks a declaration that all obligations of Dow under the General Agreement are cancelled and discharged because of Consumers Power's fraudulent misrepresentations and non-disclosures, Consumers Power's material breaches of its contractual and fiduciary obligations to Dow, and Consumers Power's inability to complete the Midland Nuclear Facility within any reasonable time or cost. Alternatively, if Dow's obligations are not deemed to be completely cancelled and discharged, Dow seeks a declaration that any termination payment required under the 1978 General Agreement must be substantially reduced by virtue of Consumers Power's wrongful conduct. Dow

further seeks a declaration that it is owed damages arising from Dow's expenditures of more than $60 million in reliance on Consumers Power's fraudulent misrepresentations and non-disclosures as well as such further and additional relief as the Court deems just and proper.

B. The Parties

2. The Dow Chemical Company ("Dow") is a Delaware corporation headquartered at 2030 Dow Center in Midland, Michigan. Dow is a diversified international manufacturer of a wide range of chemicals and other products, including industrial chemicals and raw materials, specialty and agricultural chemicals, and consumer products. Since Dow's founding in 1897, one of its principal manufacturing complexes, currently referred to as the Michigan Division, has also been located in Midland. Dow currently manufactures approximately 100 major products at its Midland facilities and employs approximately 7,800 people in the Midland, Michigan area.

3. Consumers Power Company ("Consumers Power") is a Michigan corporation whose principal business is the sale of electricity and natural gas to a service area comprising most of the State of Michigan, including Midland. Consumers Power is the largest utility in Michigan and its revenues in 1982 exceeded $2.7 billion.

C. Jurisdiction and Venue

4. Personal and subject matter jurisdiction of this Court is founded on Sections 600.601, 600.605, and 600.711 of the Michigan Compiled Laws and the Michigan General Court Rules of 1963. An actual controversy exists between Dow and Consumers Power and Consumers Power is a Michigan corporation carrying on a continuous and systematic part of its general business in Michigan.

5. Venue properly lies in the Circuit Court for the County of Midland under Section 600.1621(a) of the Michigan Compiled Laws because Consumers Power conducts business and maintains a place of business in Midland County.

D. The Prior Contracts Between Dow And Consumers Power

6. In the operation of its Midland, Michigan manufacturing facilities, Dow requires a continuous, reliable and economical supply of process steam. At all relevant times, Dow's Michigan Division has owned and operated its own powerhouses to supply its steam needs.

7. Beginning in 1966, Dow and Consumers Power engaged in discussions about the possibility of Consumers Power supplying steam to Dow from a nuclear plant it was planning to construct. As proposed, the Midland Nuclear Facility would consist of two nuclear steam supply systems, one of which (Unit 1) was designated to supply steam to Dow. As an inducement to Dow to discontinue its own production of steam and to rely in the future on steam from Consumers Power, Consumers Power indicated to Dow that the Midland Nuclear Facility would be capable of producing 4,050,000 pounds of steam per hour on a continuous, economical, and reliable basis as required by Dow.

8. At all relevant times, Consumers Power held itself out to Dow as capable of constructing the Midland Nuclear Facility in a workmanlike, safe and licensable manner, that such construction would proceed without undue delay, and that Consumers Power would undertake the project without incurring unreasonable or imprudent expenditures. Consumers Power also advised Dow that Bechtel Power Corporation ("Bechtel") would be the architect-engineer and construction manager for the project. On or about December 13, 1967, Consumers Power

and Dow executed an initial General Agreement under which Consumers Power agreed to supply steam to Dow on completion of the Midland Nuclear Facility (the "1967 Contract").

9. Under the 1967 Contract and at all times since, Consumers Power has retained sole responsibility for the design, construction, operation and maintenance of the Midland Nuclear Facility. Dow has no right of ownership, control or direction over the plant and Consumers Power has reserved to itself the exclusive right to make changes in the concept, design, construction and operation of the plant at any time and to whatever extent it deems desirable.

10. Because of Consumers Power's complete control over and superior knowledge of the design and construction of the plant, Dow has placed its complete faith, trust and confidence in Consumers Power. Because of the complete trust and confidence which Dow has placed in Consumers Power and because of the exclusive control exercised by Consumers Power over all phases of the project, Consumers Power has occupied a fiduciary relationship to Dow, in addition to its other obligations under the parties' agreements. In recognition of Consumers' fiduciary obligations, at all relevant times, Consumers has had an express contractual obligation to keep Dow fully informed of all material facts that would significantly affect the cost of steam to Dow, including projected cost and scheduling information.

11. Pursuant to the 1967 Contract, Dow and Consumers Power entered into a separate contract on January 30, 1974, governing the calculation of Dow's steam cost (the "1974 Steam Contract"). Under the 1967 and 1974 agreement, relying on Consumers Power's cost estimates, the parties agreed that upon completion of the Midland Nuclear Facility, the cost of steam to Dow would be based on that portion of the total plant design

and construction costs devoted to the facilities for generating and delivering steam to Dow. This portion of costs is referred to in the contracts as the Allocated Steam Investment. Under the contract formula, increases in the cost of the plant and delays in the plant's completion increase the cost of steam to Dow.

12. In 1967, Consumers Power estimated that the Midland Nuclear Facility would be completed prior to 1975 at a cost of $256 million. After 1967, the Midland Nuclear Facility was subject to continuing scheduling delays and cost increases such that by September 1976, Consumers Power was predicting that it would complete both units by March 1982 at a total project cost of $1.67 billion.

E. The 1978 General Agreement

13. As a result of these schedule slippages and cost increases and of disputes over the continued validity of the then existing contracts, Dow and Consumers Power undertook late in 1977 the negotiation of an entirely new agreement. A fundamental concern to Dow during these negotiations was to obtain from Consumers Power a firm date by which Consumers Power would complete the plant. Dow's need for such a date stemmed in large part from the continuing adverse effect on Dow's Michigan Division of the uncertainty as to when and at what cost the Midland Nuclear Facility would be completed. This uncertainty had had substantial adverse effects on the Michigan Division by preventing Dow from making long-range plans regarding the products to be manufactured at Dow's Midland facilities, Michigan Division employment levels, and capital projects, causing a reduction in Michigan Division operations.

14. Because of these concerns, Dow made it known to Consumers Power from the start of the negotiations that it was of critical importance to Dow that Consumers Power make full

disclosure of accurate, reliable and up-to-date cost and schedule information. Furthermore, if Consumers Power were unable to complete the Midland Nuclear Facility by a firm date, Dow wanted the express right to terminate any obligations to purchase steam. In the course of the negotiations which began in 1977 and concluded in June of 1978, the parties therefore agreed that all prior agreements be cancelled and that a new General Agreement be executed.

15. On or about June 21, 1978, Dow and Consumers Power entered into the General Agreement, attached hereto as Exhibit A (the "General Agreement"). Under the General Agreement, Consumers Power undertook to supply up to 4,050,000 million pounds of process steam per hour to Dow upon completion of the Midland Nuclear Facility. The General Agreement further provided that the cost to Dow of the steam would be based on the Allocated Steam Investment, reflecting a portion of the costs of constructing the facility, but that Dow would have no obligation to pay Consumers Power for steam until the Midland Nuclear Facility attained commercial operation for steam generation as defined in the General Agreement.

16. Recognizing the past history of the facility, the parties agreed to specific provisions intended to protect Dow from further cost increases and completion delays. For example, under Section 1(B) of the General Agreement, Consumers Power promised to "use its best efforts to place Unit 2 of the Generating Plant in commercial operation for electric service on or about March 1, 1981 and to place the entire Generating Plant in commercial operation for process steam service and electric service on or about March 1, 1982." Under Section 4(C)(4), Consumers Power further agreed to "avoid imprudent expenditures" and to "use its best efforts to optimize the capital investments includable in the Allocated Steam Investment."

17. Under Section 9(B)(1) of the General Agreement, the parties agreed that if Consumers Power became unable to declare the Midland Nuclear Facility in commercial operation for process steam by December 31, 1984, then Dow would be entitled to terminate the contract and pay Consumers a termination fee no larger than one-half of the prudently incurred Allocated Steam Investment expenditures as of the date of termination.

18. Under Section 1(C) of the General Agreement, Consumers Power undertook to keep "Dow currently informed whenever practical concerning Consumers Power's construction schedules, the progress of engineering design and construction, and proposed changes in engineering design, construction and operating and maintenance practices and procedures that will significantly affect the aggregate cost of process steam service to Dow."

F. Consumers Power's Fraudulent Misrepresentations And Non-Disclosures in the Negotiation of the 1978 General Agreement

19. During the contract negotiations in 1977 and 1978 leading up to execution of the 1978 General Agreement, Consumers represented to Dow that it knew of no construction problem or other circumstances that would prevent it from placing the Midland Nuclear Facility in commercial operation by March 1982. Immediately before the execution of the contract, Dow specifically requested disclosure of any information adversely reflecting on the status, cost or completion of the project. Consumers Power assured Dow that it knew of no "surprises" or any other adverse and undisclosed information about the project. These representations were intended to and did in fact induce reliance on the part of Dow in executing the General Agreement in June 1978.

20. Consumers Power's representations concerning the absence of adverse and undisclosed information were false. Specifically, Consumers Power knew prior to the execution of the General Agreement that the Midland Nuclear Facility was being constructed on improperly placed and compacted fill and that these soils problems and other construction problems described hereafter likely would prevent Consumers Power from meeting its target schedule. Consumers Power thus misrepresented to Dow the status of the project and, in addition, concealed material information from Dow with the intent to induce Dow to enter into the General Agreement.

21. The soils problems concealed from Dow arose from Consumers Power's decision, because the Midland Nuclear Facility is located on the flood plain of the Tittabawassee River, to raise the level of the site by depositing and compacting more than 30 feet of fill. Rather than constructing foundations using underpinnings, pilings or other established techniques to rest the weight of the plant structures on bedrock or the undisturbed and compacted glacial deposits underlying the site, Consumers Power decided to place plant structures directly on top of the fill.

22. Among the structures were vital safety installations such as the emergency diesel generator building, the auxiliary building, storage tanks for emergency cooling water, service water pump structure, and numerous underground pipes and cables carrying cooling water and vital control systems. Because these structures would rest in whole or in part on fill, proper placement and compaction was essential to prevent the fill from settling under the weight of the structures. Excessive settlement and/or differential degrees of settlement of the fill can create serious unsafe conditions in any construction project and are of particular concern in a nuclear power plant because they can cause blockage or rupture of pipes

and cables carrying cooling water and electricity essential to the plant's safe operation.

23. On the basis of an engineering study completed in 1969 by the firm of Dames & Moore, Consumers Power adopted detailed specifications and procedures governing the fill to be used on the site and how it would be deposited, compacted and tested. Among other things, the specifications and procedures called for:

(a) Use of specified kinds of unmixed, cohesive fill such as clay in areas containing safety-related structures;

(b) Regular testing of fill for moisture content before and after placement on the plant site;

(c) Control over the thickness of each layer of fill as it would be deposited on the site;

(d) Use of qualified rollers and other compaction equipment to apply the necessary amount of compaction pressure on each layer of fill to achieve proper compaction;

(e) Testing of the compacted fill at specified intervals to ensure that the required degree of density necessary to prevent settlement had been achieved;

(f) Full-time supervision of all fill operations by a qualified geotechnical engineer.

24. Placement of the fill on the plant site took place from 1975 through 1977. Consumers Power failed to observe any of the previously identified controls or other standards of reasonable care and prudence. Instead, Consumers Power proceeded with the placement of the fill knowing that there was not proper supervision, that improper fill was being

used, that the fill had been insufficiently compacted, and that false or misleading test results were being relied upon to certify the fill as meeting standards of the U.S. Nuclear Regulatory Commission ("NRC"). Dow was not informed of any of these problems by Consumers Power at any time prior to the execution of the General Agreement.

25. In 1977, the administration building was constructed on the defective fill and excessive settlement occurred immediately. By August 1977, portions of the foundation of the administration building had settled up to 3-1/2 inches in one month. An informal investigation conducted by Consumers Power later in 1977 and concealed from Dow confirmed that there were serious deficiencies in the fill underlying the entire site, including the fill on which vital safety-related structures were about to be constructed. The results of this investigation, as well as all other facts known to Consumers Power concerning the negligent and improper fill placement, were concealed from Dow.

26. The 1977 Consumers Power investigation was limited to an examination of the fill in the vicinity of the administration building and a perfunctory test of two other portions of the site. Even this inadequate review revealed that there had been systematic errors in the placement and compaction of the fill. Among other things, the investigation at the administration building site found "voids" or pockets of air in the fill and unbroken lumps of clay up to 3 feet in diameter, demonstrating that the fill had not been compacted, contrary to Safety Analysis Reports certified by Consumers Power to the NRC.

27. To examine the entire safety-related portion of the site, Consumers Power conducted only one test boring. As a matter of prudent engineering practice, a single boring was

insufficient to determine the safety of fill over the complete site. Contrary to representations in the Safety Analysis Reports submitted to the NRC that unmixed cohesive fill had been used in safety-related areas, this single test demonstrated that Consumers Power had improperly used random fill consisting of mixed clay, sand and other materials with varying properties. Consumers Power's representations that unmixed cohesive fill had been used in the safety area were later determined by NRC officials to be material false statements.

28. Both before and after execution of the General Agreement, Consumers Power's reports documented that random fill was improperly used throughout the safety area and that the fill had not been adequately compacted to NRC safety standards. More than 600 separate tests taken during the fill work had shown that the fill was insufficiently compacted but were overruled or disregarded, while numerous instances of "passing" tests contained results which upon further examination revealed degrees of compaction physically impossible to achieve. At least three "audits" conducted by Consumers Power during the period 1974 to 1977 also verified numerous instances of failure to meet proper procedures or specifications, but no disclosure was made to Dow or to the NRC.

29. By at least the end of December 1977, the senior management of Consumers Power knew or should have known that the fill on which the Midland Nuclear Facility was being constructed was patently inadequate for construction of a nuclear power plant and potentially unsafe. Notwithstanding this information, Consumers Power made the conscious decision not to disclose this material information to the NRC. Consumers Power also made no disclosure to Dow during the negotiation of the General Agreement. Instead, Consumers Power decided to proceed with construction of the diesel generator building and

other safety-related structures on the fill, thereby creating the false and misleading appearance during the negotiations that construction was proceeding normally.

30. At the time the General Agreement was executed, Consumers Power was also aware, but did not disclose to Dow, that non-soils construction problems would affect its ability to fulfill its obligations under the General Agreement. Construction delays caused by engineering changes, work stoppages, and continuing failures to follow proper procedures and specifications were of such magnitude that Consumers Power decided in June 1978 to forego its usual practice of adopting a new schedule. Such a forecast, if properly prepared and disclosed, would have revealed Consumers Power's inability to meet the March 1981 and March 1982 completion dates represented to Dow in the General Agreement.

31. In reliance on Consumers Power's misrepresentations and non-disclosures during the 1977-78 negotiations regarding the status of the project, Dow executed the General Agreement. Had Dow known the true situation, it would not have signed the General Agreement.

G. Consumers Power's Misrepresentations And Failures To Disclose Since Execution Of The General Agreement

32. Since June 1978, Consumers Power has engaged in an ongoing pattern of misrepresentation and concealment from Dow of the true impact on cost and schedule caused by Consumers Power's negligence and willful misconduct in designing and constructing the plant. Specifically, this ongoing fraud constitutes a material breach of Consumers Power's contractual and fiduciary obligations and justifies cancellation of Dow's obligations to perform under the General Agreement. In addition, Consumers Power's concealment from Dow of the true cost and schedule was intended to prevent Dow from exercising its

right to terminate the General Agreement as described hereafter. Moreover, as the direct and proximate result of Consumers Power's concealment of the true status and schedule of the project, Dow has incurred millions of dollars in expenses, including more than $60 million expended to construct its facilities to receive steam from Consumers Power. Dow has done so in reliance on the misrepresentations of Consumers Power regarding the status of the project. Had Dow been informed of the continuing delays and construction problems at the project, or Consumers Power's inability to meet the December 31, 1984 deadline, Dow would not have incurred these costs.

33. Prior to execution of the General Agreement, Consumers Power began construction of the diesel generator building and other safety-related structures. By July 22, 1978, scarcely a month after the execution of the General Agreement, settlement of the diesel generator building already exceeded 1-1/2 inches as compared to a total safety allowance of three inches over the 40-year projected lifetime of the Midland Nuclear Facility. Nevertheless, Consumers Power decided to continue construction and to conceal this information from Dow, despite the General Agreement provisions requiring Dow to be advised of such significant events.

34. By August 18, 1978, settlement of portions of the diesel generator building had reached four inches, exceeding the safety limit, even though the building was still only approximately half complete. On August 23, 1978, Consumers Power suspended construction of the diesel generator building and other safety structures and notified the NRC. At the same time, recognizing that its previous schedule estimates were no longer valid, Consumers Power decided again to delay preparation of a cost and schedule forecast for the project because soils problems and other uncertainties prevented any realistic forecast from being made. Despite its duty to disclose this

significant development to Dow, Consumers Power failed to do so.

35. Following the August 23, 1978 suspension of construction, Consumers Power conducted another investigation which confirmed that there had been systematic and gross negligence in the placement and compaction of fill underlying the entire site. The investigation concluded that essentially all moisture and density tests conducted during the placement and compaction of the fill had been improperly performed. As later summarized in a July 1979 report prepared by Bechtel, "there is no rational means of determining which test results are valid and which are not."

36. Despite the overwhelming evidence that the fill underlying the site was inadequate and potentially unsafe, Consumers Power elected on or about December 1978 to resume construction of the Midland Nuclear Facility. Consumers Power did so in the face of express warnings from NRC officials that Consumers Power was proceeding at its own risk. Consumers Power also decided not to remove and replace the unsafe fill but instead temporarily piled sand on portions of the site in an attempt to compact the defective fill. Consumers Power was specifically warned by NRC officials that they had not approved this procedure or the resumption of construction.

37. In December 1978, Consumers Power requested Bechtel to assess the impact on plant completion of soils remedial work. In April 1979, Bechtel informed Consumers Power that there would be at least an eight-month delay in the fuel load date for Unit 2 and a five-month delay for Unit 1. Subsequent schedule changes showed that the target dates Consumers Power had held out to Dow were no longer valid. These included a July 1979 Bechtel report and a November 1979 Consumers Power schedule, both of which identified further slippage in the schedule. Still further slippage became inevitable when Consumers

Power's investigation of the fill confirmed that the remedial soils measures it had taken were inadequate and that years of additional delay would be necessary to devise and implement further remedial measures.

38. On December 6, 1979, the Nuclear Regulatory Commission issued an order finding that there had been a "breakdown in quality assurance related to soil construction activities under and around safety-related structures and systems." The NRC also found that Consumers Power had made material false statements in certifying its compliance with fill procedures outlined in the Final Safety Analysis Report. The NRC determined that there remained an "unresolved safety issue concerning the adequacy of the remedial action to correct the deficiencies in the soil construction under and around safety-related structures and systems". Consumers Power was therefore ordered to terminate all further soils related work.

39. It was abundantly clear by at least the end of December 1979, in light of the NRC order, that Consumers Power could not meet the General Agreement's target completion dates. Furthermore, Consumers Power also knew or should have known that it was unable to meet the December 31, 1984 deadline for commercial steam operation in view of the fact that the major structures of the facility were resting on thirty feet of inadequate and unsafe fill and the NRC had rejected the remedial measures which Consumers Power had taken.

40. Consumers Power's inability to meet the 1984 deadline was confirmed in January 1980 when Bechtel provided Consumers Power with an updated cost and schedule forecast, known as Forecast 6, which declared that Consumers Power would be unable to complete the Midland Nuclear Facility until 1985. The Bechtel forecast also projected that total plant costs would be $3.1 billion rather than the $1.67 billion previously estimated.

41. Despite its knowledge that it could not complete the project by 1984, Consumers Power decided to conceal from Dow its inability in order to prevent Dow from terminating the General Agreement under Section 9(B)(1). Thus, Consumers Power publicly stated that it refused to accept Bechtel's estimates for plant completion. At the same time, however, Consumers Power performed internal studies disclosing that its principal alternatives were (i) either to complete the nuclear facility in May 1985 and assume the risk that Dow would terminate the General Agreement; or (ii) to terminate construction and either write-off the project or convert it to coal-fired power. Consumers Power recognized that if Dow were to exercise its right to terminate under Section 9(B)(1), Dow's termination payment based on costs incurred as of April 1, 1980 would be a maximum of $185 million. Had Consumers Power disclosed to Dow that it could not meet the 1984 deadline, Dow would have terminated the contract.

42. On or about March 5, 1980, Consumers Power decided to continue construction of the Midland Nuclear Facility and fabricate an artificial schedule purporting to show that it could complete the project before December 1984, thereby depriving Dow of its right to terminate. Pursuant to its March 1980 plan, Consumers Power thereafter took the public position that it intended to find ways of shortening the schedule. At the time it took this public position, Consumers Power concluded internally on May 5, 1980, that "we generally agree with Bechtel both on schedule and cost."

43. On June 25, 1980, to further the concealment of its inability to meet the 1984 deadline, Consumers Power directed Bechtel to prepare a new construction schedule under which the Midland Nuclear Facility would be in operation by July 1984. This date, which shortened the Bechtel estimate by one year, was announced for the specific purpose of, among other things,

preventing Dow from exercising its right to terminate the General Agreement.

44. In order to effect the continuing concealment, Consumers Power and its agent, Bechtel, agreed on July 10, 1980 that in all statements and documents prepared "for public consumption," they would refer to Consumers Power's "current project schedule" dates purporting to show that the 1984 commercial steam operation deadline could be met. At the same time, it was agreed for internal purposes to use the true schedule which recognized that the 1984 deadline would not be met.

45. Dow was not informed of the true schedule. Instead, at all times between July 10, 1980 and April 11, 1983, Consumers Power assured Dow that the plant would be in commercial operation by December 31, 1984. Throughout this period of deception, Consumers Power knew or should have known with each passing day that the 1984 deadline was ever more unattainable, but refused publicly to acknowledge these facts.

46. For example, on November 9, 1982, Consumers Power called a press conference to discuss the plant's schedule at which a Consumers Power official specifically denied that the schedule contrived for public consumption would not be met. Following the press conference, on November 15, 1982, Consumers Power informed Dow that no new completion dates would be made available to Dow until early February 1983.

47. In early February, Consumers Power again concealed from Dow the existence of its right to terminate. Instead of admitting its inability to meet the deadline, Consumers Power notified Dow that a new schedule would not be released until April. On February 18, 1983, Dow requested Consumers Power to provide "meaningful written assurance" that the 1984 deadline would be met. On March 7, 1983, Consumers Power once again refused to admit its inability to meet the

1984 deadline and instead responded that "April will be the earliest time we can give you the benefit of our considered judgment on cost and schedule."

48. Not until April 11, 1983 did Consumers Power finally admit to Dow that Unit 2 would not go into commercial operation before February 1985 and that completion of Unit 1 would be delayed until August 1985. Consumers Power further estimated that the total cost of the project would be $4 43 billion, an increase of more than $1 billion over its previous estimates. By virtue of the April 11 announcement, for the first time Dow possessed the unqualified right to terminate under Article 9(B)(1) of the General Agreement.

H. Consumers Power's Other Material Breaches And Negligence In The Performance Of the 1978 General Agreement

49. The misrepresentations and non-disclosures alleged above constitute material breaches of Consumers Power's contractual and fiduciary duties. In addition, Consumers Power has since June 1978 committed other material breaches by failing to use its best efforts to complete the plant and by failing to avoid imprudent expenditures in the design and construction of the Midland Nuclear Facility. Consumers Power has also negligently and willfully failed to exercise due care in the construction of the Midland Nuclear Facility.

50. Since 1978, Consumers Power's mismanagement of the Nuclear Facility project has resulted in repeated schedule delays and inordinate cost increases. Among other things, as a result of the negligence of Consumers Power in the placement and compaction of the fill on the Midland Nuclear Facility site and its imprudent choice of remedial measures unacceptable to the NRC, Consumers Power placed itself in a position whereby removal and replacement of the deficient fill could not be accomplished without demolishing the nuclear facility. Consumers

Power then adopted a costly and untested underpinning program involving tunneling under existing structures and installing new foundations, further adding to the delay and expense of the project.

51. NRC officials have described the magnitude and complexity of the underpinning program as equivalent to building a third nuclear reactor on the site. Under present construction schedules released by Consumers Power, the earliest the underpinning program can be completed is in 1985. As a consequence, more than eight years of delay in the Midland Nuclear Facility will have elapsed from the August 1977 detection of settlement at the administration building. During this same period, Consumers Power's estimates of the cost of the nuclear facility have increased by nearly $3 billion.

52. Continuing quality assurance problems at the Midland Nuclear Facility have resulted in the NRC's concluding that there is no reasonable assurance that Consumers Power will construct a nuclear facility that meets NRC requirements for licensing for commercial operation. For example, since the underpinning program began, the NRC has ordered the work to be halted at least twice because of negligence and lack of supervision by Consumers Power. On January 7, 1981, the NRC fined Consumers Power $38,000 for quality assurance infractions related to the negligent installation of heating, ventilating and air-conditioning equipment. Two years later, on February 8, 1983, the NRC imposed a civil penalty of $120,000 on Consumers Power for yet another breakdown of its quality assurance program.

53. On December 2, 1982, in the face of mounting pressure from the NRC, Consumers Power halted all non-soils, safety-related construction because of its continuing inability to manage construction in a competent and licensable manner. Jurisdiction over the project has been assigned to the NRC Office of Special Cases, an office specially created to review

the most troubled nuclear projects. Because of its own negligence and mismanagement, Consumers Power has been subject to increased scrutiny and investigation by the NRC, leading to further increases in the plant's cost and unreasonably delaying its completion.

54. In light of the continuing history of Consumers Power's negligence, quality assurance breakdowns and other failures, there is no reasonable prospect that Consumers Power will complete the Midland Nuclear Facility at a reasonable cost and within a reasonable time, if indeed the plant will ever be finished. It now appears likely that the NRC will order a reinspection of virtually all plant systems and will require an independent third-party verification of design and construction. Such actions will require at least a year of further delay and additional substantial cost increases by themselves. Because of the history of serious safety and other problems discovered to date, it is reasonable to expect further delays and cost increases, if not permanent termination of construction, to result from any additional inspection of the Midland Nuclear Facility and the discovery of additional material defects concealed thus far from Dow.

55. Based on the present status of the Midland nuclear facility and its past history, Consumers Power's April 11, 1983 cost and schedule forecast was itself a continuation of Consumers Power's pattern of concealment and misrepresentation. Because of the continuing negligence and recklessness of Consumers Power and the numerous unresolved licensing and safety questions that have resulted, the Midland Nuclear Facility may never be completed and in any event it certainly will not come into commercial operation before 1986 at the earliest and at a cost of less than $6.0 billion. The Midland Nuclear Facility, if completed, would produce energy at a commercially unreasonable

cost contrary to the assumptions on which the General Agreement was premised.

I. Dow's Termination Of The General Agreement

56. Following Consumers Power's April 11, 1983 announcement, Dow undertook to determine the reasons for Consumers Power's failure to complete the Midland Nuclear Facility. Dow demanded a review of a large number of Consumers Power documents never before provided to Dow, a portion of which have now been produced. The documents confirm that a continuous and systematic practice of misrepresentation and nondisclosure has been perpetuated by Consumers Power in derogation of its obligation to keep Dow fully and accurately informed of all material facts concerning the project's cost and schedules.

57. Accordingly, for all of the reasons described in this Complaint, Dow served notice on Consumers Power that it was terminating the General Agreement pursuant to Section 9(B)(1) and reserving its rights to pursue its legal remedies under this Complaint.

COUNT I
Fraudulent Misrepresentations and Non-Disclosures

58. The allegations of paragraphs 1-57 are hereby realleged and incorporated by reference.

59. At all relevant times Consumers Power owed Dow a duty to refrain from making material misrepresentations. Under the General Agreement, Consumers Power also owed the duty affirmatively to disclose on a current basis all material information which could significantly affect Dow's rights and obligations under the General Agreement. Because of the fiduciary relationship owed by Consumers Power to Dow, Consumers Power was required to adhere to an even higher standard of full and fair disclosure than would ordinarily be applicable.

60. As previously alleged, Consumers Power has engaged in an ongoing series of material misrepresentations and non-disclosures, in disregard of its common law, fiduciary and contractual duties, beginning as early as 1977 and continuing until at least the date of this action. Said misrepresentations and non-disclosures were intended by Consumers to be relied upon, and were relied upon, in inducing Dow to enter into the 1978 General Agreement. Thereafter, Consumers Power's misrepresentations and non-disclosures were calculated to prevent or delay Dow from exercising its legal right to terminate the contract and were also designed to conceal Consumers Power's negligence and incompetence in meeting its obligations to construct a nuclear generating plant in a safe, efficient, workmanlike manner while avoiding all imprudent expenditures. Dow did in fact justifiably rely to its detriment on these misrepresentations and non-disclosures which were false and misleading by, among other things, expending over $60,000,000 as a direct and proximate result.

WHEREFORE, Dow prays that the Court adjudge the legal rights of the parties as follows:

A. That during the negotiations leading up to the execution of the 1978 General Agreement, Consumers Power engaged in material misrepresentations and non-disclosures which induced Dow to enter into the 1978 General Agreement.

B. That after the execution of the 1978 General Agreement, Consumers Power engaged in ongoing misrepresentations and non-disclosures for the purpose of concealing from Dow material information concerning the cost and scheduling of the project.

C. That the foregoing material misrepresentations and non-disclosures were relied upon by Dow to its detriment.

D. That by reason of Consumers Power's wrongful conduct, the General Agreement should be and is legally cancelled and any and all obligations of Dow under said General Agreement are discharged.

E. That Dow is entitled to such further and additional relief as this Court shall deem just and proper including actual damages in excess of $60,000,000 as well as punitive and exemplary damages and reasonable attorneys' fees.

COUNT II

Material Breach of Contract and of Fiduciary Duties

61. The allegations of paragraphs 1-57 are hereby realleged and incorporated by reference.

62. Consumers Power owed Dow the following duties under the General Agreement and by reason of the fiduciary relationship between the parties:

a. Consumers Power was required under Article 1(B) of the General Agreement to use its best efforts to attain commercial operation of Unit 2 for electric service by March 1, 1981 and to place the entire generating plant in commercial operation by March 1, 1982. This contract obligation, as well as its fiduciary obligation, required Consumers Power at minimum to proceed with all phases of construction and licensing with due diligence and in a non-negligent, workmanlike manner so as to achieve these dates;

b. Consumers Power was required under Article 4(C) of the General Agreement, as well as under its fiduciary obligations, to avoid imprudent expenditures so as to minimize the aggregate cost of the price of steam to Dow;

c. Consumers Power was further required under Article 1(C) of the General Agreement, as well as under its fiduciary obligations, to keep Dow

currently informed of all material facts which would significantly affect the cost or timing of Dow obligations under the General Agreement.

d. Consumers Power was further subject to an implied obligation under the General Agreement to exercise good faith, due care and reasonable diligence in the performance of its contractual obligations.

63. As previously alleged, Consumers Power has repeatedly violated each of the foregoing legal obligations. Individually and collectively these actions constitute material breaches of the General Agreement, entitling Dow to cancel all remaining contract obligations. As the direct and proximate result of Consumers Power's material breaches, Dow has suffered substantial financial injury including the loss of over $60,000,000 expended in reliance on the General Agreement.

WHEREFORE, Dow prays that the Court adjudge the legal rights of the parties as follows:

A. That Consumers Power has materially breached the General Agreement.

B. That Consumers Power has materially breached its fiduciary duties owed Dow.

C. That by reason of the foregoing breaches of Consumers Power's contractual and fiduciary duties to Dow, the General Agreement should be and is cancelled and all remaining obligations of Dow under the General Agreement are discharged.

D. That Dow is entitled to such further and additional relief as this court should deem just and proper, including but not limited to recovery of damages resulting from Consumers Power's wrongful conduct including more than $60,000,000 expended by Dow in direct reliance on Consumers Power's faithful adherence to its legal obligations.

COUNT III
Excuse by Reason of Failure
of Fundamental Assumptions

64. The allegations of paragraphs 1-57 are hereby realleged and incorporated by reference.

65. All remaining contract obligations of Dow should be excused by reason of the failure of fundamental assumptions upon which contract performance was based, including Consumers Power's inability to complete the Midland Nuclear Facility. As a result, Dow's performance to purchase steam has become commercially impracticable because of the occurrence of supervening contingencies which were not within the contemplation of the parties at the time the General Agreement was executed in June 1978, including:

a. The assumption that the fill upon which the plant structures were to be erected was adequately compacted and suitable for construction of the Midland Nuclear Facility;

b. The assumption that the plant was capable of being constructed so as to meet the target dates of 1981 and 1982 for Unit 2 and the entire generating plant respectively.

c. The assumption that the plant would be constructed within a reasonable time at a commercially reasonable cost.

WHEREFORE, Dow prays that the Court adjudge the legal rights of the parties as follows:

A. Dow's contract obligations to purchase steam have been frustrated or rendered commercially impractical by the failure of fundamental assumptions upon which the General Agreement was based.

B. The failure of these fundamental assumptions were not caused by any actions of Dow.

C. Dow is entitled to a declaration that all of its remaining obligations under the General Agreement are excused.

COUNT IV
Calculation of Termination Payment
Under Article Nine of the 1978 General Agreement

66. The allegations of paragraphs 1-57 are hereby realleged and incorporated by reference.

67. To the extent that its obligations under the General Agreement are not legally discharged on one or more of the grounds set forth in Counts I-III, Dow notified Consumers Power that it has exercised its unqualified right to terminate in accordance with the provisions of Article 9(B)(1) of the General Agreement.

68. Although Consumers Power acknowledged for the first time on April 11, 1983 that commercial operation for process steam would not occur prior to December 31, 1984, it knew or had reason to know of its inability to meet this deadline at least as early as December 1979.

69. Consumers Power's false representations and nondisclosures concerning its ability to meet the December 31, 1984 commercial operation date were designed to prevent, and in fact did prevent, Dow from exercising its termination rights under the General Agreement. Consumers Power thereby sought to increase by many hundreds of millions of dollars the eventual termination charge which Consumers Power would claim that Dow was required to pay.

70. The foregoing actions of Consumers Power are in breach of the fiduciary obligations owed Dow as well as the General Agreement and further constitute fraudulent misrepresentation and non-disclosures in violation of Dow's common law rights. As the direct and proximate result of Consumers Power's failure timely to disclose its inability to complete the plant for commercial steam operation prior to December 31, 1984, Dow

has incurred substantial expenses which would not have been incurred had Consumers Power timely disclosed this inability.

WHEREFORE, Dow prays that the Court adjudge the legal rights of the parties as follows:

A. That to the extent the General Agreement is not otherwise legally discharged, Dow has properly exercised its right to terminate under Article 9(B)(1).

B. That Consumers Power's communications to Dow concerning the commercial operation date for process steam were fraudulent, misleading, and in violation of Consumers Power's contractual and fiduciary obligations to Dow.

C. That in computing the termination charge, to the extent that payment is not otherwise excused, said termination charge shall be computed on the basis of a termination date at least as early as December 1979 when Consumers Power became unable to complete the plant for commercial steam operation prior to December 31, 1984.

D. That in computing the termination charge, to the extent that payment is not otherwise excused, said termination charge shall be reduced by that amount of expenses incurred by Dow since at least as early as December 1979 which would not have been incurred had Consumers Power timely disclosed its inability to complete the plant for commercial steam operation prior to December 31, 1984.

COUNT V
Negligence

71. The allegations of paragraphs 1-57 are hereby realleged and incorporated by reference.

72. Consumers Power further owed to Dow at all relevant times a duty to exercise due care and to proceed in a competent, workmanlike manner on its part or on the part of its agents in the planning, supervision and construction of the Midland Nuclear Facility.

73. Consumers Power has breached its duty by failing to exercise due care in a competent, workmanlike manner in the planning, supervision and construction of the Midland Nuclear Facility. Consumers Power's actions have instead reflected a willful disregard for the rights of Dow and constituted recklessness or at minimum negligence. Dow has suffered serious financial injury as the direct and proximate result of Consumers Power's failure to exercise due care including the loss of over $60,000,000.

WHEREFORE, Dow prays that the Court adjudge the legal rights of the parties as follows:

A. That Consumers Power owed a duty to Dow to proceed in a competent workmanlike manner and with due care in the planning, supervision and construction of the Midland Nuclear Facility.

B. That Consumers Power has willfully disregarded and violated the aforementioned duties and through negligent conduct has caused Dow to suffer serious financial damages in excess of $60,000,000.

C. That Dow is entitled to recover its damages as the result of Consumers Power's reckless and negligent conduct together with such further and additional relief as this Court shall deem just and proper including punitive and exemplary damages together with reasonable attorneys' fees.

Remigius A. Gaska
Manager, Specialty Products Manufacturing,
Energy and Utilities
Michigan Division
The Dow Chemical Company

STATE OF MICHIGAN)
) SS.
COUNTY OF MIDLAND)

On this 14th day of July, 1983, before me personally came the above-named Remigius A. Gaska and made oath that he has read the foregoing Complaint by him subscribed, and knows the contents thereof, and that the same is true of his own knowledge or, on information and belief, he believes it to be true.

_____
Notary Public

My Commission expires _____

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Dated: July 14, 1983

file

Consumers Power Company

J A Mooney
Executive Manager
Midland Project Office

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July 14, 1983

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Mr J J Harrison
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MIDLAND ENERGY CENTER GWO 7020
WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6790
70*01

We request authorization to perform the following work activity in accordance with our Work Authorization Procedure.

942450300 Excavate and backfill trench for Ground Cable East of Technical Support Center

JAMooney

JAM/RHW/dmh

JUL 22 1983

8307280434

82-22

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James W. Cook
Vice President - Projects, Engineering and Construction

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0453

July 12, 1983

Mr J G Keppler, Regional Administrator
US Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND ENERGY CENTER
DOCKET NO 50-329 AND 50-330 - AMENDED MIDLAND PROJECT RESPONSE
TO NRC, REGION III LETTER DATED MAY 23, 1983
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6781
0.4.2 70*01

REFERENCES: (1) J W Cook letter to J G Keppler, dated June 24, 1983, Serial CSC-6764
(2) J G Keppler letter to J W Cook, dated May 23, 1983

This letter, including Attachment 1, and in addition to Reference , provides our amended response to Reference 2.

We appreciate your consideration in extending the due date for this response in order that our personnel could properly examine the vendor information available and hopefully provide a thorough and accurate response. This was discussed with your Mr. R. Cook.

James W. Cook

JWC/BHP/klm

cc: RFWarnick, NRC Region III
JJHarrison, NRC Region III
RNGardner, NRC Region III
RJCook, NRC Senior Resident Inspector, Midland Site
RBLandsman, NRC Region III
BLBurgess, NRC Resident Inspector, Midland Site

JUL 20 1983

OC0783-0004A-CN01

8307250123

CONSUMERS POWER COMPANY
Midland Units 1 and 2
Docket No 50-329/50-330

Letter Serial CSC-6781 Dated July 12, 1983

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits the amended response to J G Keppler letter to J W Cook dated May 23, 1983.

CONSUMERS POWER COMPANY

By J W Cook
J W Cook, Vice President
Projects, Engineering and Construction

Sworn and subscribed before me this 14th day of July 1983.

Patricia A Puffer
Notary Public

My Commission Expires 3-4-86

PATRICIA A. PUFFER
Notary Public, Bay County, MI
My Commission Expires Mar. 4, 1986

OC0783-0004A-CN01

Attachment 1

Amended Response to J G Keppler letter to J W Cook dated May 23, 1983

The amended response to J G Keppler letter to J W Cook dated May 23, 1983 is submitted in the following format:

NOV Item B Identification Number

A. Statement of Original Violation (from J G Keppler letter to J D Selby dated February 8, 1983: Notice of Violation EA 83-3.)

B. Request For Additional Information (from J G Keppler letter to J W Cook dated May 23, 1983.)

C. Statement of Additional Information

1. Admission or denial of the alleged violation
2. The reasons for the violation, if admitted
3. The corrective steps which have been taken and the results achieved
4. The corrective steps which will be taken to avoid futher violations
5. The date when full compliance will be achieved

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OC0783-0004A-CN01

NOV Item B - 2.a (82-22-08)

A. Statement of Original Violation

"Measures were not established for the selection and review for suitability of application of "Q" materials associated with the diesel generator exhaust muffler in that design drawings and specifications did not indicate the material identity of the installed muffler saddle supports and plates."

B. Request For Additional Information

"Regarding Item B.2.a, we reiterate our position that the lack of design documentation which specified the material requirements for the diesel generator exhaust mufflers constituted an item of noncompliance. Please provide any additional information supplied by the vendor regarding the traceability of the exhaust muffler materials, and as appropriate, your corrective actions and the results achieved, corrective actions taken to avoid further noncompliance, and the date when full compliance will be achieved."

C. Statement of Additional Information

1. The violation is admitted.

2. The violation occurred because the design intent was not implemented in the design, fabrication and inspection of the exhaust silencers by the diesel generator prime supplier, Transamerica Delavel, Inc., (TDI). This was not recognized or corrected by the design organization responsible for the procurement. The design intent was that the diesel generator exhaust silencers be subject to the appropriate elements of 10CFR50, Appendix B, and ANSI N45.2-1971.

   The Bechtel procurement documents for the diesel generators specify the functional performance requirements of the diesel generators. It is not the intent to specify all details of design and construction. The expertise for the detailed design and construction of the diesel generator and accessories rests with TDI.

   The procurement documents (Specification 7220-M-18, Paragraph 12.2) specified; "Quality assurance requirements are applicable to all components and assemblies which affect the reliability and ability of the equipment furnished by the Seller to perform its design function." Additionally, the specification provides a check of this requirement by requiring the vendor to submit a list of all items which he intends to supply as "Q" for review by Bechtel. When properly implemented, these requirements in Specification 7220-M-18 provide adequate direction to the vendor and control by Bechtel. Bechtel did not take action to correct the failure of TDI to fully comply with the requirements of Specification 7220-M-18, Paragraph 12.3 to submit a "list of all items to be furnished to quality control standards."

TDI has stated that they had not previously provided safety-related exhaust silencers to others, and did not consider the silencers to perform an active safety-related function. Specification requirements were not understood by TDI to apply to the exhaust silencers. As a result, the exhaust silencers were not included as an item to be safety-related. TDI procured the exhaust silencers from a sub-supplier, American Air Filter (AAF), with essentially commercial quality standards. TDI did specify to AAF that material certification, weld procedures, and weld procedure qualifications be provided. AAF did not fully comply with the purchase order requirements of TDI. TDI did provide a seismic analysis of the exhaust silencers to verify the capability to withstand a safe shutdown earthquake.

The procurement documents leave the selection of materials for construction of the exhaust silencers to TDI and AAF. The materials of construction were selected by AAF and specified in the fabrication drawing based on its experience. Common grades of steel (e.g., A-36 and A-569) are typically used.

TDI provided a certificate of conformance to the purchase requirements for the exhaust silencers and the saddle suppport modification plates as required by the procurement documents. That information is on site. If the exhaust silencers and saddle support modification plates had been identified by TDI as having a safety-related function, they would have been included under the TDI quality assurance program. That program would have required actions to be taken to assure appropriate material identification and control. Specific material traceability (i.e., certified material test reports) is not applicable because of the design and function of these items.

3. The following corrective action for the exhaust silencers has been taken: We have met with TDI and visited AAF, and subsuppliers at their facilities, and reviewed all available purchasing and quality documentation. TDI will provide a Material Certificate of Compliance to confirm that the materials used were consistent with the seismic analysis. TDI has been directed to provide a fabrication inspection procedure to verify that construction of the exhaust silencer satisfies the design and seismic analysis. This inspection will be performed on site under the direction of MPQAD. If any deficiencies are found during the inspection, the silencers will be reworked to conform to the requirements.

   In accordance with the partial redisposition of NCRs 4693 and 4994, muffler saddle support end and center support plate extensions are to be replaced because the dimensions of the slots/holes do not conform to the design drawings. Replacement plates will have material certificates of compliance.

   Project Engineering and TDI have reviewed the technical specifications to determine if other items have been considered to be non-safety related contrary to the design intent. To date, the intake air

filters, intake air silencers, intake air flexible connectors, and exhaust expansion joints have been identified as not being considered safety related by TDI, and consequently not provided as safety related. An action plan to upgrade these items to safety-related-status by verifying that the construction of these items satisfies the design and seismic analysis is underway. NCRs M-01-9-3-158 and 4955 have been written to document the indeterminant status of these components.

Further investigation to ascertain if there are any additional suspect items in the package provided by TDI is in progress and is expected to be complete by August 15, 1983.

4. The general approach to ensure that purchased material/equipment is fabricated in accordance with the specification requirements is as follows: The Project Engineering review and acceptance of vendor submitted documents required by the specification such as drawings, procedures, and quality assurance manual; the Procurement Supplier Quality Department's performance of audits on adequacy of vendor quality program implementation and source surveillance inspections at the vendor's facility as required by the purchase order; the QC performance of receipt inspection to verify supplier submittal of the required documentation on "Q" items that are received on site; the Supplier Quality Review of the required documentation for adequacy; and MPQAD/QA performance of a quality overview inspection on selected items on site.

   In view of the experiences on this procurement, we will conduct a review of functional/performance oriented procurements which contain "Q" and non-"Q" items to verify that safety-related items were designated by the vendors in accordance with project design requirements. A review program and schedule will be developed by September 10, 1983.

5. Full compliance will be achieved when:

   a) Receipt of the exhaust silencer Material Certificate of Compliance and completion of the fabrication inspection is expected by October 15, 1983. A schedule for any subsequent rework as a result of the inspection will be established at that time.

   b) The exhaust silencer saddle support and center support plate extensions are replaced and NCRs 4693 and 4994 are dispositioned.

   c) NCRs M-01-9-3-158 and 4955 will be resolved by October 15, 1983. A schedule for any subsequent rework resulting from this resolution will be established then.

   d) Further investigation to ascertain if there are any additional suspect items in the package provided by TDI is expected to be complete by August 15, 1983.

e) The review program and schedule described in part 4 and the subsequent review is completed and any findings are addressed.

BCC W R Bird, P14-418A
J E Brunner, M1079
F W Buckman, P14-113A
D M Budzik, P124-517
M L Curland, MPQAD
M A Dietrich, Bechtel
E D Field, Union Electric
J F Firlit, JSC236A
W J Friedrich, MPQAD/QC
W D Greenwell, Bechtel AA
G A Hierzer, Bechtel
R C Hollar, Bechtel AA
E M Hughes, Bechtel AA
K E Marbaugh, QA-NO, Midland
B W Marguglio, JSC220A
D B Miller, Site Manager (3)
NRC Correspondence File, P24-517
J A Rutgers, Bechtel AA
P Steptoe, IL & B, Chicago
R A Wells, MPQAD
F C Williams, IL & B, Washington

OC0783-0004A-CN01

file

Landsman
has drawings

Consumers Power Company

J A Mooney
Executive Manager
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July 8, 1983

letter only

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DPRP		SLO	
DRMA		RC	
DRSS			
		FILE	

attachments sent to SCS with original - drawings too large to reproduce.

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

MIDLAND ENERGY CENTER PROJECT
MIDLAND DOCKET NOS 50-329, 50-330
RESPONSE TO A REQUEST FOR INFORMATION
CONCERNING REACTOR BUILDING SETTLEMENT
FILE: 0505.2 SERIAL: 23242

In response to a request from Mr Kane of the Office of Nuclear Reactor Regulations, enclosed are the following drawings:

1. Updated FSAR Figure 2E.1-2 (Bechtel Drawing SK-G-414) "Settlement vs Time Reactor Buildings". This represents optical surveys taken as part of the committed settlement monitoring program.

   In addition, updated FSAR Figure 2E.8-5A (Bechtel Drawing SK-G-940) "Settlement vs Time Since 7-12-80 Reactor Buildings (SHT 3/3)" has been included for information. This figure represents additional optical surveys performed more frequently by construction on the same settlement points as given in FSAR Figure 2E.1-2.

2. Bechtel Drawing SK-G-613, "Dewatering Events"

3. Bechtel Drawing SK-G-941, "Plan of Dewatering and Observation Wells"

4. Various hydrographs from the observation wells and piezometers nearest the containments

5. Bechtel Drawings SK-G-608, -614, -946, -1014, -1015 and -1016, that show contours of groundwater levels at various dates

Please note that some of these drawings update information contained in the FSAR and will be updated accordingly in a future FSAR revision. Also, in connection with the hydrographs, the behavior of MP-4 appears to be anomalous. We believe that this well is not functioning properly due to being plugged or damaged. We are evaluating the need for repair or replacement of this well.

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The contours of groundwater levels should be treated as estimates since they are based on interpolations of groundwater levels measured at the observation well and piezometer locations.

An estimated dewatering settlement for the containments of 0.8 inch is given in FSAR Subsection 2.5.4.10.3.1.5. This is based on a general site drawdown due to permanent dewatering from elevation 627' to elevation 585'. It is anticipated that actual general site drawdown could vary between elevation 590 and elevation 595. Actually, as a result of localized construction dewatering, groundwater elevations in the vicinity of the containment are somewhat lower, as shown in the enclosed hydrographs and groundwater contour drawings. Our review of the settlement data indicates that the dewatering settlement of the containments has been less than 0.6 inches to date. Based on a comparison of the measured vs theoretical dewatering settlements, it is our judgment that there has been no unusual or unexpected settlement of the containment to date.

JAMooney

JAM/JNL/bjw

CC RJCook, Midland Resident Inspector
DHood, US NRC
RBLandsman, NRC, Region III
OL/OM Service List without attachment

OL/OM SERVICE LIST

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U. S. NUCLEAR REGULATORY COMMISSION
REGION III

SUBJECT:

DATE:

file

Consumers Power Company

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June 30, 1983

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MIDLAND ENERGY CENTER GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6759
12*32

We are enclosing the proposed list of work in accordance with the "NRC and CPCo Work Authorization Procedure" for the period between July 1, 1983, and July 31, 1983. Please review this work list and authorize the specific work items as established in the procedure.

Also enclosed is a Supplemental Work Activity List for August, 1983. Your review, comments and authorization of the specific work items as in accordance with the procedure are similarly requested.

JAMooney

JAM/AEB/klm

Attachment

JUL 5 1983

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Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6759

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JULY 1, 1983 AND JULY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		GENERAL	
		QUALITY PROGRAM	
	102351100	Approval of MPQP-2, Rev 1	A(10/22/82)
	102351120	Approval of MPQP-1, Rev 6	A(6/20/83)
		AUXILIARY BUILDING & FIVP UNDERPINNING PROGRAM	
		ACCESS SHAFTS	
	105050906	Redress the slope lay back surfaces	A (3/17/83)
		WEST FIVP	
	102150010	Install Anchor Bolts & Rods (includes hardness test on rods, drill concrete & steel and tensioning)	1 (8/12/82) A (8/13/82)
		EAST FIVP	
	112150010	Install Anchor Bolts & Rods (includes hardness tests on rods, drill concrete & steel, and tension)	1 (8/12/82) A (8/13/82)
	162550010	WEST TURBINE/AUX BUILDING PIPE TUNNEL MODIFICATION Install Platform at El 600' (includes installation of Pipe Tunnel Reinforcement, cutting of opening, Modification of Handrails and Ladder and Protection of Existing Piping)	1 (4/5/83) A (4/20/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6759

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JULY 1, 1983 AND JULY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	152550010	EAST TURBINE/AUX BUILDING PIPE TUNNEL MODIFICATION Install Platform at El 600' (includes installation of Pipe Tunnel Reinforcement, cutting of opening, Modification of Handrails and Ladder and Protection of Existing Piping)	1 (4/5/83) A (4/20/83)
		BUILDING MONITORING	
	136050043	Maintain Instrument System	3 (8/12/82) A (8/12/82)
	132550027	Install strain gauges and terminate cables (includes testing and calibration)	
	132550050	Install, wire conduit and raceway from pier to data room for Pier Instrumentation	2(12/13/82) A(12/13/82)
	165052021	Terminate Cables in Data Room & Terminal Boxes & Pier Instrumentation	A (3/10/83)
		GENERAL TEMPORARY DEWATERING	
	125150050	Continue Monitoring Utility Protection Pits (4)	3 (8/12/82) A (8/12/82)
	115150020	Continue Operation of Freeze System & Wells	3 (8/12/82) A (8/12/82)
	522550025	Excavate, Repair and Backfill Piezometer MP-2	1 (4/5/83)
	522550020	Repair Six (6) Existing Observation Wells (WB-1, WP-2, COE-10, PD-18, W-2, PD-38)	1 (4/5/83)
	125150051	Install Clay to Below Duct Bank (pit 4)	1 (8/12/82)
	125150052	Repair Ductbank (Pit 4) (includes excavate, drift, repair and backfill)	1 (8/25/82)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6759

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JULY 1, 1983 AND JULY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	115150026	Remove 36" Casing and Backfill 42" Hole	1 (9/17/82)
	115150025	Clean out and backfill abandoned ejector holes (ME26A, ME28A and ME54)	R
		CRACK MAPPING (includes scaffolding platforms, ladders and extra-ordinary clean up)	
	102250200	EPA (East & West)	3 (8/12/82) A (8/12/82)
	102250105	FIVP (East & West)	3 (8/12/82) A (8/12/82)
	102250100	Control Tower & Remainder of Aux Bldg	3 (8/12/82) A (8/12/82)
		PIER 12W	
	165054010	Install & Load Pier 12W^3	1 (8/12/82) A (12/9/82)
		PIER 11W	
	165054015	Install & Load Pier 11W^3 (includes install bituminous plywood forms)	1 (8/25/82) A (2/22/83)
		PIER 9W	
	165054005	Install & Load Pier 9W^3	1 (9/17/82) A (2/24/83)
		PIER 12E	
	155054010	Install & Load Pier 12E^3	1 (8/12/82) A (12/9/82)
		PIER 11E	
	155054015	Install & Load Pier 11E^3	1 (8/25/82) A (2/22/83)

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		PIER 9E	
	155054005	Install & Load Pier 9E[3]	1 (9/17/82) A (2/24/83)
		PIER 8E	
	155054020	Install & Load Pier 8E[3]	1 (9/17/82) A (5/3/83)
		GRILLAGE STRUCTURE AT PIER 8E	
	155052305	Drift for and Install Bulkhead from Pier 8E north to Containment Wall[1]	1 (9/17/82) A (6/20/83)
	155059025	Excavate and Remove Mudslab for Grillage Beams Between Pier 8E and Containment[1]	1 (9/17/82) A (6/20/83)
	155053025	Excavate for Support Columns next to Containment[2]	1 (9/17/82) A (6/20/83)
	155055003	Install Steel Support Columns next to Containment	1 (9/17/82) A (6/20/83)
	155055010	Install & Load Grillage Structure at Pier 8E	1 (9/17/82) A (6/20/83)
		PIER 8W	
	165054020	Install & Load Pier 8W[3]	1 (9/17/82) A (5/3/83)
		GRILLAGE STRUCTURE AT PIER 8W	
	165052305	Drift for and Install Bulkhead from Pier 8W north to Containment Wall[1]	1 (9/17/82) A (6/20/83)
	165059025	Excavate and Remove Mudslab for Grillage Beams Between Pier 8W and Containment[1]	1 (9/17/82) A (6/20/83)
	165053025	Excavate for Support Columns next to Containment[2]	1 (9/17/82) A (6/20/83)
	165055003	Install Steel Support Columns next to Containment	1 (9/17/82) A (6/20/83)

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	165055010	Install & Load Grillage Structure at Pier 8W	1 (9/17/82) A (6/20/83)
		EXCAVATION ZONES	
	155052020	Excavate/Lag Zone Y1	1 (4/5/83) A (6/20/83)
	165052020	Excavate/Lag Zone Z1	1 (4/5/83) A (6/20/83)
	165056375	Excavate/Lag Zone Z2	A (5/27/83)
	155056375	Excavate/Lag Zone Y2	A (5/27/83)
		PIER W10	
	165054030	Install & Load Pier 10W[3]	1 (4/5/83) A (5/3/83)
		PIER E10	
	155054030	Install & Load Pier 10E[3]	1 (4/5/83) A (5/3/83)
		SLAB Modification at El 659.0'	
	102250208	Survey/Layout for Engineering Review in Preparation for Slab Fix @ El 659	3 (4/5/83) A (4/5/83)
		PIER KC2	
	165054315	Install & Load Pier KC2[3]	1 (9/17/82) A (4/22/83)
		PIER KC11	
	155054315	Install & Load Pier KC11[3]	1 (9/17/82) A (4/22/83)
		PIER KC3	
	165052310	Drift to KC3 from W8[1]	A (4/22/83)

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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION	
	165053310	Excavate Pier KC3[2]		A (4/22/83)
	165054305	Install & Load KC3[3]		A (4/22/83)
		PIER KC10		
	155052310	Drift to KC10 from E8[1]		A (4/22/83)
	155053310	Excavate Pier KC10[2]		A (4/22/83)
	155054305	Install & Load KC10[3]		A (4/22/83)
		SERVICE WATER PUMP STRUCTURE UNDERPINNING PROGRAM		
		POST TENSIONING SYSTEM		
	202555170	Post Tensioning Tendon inspection & maintenance	3(12/7/82)	A(12/7/82)
		DEWATERING		
	207050605	Install Remaining Ejector Wells		A (6/23/83)
	207050385	Core Drill SWPS Slab for Ejector Wells		A (3/17/83)
	207050386	Core Drill CWIS Slab for Ejector Wells	1(11/1/82)	A (3/17/83)
	207050748	Probe for Deep Utilities Outside El 610 Excavation Limits (Ref Dwg C-2031)	1 (4/5/83)	A (5/27/83)
	207050380	Core drill SWPS and CWIS slabs for Piezometers		A (4/13/83)
	207050600	Install Piezometers		A (6/23/83)

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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	207050635	Install Dewatering Discharge System (including headers, tank, pumps and electrical)	2 (9/17/82) A (6/23/83)
	207050387	Convert 7 Wells used on 72" pipe repair to support SWPS dewatering. (Includes install new ejectors, temporary headers, operate, & maintain)	1(11/1/82) A (2/11/83)
		Fill SWPS Chambers (Bays)	
	203150165	Fill SWPS Chambers with Water to El 622 (±5')	
		Modify Pipe Supports	
	202550164	SWPS - Modify pipe supports to allow for design load (30" OHBC 34, 20 & 16)	A (5/27/83)
		ACCESS SHAFT & OPEN CUT EXCAVATION	
	207050335	Install Soldier Piles	1 (8/12/82) A (5/27/83)
		BUILDING MONITORING	
	202550100	Install Deep Seated Bench Marks	1 (8/12/82) A (4/4/83)
	206050105	Crack Map SWPS	1 (9/17/82) A (3/10/83)
	202550130	Installation of Extensometer Anchors	1 (4/5/83) A (4/13/83)
	202550120	Installation of Extensometer Covers	3 (4/5/83) A (4/5/83)
	206050100	Install Extensometers	1 (9/17/82) A (5/27/83)
	206050106	Install Instruments and Terminate Instrument Cables (Includes testing & calibration)	1 (9/17/82) A (5/27/83)
	206050102	Install Brackets	1 (9/17/82) A (4/20/83)

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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	207550103	Install Conduit & Raceway	1 (9/17/82) A (2/22/83)
	202550104	Install cable and terminate at Data Acquisition Room	1 (9/17/82) A (5/27/83)
	206050101	Install Permanent Benchmark Covers	1 (9/17/82) A (4/20/83)
	206050104	Baseline, Operate, and Maintain Instrument System	R
		BORATED WATER STORAGE TANK FOUNDATION & TANK REPAIR PROGRAM	
		UNIT 1 TANK	
	312150005	Drill and Grout Shear Connectors	2(12/13/82) A (4/20/83)
	312150007	Prepare concrete surfaces, drill holes & remove concrete for rebar.	A (4/20/83)
	312150011	Construct New Ring Beam (set forms & place rebar, pour concrete)	1 (8/12/82)
	312550019	Reinstall Electrical Ductbank	2 (9/17/82) A (4/6/83)
	312550018	Reinstall Piping, Pipe Hangers and Electrical Facilities	A (3/17/83)
		UNIT 2 TANK	
	322150005	Drill and Grout Shear Connectors	2(12/13/82) A (4/20/83)
	322150007	Prepare concrete surfaces, drill holes & remove concrete for rebar	A (4/20/83)

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	322150011	Construct New Ring Beam (set forms & place rebar, pour concrete)	1 (8/12/82)
	322550019	Reinstall Electrical Duct Bank	2 (9/17/82) A (4/6/83)
	322550018	Reinstall Piping, Pipe Hangers and Electrical Facilities	A (3/17/83)
	322150212	Repair Tank Weld Defect	R
		UNDERGROUND PIPE REPLACEMENT, REBEDDING, AND MONITORING PROGRAM	
		SHALLOW PROBING FOR PHASE II	
	407050400	Shallow probing for Phase II (Ref DWG C-2031)	A (5/27/83)
		TRAIN A OF SERVICE WATER PIPE REPLACEMENT[4]	
	402550500	Excavate Existing Pipe	1 (8/12/82) A (5/27/83)
	402550510	Remove Existing Pipe	1 (8/25/82) A (5/27/83)
	402550520	Instali new pipe & expansion coupling	1 (8/25/82) A (5/27/83)
	402550515	Hydro Test new pipe	A (5/27/83)
	402550507	Perform Profiling & Ovality Check on New Piping	A (5/27/83)
	402550525	Temporary Backfill New Pipe	1 (4/5/83)

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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		CONSTRUCTION WORK IN SOIL MATERIAL PROGRAMS	
		PERMANENT INTRUSION DETECTION SYSTEM	
	732050002	Install Wire (incl conduit)	3 (8/25/82) A (8/25/82)
	732050003	Install Fence (incl fence posts & concrete strip)	3 (8/25/82) A (8/25/82)
	732050004	Install Grounding	3 (9/17/82) A (9/17/82)
		OBS-4 Repair	
	822550018	Dutch Cone Soil Testing in Vicinity of OBS-4 for exploratory purposes	2 (12/13/82) A (4/13/83)
		Acid-Caustic Unloading Station	
	822550001	Excavate, install and backfill drainline and slab for Acid-caustic unloading station at East end of Turbine Building	1 (11/1/82) A (4/20/83)
		EMERGENCY PERSONNEL LOCKS - UNIT 2	
**	792550005	Excavate, rebar, pour concrete and backfill Airlock Structure	1 (9/17/82)
		SIT/ILRT TEST FACILITIES	
	862450105	Exploratory Excavation at SIT/ILRT Duct Bank	A(5/27/83)

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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PERMANENT DEWATERING PROGRAM	
	522150005	Install Remaining Wells	1 (9/17/82)
	522550010	Excavate, construct and backfill eletrical duct bank	1 (9/17/82)
	522550015	Install Guard Posts for Protection of Well J-1	3 (4/5/83) A (4/5/83)
	522550016	Install electrical equipment & conduit	1 (9/17/82)
	522550020	Excavate, install and backfill header piping and pumps (including equipment slabs and metering pits)	1 (9/17/82)
	522550025	Assemble and wire pump control panels	
		NITROGEN TANK INSTALLATION	
	782550005	Excavate for, install and backfill electrical duct bank	1 (9/17/82)
	782550010	Excavate for, install and backfill piping	1 (9/17/82)
	782550015	Excavate for, install and backfill concrete pad	1 (9/17/82)
	782550020	Excavate for, install and backfill nitrogen tanks and associated concrete structures	1 (9/17/82)
		DIESEL FUEL SUPPLY LINES	
	722050001	Install missle shielding	1 (8/25/82)
	722050002	Excavate, remove, reinstall and backfill DFO supply lines	1 (11/1/82)

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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	802450005	Exporatory excavation for examiniation of diesel fuel oil lines	A (4/13/83)
		DIKE MAINTENANCE	
	812550010	Normal dike maintenance in Q areas	A (5/27/83)
		CONTROL ROOM PRESSURIZATION TANK SETTLEMENT MARKERS	
	932450100	Excavate for, install and backfill Control Room pressurization tank settlement markers	
*	942450200	Remove (excavation) temporary uncontrolled fill located in Q areas (DWG C-45Q) as identified on NCRs and the OGSE action item logs, and backfill per Spec C-211Q	

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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		AUXILIARY BUILDING & FIVP UNDERPINNING PROGRAM	
		PIER W16	
	165052055	Drift from West Access Shaft to Pier W16[1] (includes Access Pit)	
	165053037	Excavate Pier W16[2]	
	165054040	Install & Load Pier W16[3]	
		PIER E16	
	155052055	Drift from East Access Shaft to Pier E16[1]	
	155053037	Excavate Pier E16[2]	
	155054040	Install & Load Pier E16[3]	
		SUPPORT BRACKET	
	152555010	Install Temporary Support Bracket at E1	
	162555010	Install Temporary Support Bracket at W1	
		SLAB MODIFICATION AT EL 659.0	
**	102250230	Install stiffener plates and related modifications to existing slab (includes any associated concrete removal)[6]	

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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER E13	
	155053040	Excavate Pier E13[2]	A (5/27/83)
	155054035	Install Pier E13	A (5/27/83)
		PIER W13	
	165053040	Excavate Pier W13[2]	A (5/27/83)
	165054035	Install Pier W13	A (5/27/83)
		PIER W14	
	165052057	Drift from West Access Shaft to Pier W14[1] (includes Access Pit)	A (5/27/83)
	165053055	Excavate Pier W14[2]	A (5/27/83)
	165054050	Install Pier W14	A (5/27/83)
		PIER E14	
	155052057	Drift from East Access Shaft to Pier E14[1] (includes Access Pit)	A (5/27/83)
	155053055	Excavate Pier E14[2]	A (5/27/83)
	155054050	Install Pier E14	A (5/27/83)

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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		DOWELS AT FIVP	
	155050325	Install dowels at east FIVP	
	165050325	Install dowels at west FIVP	
		LEVEL C WALES	
	165055305	Install Level C Wales, West Side	A (5/27/83)
	155055305	Install Level C Wales, East Side	A (5/27/83)
		PIER CT12	
	155052035	Drift to CT12 from UAT[1]	
	155053050	Excavate Pier CT12[2]	
	155054045	Install & Load Pier CT12[3]	
		PIER CT1	
	165052035	Drift to CT1 from UAT[1]	
	165053050	Excavate Pier CT12[2]	
	165054045	Install & Load Pier CT1[3]	
		PIER KC4	
	155052032	Finger Drift to KC4[1]	

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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	155053315	Excavate Pier KC4[2]	
	155054310	Install & Load Pier KC4[3]	
		PIER KC9	
	165052032	Finger Drift to KC9[1]	
	165053315	Excavate Pier KC9[2]	
	165054310	Install & Load Pier KC9[3]	
		LONG DRIFTS	
	155052320	Drift to KC4 from KC3[1]	
	165052320	Drift to KC9 from KC10[1]	
	155052030	Drift to KC3 from KC2[1]	
	165052030	Drift to KC10 from KC11[1]	
*	165054515	Construct concrete invert and layback soil KC2 to KC3	
*	155054515	Construct concrete invert and layback soil KC11 to KC10	
		UNDERGROUND PIPE REPLACEMENT, REBEDDING, AND MONITORING PROGRAM	
		TRAIN B OF SERVICE WATER PIPE REPLACEMENT[4]	
	402550446	Excavate Existing Pipe	1 (8/12/82)

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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	402550550	Remove Existing Pipe	1 (8/25/82) A (5/27/83)
	402550560	Install new pipe & expansion coupling	1 (8/25/82) A (5/27/83)
	402550561	Hydro Test new pipe	A (5/27/83)
	402550508	Perform Profiling & Ovality Check on New Piping	A (5/27/83)
	402550562	Temporary Backfill New Pipe	1 (4/5/83)
		SERVICE WATER PUMP STRUCTURE UNDERPINNING PROGRAM	
		EXCAVATION	
**	207050781	Excavate, lag, brace and install wales and struts in upper east section of SWPS access shaft (soldier piles 15 thru 30 - maximum excavation to EL 618'-3" excluding localized excavation at pipe supports).[5]	
**	207050782	Excavate, lag, brace and install wales and struts in upper west section of SWPS access shaft (soldier Piles 1 thru 14 - maximum excavation to EL 624'-9" excluding localized excavation at pipe supports.)[5]	
*	207050783	Excavate lag, brace and install wales and struts, pour and cure concrete mudmat in lower east section of SWPS access shaft (soldier piles 15 thru 30 - maximum excavation to EL 618'±6" excluding localized excavation.)[5]	

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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
*	207050784	Excavate, lag, brace and install wales and struts, pour and cure concrete mudmat in lower west section of SWPS access shaft (soldier piles 1 thru 14 - maximum excavation to EL 618'±6" excluding localized excavation.)[5]	
	202550163	Remove abandoned fire protection pipeline	1 (11/1/82) A (5/27/83)
		DEWATERING SYSTEM	
	207050620	Activate, Operate and Maintain Dewatering System	1 (9/17/82)
		BORATED WATER STORAGE TANK FOUNDATION AND TANK REPAIR PROGRAM	
	312150015	Relevel Tank-Unit 1	1 (9/17/82)
	312550100	Install Instruments (includes testing and calibration)	1 (11/1/82)
	322550100	Install Instruments (includes testing and calibration)	1 (11/1/82)
		STORM DRAIN SYSTEM	
	302050305	Storm Drain System in the Tank Farm Area (includes grade slab)	

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		CONSTRUCTION WORK IN SOIL MATERIAL PROGRAMS	
		PERMANENT DEWATERING	
	522550014	Excavate Headers & Metering Pits, Install Header and Level Monitoring System, Install Pumps, Timers and Backfill	
		CONTAINMENT TENDON ACCESS VENT HVAC	
	802550010	Excavate for, Install and Backfill Electrical Duck Bank and Equipment Pad for the Unit 1 HVAC Fan	1 (9/17/82)
	802550020	Excavate for, Install and Backfill Electrical Duck Bank and Equipment Pad for the Unit 2 HVAC Fan	1 (9/17/82)
		CATHODIC PROTECTION	
	752050001	Drill and replace annodes (as necessary)	1 (8/25/82)
	752050002	Drill & install new annodes	1 (11/1/82)

FOOTNOTES

[1] Drift Activity normally includes
1. fabricate steel sets
2. excavate
3. install steel sets (Hilti bolts as necessary)
4. remove concrete (as necessary)
5. localized dewatering (as necessary)
6. install wood lagging
7. place mudmat
8. stabilize soil (as necessary)
9. brace and/or rebrace

[2] Excavate Pier activity normally includes
1. excavate
2. concrete removal (as necessary)
3. dewatering (as necessary)
4. fabricate steel lagging
5. install steel lagging
6. auger bottom of pit to determine hydrostatic water pressure & plug (piers 10 & 12 E&W)
7. place mudmat
8. stabilize soil (as necessary)

[3] Install & load Pier activity normally includes
1. fab & install embeds
2. fab & install reinforcing steel
3. install telltales
4. install Carlson meters (pier 11 E&W)
5. place concrete
6. fab & install leveling & bearing plates, jackstands
7. install jacks
8. transfer load.
*9. monitor and adjust pier jacks after load transfer

[4] These activities have been broken down into Train A and Train B. They were previously combined under the title "Train A & B of Service Water Pipe Replacement."

[5] Excavate Access Shaft Activity Normally Includes:
1. excavate
2. fabricate and install steel lagging
3. fabricate and install structural steel supports and bracing
4. place mudmat
5. stabilize soil (as necessary)
6. localized dewatering (as necessary)
7. support and protect utilities

[6] This activity was previously numbered incorrectly 102250203 and is now numbered 102250230

NOTES

A single asterisk (*) in left hand column indicates the work activity is a new item.

A double asterisk (**) in left hand column indicates the work activity description has been revised.

Designation 1 in the right hand column indicates additional information is required by NRC Region III on this critical activity.

Designation 2 in the right hand column indicates no additional information is required by NRC Region III on this critical activity.

Designation 3 in the right hand column indicates that the activity is not critical and work can proceed.

The date shown after the designation corresponds to the date of the NRC letter that provided the designation.

An "A" following the designation indicates that Region III has provided approval to proceed with the activity. The date following the "A" corresponds with the date of the NRC letter that provides authorization to proceed with the work activity.

A "R" in the right hand column indicates that previous designation or approval has been recinded because of a significant revision to the work activity or 90 days has elapsed or is expected to elapse since the work was authorized without the work being initiated.

Sent to DMB 6/27/83

Consumers Power Company

J A Mooney
Executive Manager
Midland Project Office

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

PRINCIPAL STAFF			
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June 24, 1983

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
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6765
12*32

This letter documents 6/22/83 telecon between R. Wieland of CPCo and Dr. R. Landsman of NRC Region III. It is CPCo's intention to perform the following BWST preliminary work under the previously approved work activities 312150007 and 322150007:

1. Install expansion anchors for formwork.
2. Install concrete mudmat for new BWST foundation.
3. Cut holes in valve pit for concrete access.
4. Grout in rebar dowels at bar ends.

Dr. Landsman concurred that this activity could be performed provided that no formwork, rebar or concrete is placed except as noted above. The formwork, rebar, and concrete will be placed only after approval of activities 312150011 and 322150011, which are currently under NRC review.

JAMooney

JAM/RHW/klm

JUN 27 1983

8306300065

Consumers Power Company

J A Mooney
Executive Manager
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June 10, 1983

PRINCIPAL STAFF			
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		IRC	
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orig + 3 cpies
letter only
attachments sent to SCS

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
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6738
12*32

As per discussions with the NRC during their May 11 and 12 site visit, attached is a report on the evaluation of the continuous sampling borings in the Service Water Pump Structure (SWPS) area. This evaluation is based on the first six borings. The report summarizes our findings included are boring logs, piezometer installation details, etc.

Based on this evaluation CPCo has determined to install the SWPS dewatering wells to elevation 570 feet. It should be noted that the NRR had suggested this elevation at the June 25, 1982 meeting, in Bethesda MD, in lieu of the investigation of the initial borings.

Based on our review, we concluded that we are ready to start work:

207050605 - Install Remaining Ejector Wells
207050600 - Install Piezometers

According to the NRC/CPCo Work Authorization Procedure, we request authorization for the above activities.

/JAMooney

JAM/DWP/klm

Attachments (3) copies

JUN 20 1983

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Consumers Power Company

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

J A Mooney
Executive Manager
Midland Project Office

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cc + 3

June 8, 1983

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
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6730
12*32

We have reviewed the work activity packages for the following items. We ask your authorization to perform the work in accordance with the Work Authorization procedure.

312150011 - Construct New Ring Beam - Unit 1 BWST
(Set Forms & Place Rebar, Pour Concrete)

322150011 - Construct New Ring Beam - Unit 2 BWST
(Set Forms & Place Rebar, Pour Concrete)

JAMooney

JAM/RHW/klm

JUN 13 1983

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Consumers Power Company

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

PRINCIPAL STAFF			
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cc + 3

June 1, 1983

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
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6718
12*32

We are enclosing the proposed list of work in accordance with the "NRC and CPCo Work Authorization Procedure" for the period between June 1, 1983 and June 30, 1983. Please review this work list and authorize the specific work items as established in the procedure.

Also enclosed is a Supplemental Work Activity List for July 1983. Your review, comments and authorization of the specific work items as in accordance with the procedure are similarly requested.

JA Mooney

J. A. Mooney
Executive Manager
Midland Project Office

Attachments

JUN 6 1983

8306090321

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6718

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		GENERAL	
		QUALITY PROGRAM	
	102351100	Approval of MPQP-2, Rev 1	A(10/22/82)
	102351120	Approval of MPQP-1, Rev 6	
		AUXILIARY BUILDING & FIVP UNDERPINNING PROGRAM	
		ACCESS SHAFTS	
	105050906	Redress the slope lay back surfaces	A (3/17/83)
		WEST FIVP	
	102150010	Install Anchor Bolts & Rods (includes hardness test on rods, drill concrete & steel and tensioning)	1 (8/12/82) A (8/13/82)
		EAST FIVP	
	112150010	Install Anchor Bolts & Rods (includes hardness tests on rods, drill concrete & steel, and tension)	1 (8/12/82) A (8/13/82)
		CONTROL TOWER POST. TENSION VERIFICATION	
	102550203	Verify Post Tension Loads	A (2/22/83)

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	162550010	WEST TURBINE/AUX BUILDING PIPE TURNNEL MODIFICATION Install Platform at El 600' (includes installation of Pipe Tunnel Reinforcement, cutting of opening, Modification of Handrails and Ladder and Protection of Existing Piping)	1 (4/5/83) A (4/20/83
	152550010	EAST TURBINE/AUX BUILDING PIPE TUNNEL MODIFICATION Install Platform at El 600' (includes installation of Pipe Tunnel Reinforcement, cutting of opening, Modification of Handrails and Ladder and Protection of Existing Piping)	1 (4/5/83) A (4/20/83)
		BUILDING MONITORING	
	136050043	Maintain Instrument System	3 (8/12/82) A (8/12/82
	132550027	Install strain gauges and terminate cables (includes testing and calibration)	
	132550050	Install, wire conduit and raceway from pier to data room for Pier Instrumentation	2(12/13/82) A(12/13/8
	165052021	Terminate Cables in Data Room & Terminal Boxes & Pier Instrumentation	A (3/10/83
		GENERAL TEMPORARY DEWATERING	
	125150050	Continue Monitoring Utility Protection Pits (4)	3 (8/12/82) A (8/12/82
	115150020	Continue Operation of Freeze System & Wells	3 (8/12/82) A (8/12/82
	522550025	Excavate, Repair and Backfill Piezometer MP-2	1 (4/5/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6718

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	522550020	Repair Six (6) Existing Observation Wells (WB-1, WP-2, COE-10, PD-18, W-2, PD-38)	1 (4/5/83)
	125150051	Install Clay to Below Duct Bank (pit 4)	1 (8/12/82)
	125150052	Repair Ductbank (Pit 4) (includes excavate, drift, repair and backfill)	1 (8/25/82)
	115150026	Remove 36" Casing and Backfill 42" Hole	1 (9/17/82)
	115150025	Clean out and backfill abandoned ejector holes (ME26A, ME28A and ME54)	R
		CRACK MAPPING (includes scaffolding platforms, ladders and extra-ordinary clean up)	
	102250200	EPA (East & West)	3 (8/12/82) A (8/12/82)
	102250105	FIVP (East & West)	3 (8/12/82) A (8/12/82)
	102250100	Control Tower & Remainder of Aux Bldg	3 (8/12/82) A (8/12/82)
		PIER 12W	
	165054010	Install & Load Pier 12W^3	1 (8/12/82) A (12/9/82)
		PIER 11W	
	165054015	Install & Load Pier 11W^3 (includes install bituminous plywood forms)	1 (8/25/82) A (2/22/83)
	105050908	Perform Pier Load Test	1 (8/25/82) A (5/2/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6718

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER 9W	
	165054005	Install & Load Pier 9W[3]	1 (9/17/82) A (2/24/83)
		PIER 12E	
	155054010	Install & Load Pier 12E[3]	1 (8/12/82) A (12/9/82)
		PIER 11E	
	155054015	Install & Load Pier 11E[3]	1 (8/25/82) A (2/22/83)
		PIER 9E	
	155054005	Install & Load Pier 9E[3]	1 (9/17/82) A (2/24/83)
		PIER 8E	
	155052025	Drift from Pier 9E to Pier 8E[1]	1 (9/17/82) A (4/7/83)
	155053020	Excavate Pier 8E[2]	1 (9/17/82) A (5/3/83)
	155054020	Install & Load Pier 8E[3]	1 (9/17/82) A (5/3/83)
		GRILLAGE STRUCTURE AT PIER 8E	
	155052305	Drift for and Install Bulkhead from Pier 8E north to Containment Wall[1]	1 (9/17/82)
	155059025	Excavate and Remove Mudslab for Grillage Beams Between Pier 8E and Containment[1]	1 (9/17/82)
	155053025	Excavate for Support Columns next to Containment[2]	1 (9/17/82)
	155055003	Install Steel Support Columns next to Containment	1 (9/17/82)
	155055010	Install & Load Grillage Structure at Pier 8E	1 (9/17/82)

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER 8W	
	165052025	Drift from Pier 9W to Pier 8W[1]	1 (9/17/82) A (4/7/83
	165053020	Excavate Pier 8W[2]	1 (9/17/82) A (5/3/83
	165054020	Install & Load Pier 8W[3]	1 (9/17/82) A (5/3/83
		GRILLAGE STRUCTURE AT PIER 8W	
	165052305	Drift for and Install Bulkhead from Pier 8W north to Containment Wall[1]	1 (9/17/82)
	165059025	Excavate and Remove Mudslab for Grillage Beams Between Pier 8W and Containment[1]	1 (9/17/82)
	165053025	Excavate for Support Columns next to Containment[2]	1 (9/17/82)
	165055003	Install Steel Support Columns next to Containment	1 (9/17/82)
	165055010	Install & Load Grillage Structure at Pier 8W	1 (9/17/82)
		EXCAVATION ZONES	
	155052020	Excavate/Lag Zone Y1	1 (4/5/83)
	165052020	Excavate/Lag Zone Z1	1 (4/5/83)
	165056375	Excavate/Lag Zone Z2	
	155056375	Excavate/Lag Zone Y2	

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER W10	
	165052050	Install W10 Bulkhead	1 (4/5/83) A (5/3/8
	165053035	Excavate Pier 10W[2]	1 (9/17/82) A (5/3/8
	165054030	Install & Load Pier 10W[3]	1 (4/5/83) A (5/3/8
		PIER E10	
	155052050	Install E10 Bulkhead	1 (4/5/83) A (5/3/8
	155053035	Excavate Pier 10E[2]	1 (9/17/82) A (5/3/8
	155054030	Install & Load Pier 10E[3]	1 (4/5/83) A (5/3/8
		BEAM CONNECTIONS	
	102250203	Modify Beam Connections at elev 659 (2 connections)	2 (12/13/82) A (4/13/
	102250205	Modify Beam Connections at elev 704 (10 connections)	2 (12/13/82) A (4/13/
		SLAB Modification at El 659.0'	
	102250208	Survey/Layout for Engineering Review in Preparation for Slab Fix @ El 659	3 (4/5/83) A (4/5/8
		PIER KC2	
	165052325	Drift from West Access Shaft to Pier KC2[1]	1 (9/17/82) A (4/22/8
	165053320	Excavate Pier KC2[2]	1 (9/17/82) A (4/22/8
	165054315	Install & Load Pier KC2[3]	1 (9/17/82) A (4/22/8

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6718

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER KC11	
	155052325	Drift from East Access Shaft to Pier KC11[1]	1 (9/17/82) A (4/22/83)
	155053320	Excavate Pier KC11[2]	1 (9/17/82) A (4/22/83)
	155054315	Install & Load Pier KC11[3]	1 (9/17/82) A (4/22/83)
		PIER KC3	
	165052310	Drift to KC3 from W8[1]	A (4/22/83)
	165053310	Excavate Pier KC3[2]	A (4/22/83)
	165054305	Install & Load KC3[3]	A (4/22/83)
		PIER KC10	
	155052310	Drift to KC10 from E8[1]	A (4/22/83)
	155053310	Excavate Pier KC10[2]	A (4/22/83)
	155054305	Install & Load KC10[2]	A (4/22/83)
		PIER W14	
	165052057	Drift from West Access Shaft to Pier W14[1] (includes Access Pint)	
	165053055	Excavate Pier W14[2]	
	165054050	Install Pier W14	

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6718

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION	
		PIER E14		
	155052057	Drift from East Access Shaft to Pier E14[1] (includes Access Pit)		
	155053055	Excavate Pier E14[2]		
	155054050	Install Pier E14		
		SERVICE WATER PUMP STRUCTURE UNDERPINNING PROGRAM		
		POST TENSIONING SYSTEM		
	202555170	Post Tensioning Tendon inspection & maintenance	3(12/7/82)	A(12/7/82)
		DEWATERING		
	207050618	Install 6 Preliminary Ejector Wells		A (3/10/83)
	207050605	Install Remaining Ejector Wells	R	
	207050385	Core Drill SWPS Slab for Ejector Wells		A (3/17/83)
	207050386	Core Drill CWIS Slab for Ejector Wells	1(11/1/82)	A (3/17/83)
	207050748	Probe for Deep Utilities Outside El 610 Excavation Limits (Ref Dwg C-2031)	1 (4/5/83)	
	207050380	Core drill SWPS and CWIS slabs for Piezometers		A (4/13/83)
	207050600	Install Piezometers	R	

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6718

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	207050635	Install Dewatering Discharge System (including headers, tank, pumps and electrical)	2 (9/17/82)
	207050387	Convert 7 Wells used on 72" pipe repair to support SWPS dewatering. (Includes install new ejectors, temporary headers, operate, & maintain)	1(11/1/82) A (2/11/83)
		Fill SWPS Chambers (Bays)	
*	203150165	Fill SWPS Chambers with Water to El 622 (±5')	
		Modify Pipe Supports	
*	202550164	SWPS - Modify pipe supports to allow for design load (30" OHBC 34, 20 & 16)	
		ACCESS SHAFT & OPEN CUT EXCAVATION	
	207050335	Install Soldier Piles	1 (8/12/82)
		BUILDING MONITORING	
	202550100	Install Deep Seated Bench Marks	1 (8/12/82) A (4/4/83)
	206050105	Crack Map SWPS	1 (9/17/82) A (3/10/83)
	202550130	Installation of Extensometer Anchors	1 (4/5/83) A (4/13/83)
	202550120	Installation of Extensometer Covers	3 (4/5/83) A (4/5/83)
	206050100	Install Extensometers	1 (9/17/82)
	206050106	Install Instruments and Terminate Instrument Cables (Includes testing & calibration)	1 (9/17/82)
	206050102	Install Brackets	1 (9/17/82) A (4/20/83)

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WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	207550103	Install Conduit & Raceway	1 (9/17/82) A (2/22/83)
	202550104	Install cable and terminate at Data Acquisition Room	1 (9/17/82)
	206050101	Install Permanent Benchmark Covers	1 (9/17/82) A (4/20/83)
	206050104	Baseline, Operate, and Maintain Instrument System	R
		BORATED WATER STORAGE TANK FOUNDATION & TANK REPAIR PROGRAM	
		UNIT 1 TANK	
	312150111	Rebar Mapping	3 (8/25/82) A (8/25/82)
	312150005	Drill and Grout Shear Connectors	2(12/13/82) A (4/20/83
	312150007	Prepare concrete surfaces, drill holes & remove concrete for rebar.	A (4/20/83)
	312150011	Construct New Ring Beam (set forms & place rebar, pour concrete)	1 (8/12/82)
	312550019	Reinstall Electrical Ductbank	2 (9/17/82) A (4/6/83)
	312550018	Reinstall Piping, Pipe Hangers and Electrical Facilities	A (3/17/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6718

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		UNIT 2 TANK	
	322150111	Rebar Mapping	3 (8/25/82) A (8/25/82)
	322150005	Drill and Grout Shear Connectors	2(12/13/82) A (4/20/83)
	322150007	Prepare concrete surfaces, drill holes & remove concrete for rebar	A (4/20/83)
	322150011	Construct New Ring Beam (set forms & place rebar, pour concrete)	1 (8/12/82)
	322550019	Reinstall Electrical Duct Bank	2 (9/17/82) A (4/6/83)
	322550018	Reinstall Piping, Pipe Hangers and Electrical Facilities	A (3/17/83)
	322150212	Repair Tank Weld Defect	R
		UNDERGROUND PIPE REPLACEMENT, REBEDDING, AND MONITORING PROGRAM	
		SHALLOW PROBING FOR PHASE II	
**	407050400	Shallow probing for Phase II (Ref DWG C-2031)	
		TRAIN A OF SERVICE WATER PIPE REPLACEMENT[4]	
	402550500	Excavate Existing Pipe	1 (8/12/82)
	402550510	Remove Existing Pipe	1 (8/25/82)
	402550520	Install new pipe & expansion coupling	1 (8/25/82)
	402550515	Hydro Test new pipe	R

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6718

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	402550507	Perform Profiling & Ovality Check on New Piping	R
	402550525	Temporary Backfill New Pipe	1 (4/5/83)
		CONSTRUCTION WORK IN SOIL MATERIAL PROGRAMS	
		PERMANENT INTRUSION DETECTION SYSTEM	
	732050002	Install Wire (incl conduit)	3 (8/25/82) A (8/25/82)
	732050003	Install Fence (incl fence posts & concrete strip)	3 (8/25/82) A (8/25/82)
	732050004	Install Grounding	3 (9/17/82) A (9/17/82)
		OBS-4 Repair	
	522550018	Dutch Cone Soil Testing in Vicinity of OBS-4 for exploratory purposes	2 (12/13/82) A (4/13/83)
		Acid-Caustic Unloading Station	
	822550001	Excavate, install and backfill drainline and slab for Acid-caustic unloading station at East end of Turbine Building	1 (11/1/82) A (4/20/83)
		EMERGENCY PERSONNEL LOCKS - UNIT 2	
	792550005	Excavate for, Install and Backfill Concrete Airlock Structure	1 (9/17/82)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6718

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION	
		SIT/ILRT TEST FACILITIES		
	862450105	Exploratory Excavation at SIT/ILRT Duct Bank		
		PERMANENT DEWATERING PROGRAM		
	522150005	Install Remaining Wells	1 (9/17/82)	
	522550010	Excavate, construct and backfill eletrical duct bank	1 (9/17/82)	
	522550015	Install Guard Posts for Protection of Well J-1	3 (4/5/83)	A (4/5/83)
	522550016	Install electrical equipment & conduit	1 (9/17/82)	
	522550020	Excavate, install and backfill header piping and pumps (including equipment slabs and metering pits)	1 (9/17/82)	
	522550025	Assemble and wire pump control panels		
		CATHODIC PROTECTION		
	752050001	Drill and replace annodes (as necessary)	1 (8/25/82)	
	752050002	Drill & install new annodes	1 (11/1/82)	
**		DIESEL FUEL SUPPLY LINES		
	722050001	Install missle shielding	1 (8/25/82)	
	722050002	Excavate, remove, reinstall and backfill DFO supply lines	1 (11/1/82)	
	802450005	Exporatory excavation for examiniation of diesel fuel oil lines		A (4/13/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6718

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		DIKE MAINTENANCE	
*	812550010	Normal dike maintenance in Q areas	
		CONTROL ROOM PRESSURIZATION TANK SETTLEMENT MARKERS	
*	932450100	Excavate for, stall and backfill Control Room pressurization tank settlement markers	

SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JULY 1, 1983 AND JULY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		AUXILIARY BUILDING & FIVP UNDERPINNING PROGRAM	
		PIER W16	
	165052055	Drift from West Access Shaft to Pier W16[1] (includes Access Pit)	
	165053037	Excavate Pier W16[2]	
*	165054040	Install & Load Pier W16[3]	
		PIER E16	
	155052055	Drift from East Access Shaft to Pier E16[1]	
	155053037	Excavate Pier E16[2]	
*	155054040	Install & Load Pier E16[3]	
		SUPPORT BRACKET	
	152555010	Install Temporary Support Bracket at E1	
	162555010	Install Temporary Support Bracket at W1	
		SLAB MODIFICATION AT EL 659.0	
	162250203	Install stiffener plates and related modifications to existing slab (includes any associated concrete removal)	

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6718

SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JULY 1, 1983 AND JULY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER E13	
	155053040	Excavate Pier E13[2]	
	155054035	Install Pier E13	
		PIER W13	
	165053040	Excavate Pier W13[2]	
	165054035	Install Pier W13	
		DOWELS AT FIVP	
	155050325	Install dowels at east FIVP	
	165050325	Install dowels at west FIVP	
		LEVEL C WALES	
*	165055305	Install Level C Wales, West Side	
*	155055305	Install Level C Wales, East Side	
		PIER CT12	
	155052035	Drift to CT12 from UAT[1]	
	155053050	Excavate Pier CT12[2]	
*	155054045	Install & Load Pier CT12[3]	

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6718

SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JULY 1, 1983 AND JULY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER CT1	
	165052035	Drift to CT1 from UAT[1]	
	165053050	Excavate Pier CT12[2]	
*	165054045	Install & Load Pier CT1[3]	
		PIER KC4	
*	155052032	Finger Drift to KC4[1]	
*	155053315	Excavate Pier KC4[2]	
*	155054310	Install & Load Pier KC4[3]	
		PIER KC9	
*	165052032	Finger Drift to KC9[1]	
*	165053315	Excavate Pier KC9[2]	
*	165054310	Install & Load Pier KC9[3]	
		LONG DRIFTS	
*	155052320	Drift to KC4 from KC3[1]	
*	165052320	Drift to KC9 from KC10[1]	
*	155052030	Drift to KC3 from KC2[1]	

SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JULY 1, 1983 AND JULY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
*	165052030	Drift to KC10 from KC11[1]	
		UNDERGROUND PIPE REPLACEMENT, REBEDDING, AND MONITORING PROGRAM	
		TRAIN B OF SERVICE WATER PIPE REPLACEMENT[4]	
	402550446	Excavate Existing Pipe	1 (8/12/82)
	402550550	Remove Existing Pipe	1 (8/25/82)
	402550560	Install new pipe & expansion coupling	1 (8/25/82)
	402550561	Hydro Test new pipe	R
	402550508	Perform Profiling & Ovality Check on New Piping	R
	402550562	Temporary Backfill New Pipe	1 (4/5/83)
		SERVICE WATER PUMP STRUCTURE UNDERPINNING PROGRAM	
		EXCAVATION	
	207050781	Excavate, lag, brace and install wales and struts in east section of access shaft (includes upper & lower level struts between soldier piles 15 thru 30)[5]	
	207050782	Excavate, lag, brace and install wales and struts in west section of access shaft (includes upper & lower struts between soldier Piles 1 thru 14)[5]	
	202550163	Remove abandoned fire protection pipeline	1 (11/1/82)

SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JULY 1, 1983 AND JULY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		DEWATERING SYSTEM	
	207050620	Activate, Operate and Maintain Dewatering System	1 (9/17/82)
		BORATED WATER STORAGE TANK FOUNDATION AND TANK REPAIR PROGRAM	
	312150015	Relevel Tank-Unit 1	1 (9/17/82)
	312550100	Install Instruments (includes testing and calibration)	1 (11/1/82)
	322550100	Install Instruments (includes testing and calibration)	1 (11/1/82)
		STORM DRAIN SYSTEM	
**	302050305	Storm Drain System in the Tank Farm Area (includes grade slab)	
		CONSTRUCTION WORK IN SOIL MATERIAL PROGRAMS	
		NITROGEN TANK INSTALLATION	
	782550005	Excavate for, install and backfill electrical duct bank	1 (9/17/82)
	782550010	Excavate for, install and backfill piping	1 (9/17/82)
	782550015	Excavate for, install and backfill concrete pad	1 (9/17/82)
	782550020	Excavate for, install and backfill nitrogen tanks and associated concrete structures	1 (9/17/82)

SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JULY 1, 1983 AND JULY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PERMANENT DEWATERING	
	522550014	Excavate Headers & Metering Pits, Install Header and Level Monitoring System, Install Pumps, Timers and Backfill	
		CONTAINMENT TENDON ACCESS VENT HVAC	
	802550010	Excavate for, Install and Backfill Electrical Duck Bank and Equipment Pad for the Unit 1 HVAC Fan	1 (9/17/82)
	802550020	Excavate for, Install and Backfill Electrical Duck Bank and Equipment Pad for the Unit 2 HVAC Fan	1 (9/17/82)

FOOTNOTES

[1] Drift Activity normally includes
1. fabricate steel sets
2. excavate
3. install steel sets (Hilti bolts as necessary)
4. remove concrete (as necessary)
5. localized dewatering (as necessary)
6. install wood lagging
7. place mudmat
8. stabilize soil (as necessary)
9. brace and/or rebrace

[2] Excavate Pier activity normally includes
1. excavate
2. concrete removal (as necessary)
3. dewatering (as necessary)
4. fabricate steel lagging
5. install steel lagging
6. auger bottom of pit to determine hydrostatic water pressure & plug (piers 10 & 12 E&W)
7. place mudmat
8. stabilize soil (as necessary)

[3] Install & load Pier activity normally includes
1. fab & install embeds
2. fab & install reinforcing steel
3. install telltales
4. install Carlson meters (pier 11 E&W)
5. place concrete
6. fab & install leveling & bearing plates, jackstands
7. install jacks
8. transfer load.
*9. monitor and adjust pier jacks after load transfer

[4] These activities have been broken down into Train A and Train B. They were previously combined under the title "Train A & B of Service Water Pipe Replacement."

[5] Excavate Access Shaft Activity Normally Includes:
1. excavate
2. fabricate and install steel lagging
3. fabricate and install structural steel supports and bracing
4. place mudmat
5. stabilize soil (as necessary)
6. localized dewatering (as necessary)
7. support and protect utilities

NOTES

A single asterisk (*) in left hand column indicates the work activity is a new item.

A double asterisk (**) in left hand column indicates the work activity description has been revised.

Designation 1 in the right hand column indicates additional information is required by NRC Region III on this critical activity.

Designation 2 in the right hand column indicates no additional information is required by NRC Region III on this critical activity.

Designation 3 in the right hand column indicates that the activity is not critical and work can proceed.

The date shown after the designation corresponds to the date of the NRC letter that provided the designation.

An "A" following the designation indicates that Region III has provided approval to proceed with the activity. The date following the "A" corresponds with the date of the NRC letter that provides authorization to proceed with the work activity.

A "R" in the right hand column indicates that previous designation or approval has been recinded because of a significant revision to the work activity or 90 days has elapsed or is expected to elapse since the work was authorized without the work being initiated.

Consumers Power Company

J A Mooney
Executive Manager
Midland Project Office

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0498

PRINCIPAL STAFF			
RA		ENF	
D/RA		SCS	✓
A/RA		PAO	
DSPP		ELD	
DPMA		FC	
DRMSP			
DE			
ML			
SL		FILE	

May 25, 1983

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
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6715
12*32

We have completed our review of the documents for the activities listed below. Based on our review, we submit the following for work authorization:

862450105 - Exploratory Excavation for SIT/ILRT Duct Bank
812550010 - Normal Dike Maintenance in Q Areas

SERVICE WATER PUMP STRUCTURE UNDERPINNING PROGRAM

207050620 - Activate, Operate and Maintain Dewatering System
202550164 - Modify Pipe Supports to Allow for Design Load 30" OHBC 34, 20 and 16.
202550163 - Remove Abandoned Fire Protection Pipeline
207050335 - Install Soldier Piles

TRAIN B OF SERVICE WATER PIPE REPLACEMENT

402550550 - Remove Existing Pipe
402550560 - Install New Pipe and Expansion Coupling
402550561 - Hydro Test New Pipe
402550508 - Perform Profiling and Quality Check on New Piping

According to the NRC/CPCo Work Authorization Procedure, we request authorization for the above activities.

JA Mooney

oc0583-4103a-66-141

JUN 6 1983

8306060192

Consumers Power Company

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

PRINCIPAL STAFF			
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DPRP		ISLO	
DRMA		NRC	
DRMSP			
DE			
ML			
OL		FILE	

May 13, 1983

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
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6703
12*32

This letter documents verbal discussion between R. Wieland, CPCo and Dr. R. Landsman, NRC Region III, 5/12/83, 1:15 PM.

CPCo asked to excavate three additional shallow holes on the south side of the diesel generator building to facilitate disposition of outstanding NRC's on the diesel fuel lines (Activity #802450005). Dr. Landsman concurred that these excavations constituted only a minor change to the previously approved activity.

Donald B. Miller
Site Manager

DBM/RHW/klm

MAY 19 1983

8305240353

Consumers Power Company

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

PRINCIPAL STAFF			
RA		ENF	
D/RA		CSS	
A/RA		PAO	
CPRP		SLO	
DRMA		LC	
URMSP			
DE			
ML			
OL		FILE	

May 13, 1983

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
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6704
12*32

We have completed our review of the documents for the activities listed below. Based on our review, we concluded that we are ready to start the work:

SERVICE WATER PUMP STRUCTURE UNDERPINNING PROBRAM

207050748 - Probe for Deep Utilities Outside Elev. 610 Excavation Limits
Ref. Dwg. C-2031
Information to be included in the deep probing logs is:
1. Time of penetration per each five feet.
2. If time exceeds thirty minutes per five feet, we will stop operation and evaluate before proceeding with the probing.

TRAIN A OF SERVICE WATER PIPE REPLACEMENT

407050400 - Shallow Probing for Phase II
Ref. Dwg. C-2031
402550500 - Excavate Existing Pipe
402550510 - Remove Existing Pipe
402550520 - Install New Pipe and Expansion Coupling
402550515 - Hydro Test New Pipe
402550507 - Perform Profiling and Ovality Check on New Piping

According to the NRC/CPCo Work Authorization Procedure, we request authorization for the above activities.

Donald B. Miller
Site Manager

DBM/DES/klm

MAY 19 1983

8305240427

file

PRINCIPAL STAFF			
RA		ENF	
D/RA		SCS	
A/RA		PAO	
DPRP		SLO	
DRMA		IRC	
DRMSP			
DE			
ML			
OL		FILE	

orig+3

Consumers Power Company

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-0951

May 10, 1983

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

MIDLAND ENERGY CENTER GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6696
12*32

This letter documents telecon between R. Wieland, CPCo and Dr. R. Landsman, NRC, 5/10/83, 10:15 AM. CPCo received concurrence from Dr. R. Landsman to perform minor soil excavation on the following activities:

312550018 (Reinstallation of piping, pipe hangers, and electrical
322550018 facilities)

This excavation, to clean soil from the ends of the buried pipes outside the BWST valve pits, will be hand dug with shovels and will not extend below the level of the valve pit foundation at any location.

Donald B. Miller
Site Manager

DBM/RHW/klm

MAY 18 1983

8305200389

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

May 9, 1983

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
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6695
12*32

We have completed our review of the documents for the activities listed below. Based on our review, we concluded that we are ready to start the work.

407050400 - Shallow Probing for Phase II
202550104 - SWPS - Install and Terminate Cable

According to the NRC/CPCo Work Authorization Procedure, we request authorization for the above activities.

DBM/DWP/klm

8305190065

file

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

May 6, 1983

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

MIDLAND ENERGY CENTER GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485. 16 UFI: 42*05*22*04 Serial: CSC-6694
12*32

Attached for your review is Revision 6 to MPQP-1. The significant changes in MPQP-1 are as follows:

1. Quality Assurance Engineering provides the inspection planning to QC. Concurrence, on the inspection planning utilized by QC, is obtained from QC per Procedures E-3M and PSP G-6.1.

2. Remove from QC the requirement of reviewing design documents. This requirement came from the original responsibility for QC to prepare the inspection planning. Now that QAE does the inspection planning the dual in line review prior to design document release can be eliminated as a requirement. Input from QC will continue to be obtained as required to provide adequate quality review.

In accordance with the NRC/CPCo Work Authorization Procedure, we request your approval of this activity.

102351120 - Approval of MPQP-1, Rev. 6

Upon receipt of your authorization, an effectivity date will be assigned and the plan will be released.

DBM/AEB/klm

Attachment

185 P.L. P83

8305190298

DRAFT

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Approved _____
Manager MPQAD

Approved _____
Bechtel Assistant Project Manager

Approved _____
Midland Project Office

6

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

1. GENERAL

All activities for the remedial soils work are covered by the existing Consumers Power Company and Bechtel Power Corporation Topical Reports CPC-1-A and BQ-TOP-1, Revision 1A, respectively. This Quality Plan provides a more detailed written description of the accomplishment of activities specific to certain soils remedial work. This Quality Plan was developed to describe how quality programmatic coverage is extended to encompass the underpinning subcontractors as required by the Quality Plan for Remedial Soils Work (MPQP-2).

The senior management, consisting of the Vice President of Projects, Engineering and Construction, Consumers Power Company, and the Midland Project Manager, Bechtel Power Corporation (CP Co's contractor for the Midland Nuclear Plant), reviews and approves major decisions and design concepts regarding underpinning work. For CP Co, a Midland Project Office Executive Manager and an Assistant Project Manager, and for Bechtel, a Bechtel Assistant Project Manager, will manage the underpinning work. The Bechtel Field Soils Manager manages overall soils activities including the underpinning work.

The Executive Manager of MPQAD and the Site QA Superintendent Soils will manage the MPQAD support of underpinning work with the overview of the Director of Environmental and Quality Assurance.

6

6

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

2. SCOPE

This Quality Plan is applicable to the auxiliary building and service water structure underpinning tasks. The "Q" list for this work is all inclusive and, as such, covers activities, items and structures beyond the requirements provided by the FSAR. This extension to provide Quality Assurance Program coverage over and above the coverage for safety related items provides an additional assurance that the non-safety related activities will not have an adverse affect on safety related structures.

The following major categories of the underpinning work are specifically covered by this Quality Plan.

1. Underpinning of the Service Water Pump Structure as delineated by Specification 7220-C-194(Q).

2. Underpinning of Auxiliary Building (removal, replacement of fill, and underpinning beneath the feedwater isolation valve pit areas, auxiliary building electrical penetration areas, control tower, and beneath the turbine building) as delineated by Specification 7220-C-195(Q). (Reference MPQP-1)

Any activity or structure which will be excluded from Quality Assurance Program coverage shall be specifically documented on an exception basis. Assurance of NRC Region III authorization for any general exclusion from the Quality Assurance Program is required prior to conducting any work activities in the excluded area.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Specifications, procurement documents, drawings and procedures are specific as to the design attributes and activities which require quality verification. The need for verification shall be dictated by the following principal:

> The Quality Assurance Program shall provide control over activities affecting the quality of the identified structures, systems and components to an extent consistent with (a) their importance to safety; (b) their possible detrimental interaction or effect on safety related structures and items; or (c) assuring obtainment of the overall Project objectives.

3. UNDERPINNING WORK ORGANIZATIONS

Organizations involved with the underpinning are defined in the Functional Matrix, Attachment 1 and as follows:

CP Co Project Management

Sets policy, coordinates licensing review, and submittals to the NRC.

CP Co Safety and Licensing

Performs licensing reviews and coordinates FSAR revisions.

CP Co Design Production

Provides client design input and performs reviews of and comments on Bechtel Design Documents.

6

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

CP Co Site Management

Provides overview and direction as necessary for underpinning activities for compliance with NRC commitments. Monitors underpinning activities with respect to commercial type items, construction activities (such as equipment care, labor and production), and implements site work authorization procedure. Provides overview and control of work releases for remedial soils activities for compliance with NRC commitments.

Bechtel Project Management

Coordinates with client and sets project policy for Bechtel organizations.

Bechtel Project Engineering

Establishes design criteria and reviews input from non-Bechtel sources. Originates and issues design documents for construction.

Bechtel Project Geotechnical Engineer

Functions as Project Engineering's Geotechnical representative on project. Performs geotechnical reviews related to design criteria and procedures. Interfaces with Geotech Services and Resident Geotechnical Engineer.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Bechtel Site Management

Performs the overall on-site management of all construction activities including coordination between Bechtel, CP Co and Subcontractors. Bechtel Site Management includes Construction Site Organization, Field Soils Organization, Field Document Control Center and Field Procurement Department. The Field Soils Organization (FSO) is responsible for all ASLB Board Order Work including coordinating the activities of the underpinning subcontractors.

Geotech Services

Provides design and field geotechnical services as requested by Project Engineering.

Resident Assistant Project Engineer

Represents Project Engineering and interfaces with the Field Soils Organization.

Resident Geotechnical Engineer

Performs foundation inspection and on-site geotechnical monitoring of underpinning activities. Interfaces with the Project Geotechnical Engineer.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Resident Structural Engineer

Provides structural expertise for the underpinning activities. Receives and evaluates data from the underpinning instrumentation systems.

Midland Project Quality Assurance Department (MPQAD)

Provides quality assurance including quality assurance engineering (QAE) and quality control (QC) for all underpinning work including work done by Bechtel and Bechtel Subcontractors. Quality Assurance Engineering develops quality plans, reviews construction procedures, drawings and specifications for inclusion and establishment of inspection criteria, performs overinspections and conducts pre-planned audits. Quality Control performs first-line inspection and verification, of items under the Quality Assurance Program. 6

Subcontractor

Perform construction activities as contracted for, within the framework of the Midland Project Quality Program.

Consultant

Provides advice to Bechtel Project Engineering or Bechtel Field Soils Organization on construction methods, design, instrumentation or geotechnical items.

6

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

4. DESIGN CONTROL

Design Control for the underpinning of the Auxiliary Building (Electrical Penetrations and Control Tower Structure), Feedwater Isolation Valve Pit fill material replacement and Service Water Pump Structure underpinning will be provided by Project Engineering. Engineering Department Procedures (EDPs), Engineering Department Project Instructions (EDPIs), and Project Engineering Procedures (PEPs) provide the controls for Engineering activities which are responsive to the Quality Program requirements of MPQP-2.

Design criteria will be developed from input from consultants, the Midland Plant Safety Analysis Report, 50.54(f) responses submitted to the NRC staff, meetings with and submittals to the NRC staff, and testimony during the ASLB Soils hearing.

Design documents, including specifications, drawings and material requisitions, shall be specific as to what is required to ascertain that processes, activities and final products meet their design requirements.

Design documents, including specifications and drawings (as well as changes and revisions to these documents), will be reviewed and checked for compliance to design requirements by Bechtel Project Engineering. Design documents will be reviewed by MPQAD QAE. The Quality Assurance Engineering review applies to all design documents. (MPQAD Procedure M-11)

6

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Quality Assurance Engineering will act as the focal point for the assurance of the resolution of quality related comments.

Technical specifications and revisions thereof will be generated, reviewed, approved, and controlled by Bechtel Project Engineering in accordance with EDP 4.49. Initial specifications will also be reviewed by CP Co Design Production and comments submitted to Bechtel Project Engineering. Specification Change Notices (SCNs), used as interim change documents between revisions of the specification, will receive the same level of review and approval by Bechtel Project Engineering as the basic specifications. Specification Change Notices shall be administered and controlled in accordance with EDPI 4.49.1.

Project Engineering prepares, reviews, approves, issues and controls design drawings in accordance with EDP 4.46. Changes to engineering drawings receive the same level of review and approval as the basic drawing and are administered in accordance with EDP 4.47 and EDPI 4.47.1.

Bechtel design calculations are originated, checked, approved, controlled and documented by Project Engineering in accordance with EDP 4.37. All design calculations submitted by the consultant are checked, reviewed and approved by Bechtel Project Engineering in accordance with EDPI 4.25.2.

Bechtel Field Soils Organization shall request from or notify Project Engineering of changes to design documents by Field Change Requests (FCRs) and Field Change Notices (FCNs), respectively. The FCRs will be reviewed, evaluated, dispositioned, controlled and administered in

accordance with EDP 4.62. FCNs will allow the Bechtel Field Soils Organization to initiate field changes in design documents within the allowable guidelines of Field Procedure FPD-2.000 and Specification G-34 (Q) as provided by Project Engineering. FCNs will be reviewed, evaluated, dispositioned, controlled and administered according to EDP 4.62.

The design interface for the underpinning activities between Project Engineering, project groups, technical support groups and consultants shall be administered as illustrated in Attachment 2, Design Document Interface Flowchart. Geotech Services will receive design for review in accordance with PEP 4.25.2. The Subcontractor receives design documents from Bechtel Field Soils Organization in accordance with FID 1.100. The Resident Structural Engineers duties on site are defined in PEP 2.14.9.

Inspections are performed by Quality Control to verify that construction is being performed to the latest revisions of the design documents. Audits and/or overinspections are conducted by Quality Assurance Engineering. Field geotechnical activities, including subgrade acceptance, are accomplished in accordance with PEP 2.14.8.

5. PROCUREMENT AND RECEIVING

Procurement of items and services for the remedial underpinning work is performed by Bechtel employing the technical and quality requirements established in the specifications and drawings. Q-material requisitions are originated by Bechtel Field Soils Organization in accordance with

6

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

FPG-8.000. The Bechtel Field Soils Organization is responsible for assuring that applicable Quality Program requirements, design bases, specifications, procedures and drawings are included and referenced in the material requisitions. Bechtel Field Procurement Department initiates formal purchase orders and will be responsible for ensuring that the procurement package conforms to the material requisition. Quality Assurance Engineering reviews and approves procurement documents in accordance with MPQAD Procedure M-5 to assure that necessary Quality Assurance Program requirements are included.

Upon receipt of Q-material, inspections are performed by Quality Control in accordance with PSP G-5.1 to verify items comply with the procurement package requirements and quality verification packages are complete. Quality verification packages are reviewed for availability, traceability and legibility by Quality Control and audited by Quality Assurance Engineering (MPQAD Procedure F-1M). In addition, a technical review will be performed by Quality Control in quality verification packages for non-shop inspected items.

6. PREPARATION AND IMPLEMENTATION OF PROCEDURES/INSTRUCTIONS

Written instructions to the Subcontractor are in the form of engineering specifications, drawings, and approved changes thereto.

The G-321D form (controlled by EDP 4.58) attached to the specifications identify the procedures and other vendor submittals, which are the minimum required to be submitted by the Subcontractor prior to the start

of fabrication and construction. These procedures are logged, controlled, and distributed by the Field Document Control Center and reviewed by Project Engineering and MPQAD. Project Engineering defines the specific quality attributes of each procedure. The procedures will be specifically reviewed by Quality Assurance Engineering for appropriate inclusion of quality requirements. (MPQAD Procedure M-10)

These procedures, when approved by MPQAD, and Bechtel Project Engineering, provides authorization for fabrication/construction to proceed.

7. INSPECTION, EXAMINATION, TEST AND CALIBRATION

Quality verification, inspection and testing of Subcontractor activities is performed by Quality Control, independent of the Subcontractor and Bechtel Field Soils Organization. Inspection planning is performed by MPQAD in accordance with PSP G-6.1 and MPQAD Procedure E-3M, utilizing inputs from technical specifications, design drawings, Subcontractor procedures and shop drawings. Project Quality Control Instructions (PQCIs) are prepared to cover all Subcontractor quality related activities. Existing PQCIs are adapted for standard construction activities such as concrete batching, placement and testing, and reinforcing steel installation. Additional PQCIs are developed as necessary to verify new underpinning activities such as temporary support installation, load transfer and threaded reinforcing connectors. In addition, inspection and test activities are monitored by Quality

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Assurance Engineering through the use of overinspection plans based on an independent evaluation of design and procurement documents per MPQAD Procedure E-1M. The Subcontractors are indoctrinated to quality control inspection practices to assure that hold points, included as an integral part of the Subcontractor's procedures, are adhered to. For site construction activities, the detailed implementing procedures shall utilize integrated construction planning, as follows:

a) Hold points shall be clearly identified in the procedures.

b) The procedures shall provide for MPQAD signoff to record the completion of the inspection holdpoints prior to proceeding with the further execution of subsequent procedural steps.

Tests are performed to qualify, demonstrate or assure that the quality of procured items or completed construction is as defined in applicable engineering drawings and procurement documents.

Calibration, maintenance and control of measuring and test equipment is provided by an approved agency which will be pre-qualified by Quality Assurance Engineering. This agency provides for the traceability to national standards, the unique identification of each instrument or equipment requiring calibration, the maintenance of calibration frequencies, and the identification of calibration status. Calibration records are maintained by the agency and transmitted to Bechtel Field Soils Organization for review. At the completion of the subcontract, these records will be turned over to MPQAD. Performance and

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effectiveness of the agency is verified by Quality Assurance Engineering audits and/or overinspections in accordance with MPQAD Procedures F-1M and E-1M, respectively.

8. HANDLING AND STORAGE

All Q-list material is stored and handled in accordance with general Field Procedures FPG 4.000 and 5.000 and supplemented by the Subcontractor's procedure. Storage and handling of material and equipment is subject to Quality Control inspection and verification according to PSP G-5.1 and Quality Assurance Engineering overinspections and/or audits per MPQAD Procedures E-1M and F-1M, respectively.

9. DOCUMENT CONTROL AND QUALITY RECORDS

Subcontractor documents which are to be submitted for review and comment by Bechtel Project Engineering and MPQAD are controlled by the Field Document Control Center (FDCC) in accordance with Bechtel Field Procedure FPD 1.000. Prior to the start of work, the Subcontractor submits construction procedures, drawings, purchase orders, as required by the specifications, to Bechtel Field Soils Organization. Bechtel Field Soils Organization and the FDCC distributes the procedures for review and approval as defined in the Quality Plans included with specifications 7220-C-194 and C-195. Bechtel Project Engineering and/or Resident Engineering, as designated, is responsible for resolving review comments.

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QUALITY PLAN FOR UNDERPINNING ACTIVITIES

All quality records are controlled by EDPs 5.16 and 5.24, Quality Control Procedure PSP G-7.1 and MPQAD Procedures F-11M and F-12M. These procedures prescribe the requirement for preparation, control, distribution and transmittal of all Q-related procedures, specifications, drawings and inspection records.

10. NONCONFORMING ITEMS AND CORRECTIVE ACTION

Nonconformances discovered during construction inspection activities are documented and controlled by MPQAD in accordance with PSP G-3.2 and/or MPQAD Procedure F-2M. These procedures provide for the identification and documentation of the nonconforming item, identify the authority for and disposition of the nonconforming condition, and provide for documenting the reinspection and closeout of the nonconformance. Dispositions to non-conformance reports will be reviewed by Quality Assurance Engineering to assure that the disposition is acceptable, that engineering rationale is adequately documented and that quality planning is available for the verification of the disposition. MPQAD will inspect and provide verification of disposition implementation prior to closing of the non-conformance report.

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Within the Midland Project Quality Program, the identification of reportable items is accomplished by MPQAD through the review of nonconformance reports, supplier surveillances and quality assurance audits. Corrective action for quality problems will be controlled by MPQAD Procedure F-2M, M-4 or F-3M.

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QUALITY PLAN FOR UNDERPINNING ACTIVITIES

In the design phase, investigation of cause and action taken to preclude recurrence of design deficiencies will be accomplished through EDP 4.65. Design deficiencies include those items which are not identified in the course of design development and which ultimately require changes.

11. AUDITS

Audits are performed by Quality Assurance Engineering to verify conformance to quality requirements. MPQAD Procedure F-1M includes provisions for the identification of deficiencies, the determination of corrective action, and the necessary follow up to verify that timely and effective action is taken.

12. TRAINING AND CERTIFICATION

All inspectors and quality auditors are trained and certified in accordance with MPQAD Procedures B-2M and/or B-3M. Subcontractor field supervisory, engineering personnel and crafts receive training (QA Indoctrination) to the Midland Project Quality Program. This training includes an introduction to the quality system, inspection activities, nonconformance control, NRC activities, field and engineering design changes and site organizations and interfaces. The training is initially completed prior to any Q-listed work proceeding. Additional training sessions will be scheduled by MPQAD to indoctrinate personnel which are assigned after the initial indoctrination. The Subcontractor is required to implement training for the procedures covering the Subcontractors Q-listed activities.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

LIST OF

APPLICABLE

PROCEDURES

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MIDLAND PROJECT QUALITY ASSURANCE DEPARTMENT PROCEDURES

B-2M	Personnel Training
B-3M	Qualification and Certification of Inspection and Test Personnel
E-1M	Site Inspection Planning and Site Inspection
E-2M	Review of Site Inspection Planning Prepared by others than MPQA
F-1M	Audit
F-2M	Nonconformance Reporting, Corrective Action and Statusing
F-3M	Resolution of Significant Quality Problems
F-11M	Documentation Control
F-12M	Quality Records
M-4	Quality Action Request
M-5	QA Review of Bechtel Field-Originated Procurement Documents
M-10	MPQAD Review of Subcontractor Procedures and Instructions for Underpinning Related Activities

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M-11	MPQAD Review of Bechtel Design Specifications, Drawings and Procedures for Underpinning and Related Remedial Activities.

ENGINEERING DEPARTMENT PROCEDURES

EDP - 4.37	Design Calculations
EDP - 4.46	Project Drawings
EDP - 4.47	Drawing Change Notice
EDP - 4.49	Project Specifications
EDP - 4.58	Specifying and Reviewing Supplier Engineering and Quality Verification Documentation
EDP - 4.62	FCR/FCN
EDP - 4.65	Design Deficiency
EDP - 5.16	Supplier Document Control
EDP - 5.24	Document Distribution Control Center

FIELD PROCEDURES

FPG-8.000	FMRs
FPD-2.000	Field Change Request/Field Change Notice
FPG-4.000	Storage Maintenance/Inspection of Equipment and Materials
FPG-5.000	Maintenance/Inspection of Material and Equipment Released for Construction
FID-1.100	Vendor Document Review
FPD-1.000	Field Documentation of Correspondence Control

PROJECT SPECIAL PROVISIONS

PSP G-3.2	Control of Nonconforming Items
PSP G-5.1	Material Receiving and Storage Control
PSP G-6.1	Inspection Planning
PSP G-7.1	Document, Records and Correspondence Control
PSP G-8.1	Qualification, Evaluation, Examination Training and Certification of Construction Quality Control Personnel

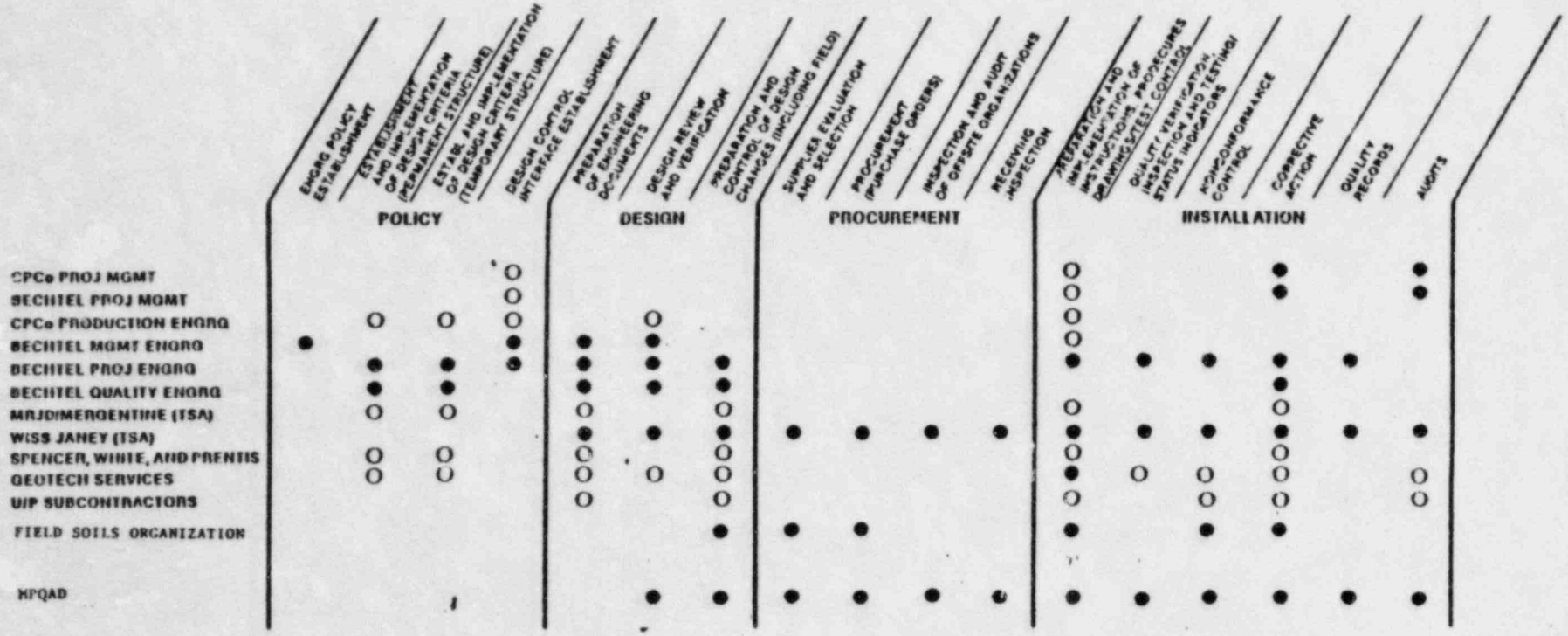
ENGINEERING DEPARTMENT PROJECT INSTRUCTIONS

EDPI - 4.1.1	Preparation of Design Requirements Verification Checklist.
PEP - 4.25.2	Interface Control Design Documents for Remedial Soils Underpinning Operation.
PEP - 4.25.3	Interface Control of Design Documents for Remedial Soils and Related Other Work with Consumers Power Company for Midland Job 7220.
PEP - 4.47.1	Interim Drawing Change Notice for the Midland Project 7220
EDPI - 4.49.1	Specification Change Notification

PROJECT ENGINEERING PROCEDURES

PEP-2.14.8	Resident Geotechnical Engineer for Remedial Soils Activities
PEP-2.14.9	Resident Structural Engineer for Remedial Soils Activities

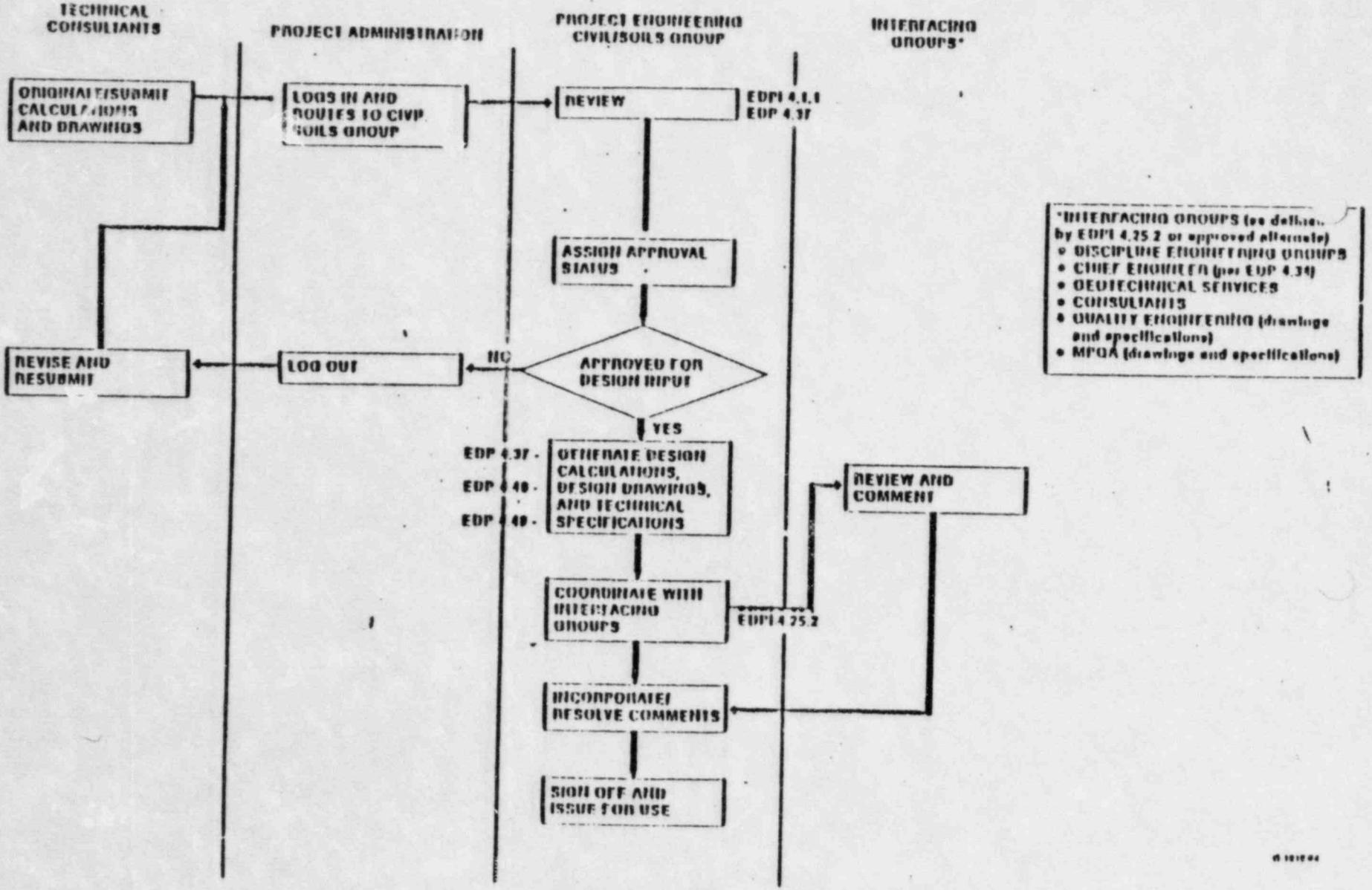
PROJECT FUNCTIONAL MATRIX
FOR UNDERPINNING ACTIVITIES



● DIRECT INVOLVEMENT
○ INPUT ONLY

NOTE: This functional matrix represents the activities of both organizations described in the quality plan and those included in the quality plans of the technical specifications for underpinning

DESIGN DOCUMENT INTERFACE FLOWCHART



file

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

May 3, 1983

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
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6687
12*32

We have completed our review of the documents for the activities listed below. Based on our review, we concluded that we are ready to start the work:

155052050 - Install E10 Bulkhead
155053035 - Excavate Pier 10E
155054030 - Install and Load Pier 10E
165052050 - Install W10 Bulkhead
165053035 - Excavate Pier 10W
165054030 - Install and Load Pier 10W
155053020 - Excavate Pier 8E
155054020 - Install and Load Pier 8E
165053020 - Excavate Pier 8W
165054020 - Install and Load Pier 8W

According to the NRC/CPCo Work Authorization Procedure, we request authorization for the above activities.

DBM/RMW/klm

file

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

May 2, 1983

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
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6685
12*32

In accordance with the NRC-CPCo Work Authorization Procedure, we are required to obtain concurrence for changes to a previously approved work activity. The specified changes for the following activity are enclosed:

105050908 Pier 11W - Perform Pier Load Test

We request your concurrence on the above change.

DBM/GMM/klm

Enclosure

8305170467

PIER W11 - ADDITIONAL EXCAVATION AND TELLTALE CHECKOUT

1. The area around Pier 11W down to elevation 597' will be excavated to check whether there are any frictional effects at the top of the pier.

2. Check out the telltales to determine if any internal friction is present in the telltale.

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

PRINCIPAL STAFF			
RA	✓	ENF	✓
D/RA		SCS	✓
A/RA		PAO	
DPRP		SLO	
DRMA		RC	
DRMSP			
DE			
ML			
CL		FILE	✓

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April 28, 1983

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
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6686
12*32

We have completed our review of the following activities:

155052305	Drift for and install Bulkhead from Pier 8E north to Containment Wall.
155059025	Excavate and remove mudslab for Grillage Beams between Pier 8E and Containment.
155053025	Excavate for Support Columns next to Containment.
155055003	Install Steel Support Columns next to Containment.
155055010	Install and load Grillage Structure at Pier 8E.
165052305	Drift for and install Bulkhead from Pier 8W north to Containment Wall.
165059025	Excavate and remove mudslab for Grillage Beams between Pier 8W and Containment.
165053025	Excavate for Support Columns next to Containment.
165055003	Install Steel Support Columns next to Containment.
165055010	Install and load Grillage Structure at Pier 8W.
155052020	Excavate/lag Zone Y1.
165052020	Excavate/lag Zone Z1

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In accordance with the NRC-CPCo Work Authorization Procedure, we request your concurrance to proceed with the above work.

DBM/GMM/dmh

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO box 1963, Midland, MI 48640 • (517) 631-8650

PRINCIPAL STAFF			
RA		ENF	
D/RA		SCS	
A/RA		PAO	
DPRP		SLO	
DRMA		RC	
DRMSP			
RE			
RL			
RL			

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April 26, 1983

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

MIDLAND ENERGY CENTER - GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485... UFI: 42*05*22*04 Serial: CSC-6678
12*32

We are enclosing the proposed list of work in accordance with the "NRC and CPCo Work Authorization Procedure" for the period between May 1, 1983 and May 31, 1983. Please review this work list and authorize the specific work items as established in the procedure.

Also enclosed is a Supplemental Work Activity List for June 1983. Your review, comments and authorization of the specific work items as in accordance with the procedure are similarly requested.

We have completed our review of the documents associated with the following activities. Based on our review, we ask for your approval of these activities:

155053020 - Excavate Pier 8E (Full Release)
155054020 - Install and Load Pier 8E
165053020 - Excavate Pier 8W (Full Release)
165054020 - Install and Load Pier 8W
155052050 - Install E10 Bulkhead
155053035 - Excavate Pier 10E
155054030 - Install and Load Pier 10E
165052050 - Install W10 Bulkhead
165053035 - Excavate Pier 10W
165054030 - Install and Load Pier 10W

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206050100 - SWPS, Install Extensometers
206050106 - SWPS, Install Instruments and Terminate Instrument Cables (Includes Testing and Calibration)
207050605 - SWPS, Install Remaining Ejector Wells
207050600 - SWPS, Install Piezometers (Full Release)
207050635 - SWPS, Install Dewatering Discharge System

DBM/GBJ/lrb

Attachments

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		GENERAL	
		QUALITY PROGRAM	
	102351100	Approval of MPQP-2, Rev 1	A(10/22/82)
	102351115	Approval of MPQP-1, Rev 5	3 (1/11/83) A (1/11/83)
		AUXILIARY BUILDING & FIVP UNDERPINNING PROGRAM	
		ACCESS SHAFTS	
	105050906	Redress the slope lay back surfaces	A (3/17/83)
		WEST FIVP	
	102150010	Install Anchor Bolts & Rods (includes hardness test on rods, drill concrete & steel and tensioning)	1 (8/12/82) A (8/13/82)
		EAST FIVP	
	112150010	Install Anchor Bolts & Rods (includes hardness tests on rods, drill concrete & steel, and tension)	1 (8/12/82) A (8/13/82)
		CONTROL TOWER POST TENSION VERIFICATION	
	102550203	Verify Post Tension Loads	A (2/22/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	162550010	WEST TURBINE/AUX BUILDING PIPE TUNNEL MODIFICATION Install Platform at El 600' (includes installation of Pipe Tunnel Reinforcement, cutting of opening, Modification of Handrails and Ladder and Protection of Existing Piping)	1 (4/5/83) A (4/20/83)
	152550010	EAST TURBINE/AUX BUILDING PIPE TUNNEL MODIFICATION Install Platform at El 600' (includes installation of Pipe Tunnel Reinforcement, cutting of opening, Modification of Handrails and Ladder and Protection of Existing Piping)	1 (4/5/83) A (4/20/83)
*	162550012	Pregrout UAT (West)	
*	152550012	Pregrout UAT (East)	
		BUILDING MONITORING	
	136050043	Maintain Instrument System	3 (8/12/82) A (8/12/82)
*	132550027	Install strain gauges and terminate cables (includes testing and calibration)	
	132550050	Install, wire conduit and raceway from pier to data room for Pier Instrumentation	2(12/13/82) A(12/13/82)
	165052021	Terminate Cables in Data Room & Terminal Boxes & Pier Instrumentation	A (3/10/83)
		GENERAL TEMPORARY DEWATERING	
	125150050	Continue Monitoring Utility Protection Pits (4)	3 (8/12/82) A (8/12/82)
	115150020	Continue Operation of Freeze System & Wells	3 (8/12/82) A (8/12/82)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	522550025	Excavate, Repair and Backfill Piezometer MP-2	1 (4/5/83)
	522550020	Repair Six (6) Existing Observation Wells (WB-1, WP-2, COE-10, PD-18, W-2, PD-38)	1 (4/5/83)
	125150051	Install Clay to Below Duct Bank (pit 4)	1 (8/12/82)
	125150052	Repair Ductbank (Pit 4) (includes excavate, drift, repair and backfill)	1 (8/25/82)
	115150026	Remove 36" Casing and Backfill 42" Hole	1 (9/17/82)
	115150025	Clean out and backfill abandoned ejector holes (ME26A, ME28A and ME54)	R
		CRACK MAPPING (includes scaffolding platforms, ladders and extra-ordinary clean up)	
	102250200	EPA (East & West)	3 (8/12/82) A (8/12/82)
	102250105	FIVP (East & West)	3 (8/12/82) A (8/12/82)
	102250100	Control Tower & Remainder of Aux Bldg	3 (8/12/82) A (8/12/82)
		PIER 12W	
	165054010	Install & Load Pier 12W[3]	1 (8/12/82) A(12/9/82)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER 11W	
	165054015	Install & Load Pier 11W[3] (includes install bituminous plywood forms)	1 (8/25/82) A (2/22/83)
	105050908	Perform Pier Load Test	1 (8/25/82) A (4/22/83)
		PIER 9W	
	165054005	Install & Load Pier 9W[3]	1 (9/17/82) A (2/24/83)
		PIER 12E	
	155054010	Install & Load Pier 12E[3]	1 (8/12/82) A(12/9/82)
		PIER 11E	
	155054015	Install & Load Pier 11E[3]	1 (8/25/82) A (2/22/83)
		PIER 9E	
	155054005	Install & Load Pier 9E[3]	1 (9/17/82) A (2/24/83)
		PIER 8E	
	155052025	Drift from Pier 9E to Pier 8E[1]	1 (9/17/82) A (4/7/83)
	155053020	Excavate Pier 8E[2]	1 (9/17/82) A (4/22/83)
	155054020	Install & Load Pier 8E[3]	1 (9/17/82)
		GRILLAGE STRUCTURE AT PIER 8E	
	155052305	Drift for and Install Bulkhead from Pier 8E north to Containment Wall[1]	1 (9/17/82)
	155059025	Excavate and Remove Mudslab for Grillage Beams Between Pier 8E and Containment[1]	1 (9/17/82)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	155053025	Excavate for Support Columns next to Containment[2]	1 (9/17/82)
	155055003	Install Steel Support Columns next to Containment	1 (9/17/82)
	155055010	Install & Load Grillage Structure at Pier 8E	1 (9/17/82)
		PIER 8W	
	165052025	Drift from Pier 9W to Pier 8W[1]	1 (9/17/82) A (4/7/83)
	165053020	Excavate Pier 8W[2]	1 (9/17/82) A (4/22/83)
	165054020	Install & Load Pier 8W[3]	1 (9/17/82)
		GRILLAGE STRUCTURE AT PIER 8W	
	165052305	Drift for and Install Bulkhead from Pier 8W north to Containment Wall[1]	1 (9/17/82)
	165059025	Excavate and Remove Mudslab for Grillage Beams Between Pier 8W and Containment[1]	1 (9/17/82)
	165053025	Excavate for Support Columns next to Containment[2]	1 (9/17/82)
	165055003	Install Steel Support Columns next to Containment	1 (9/17/82)
	165055010	Install & Load Grillage Structure at Pier 8W	1 (9/17/82)
		EXCAVATION ZONES	
	155052020	Excavate/Lag Zone Y1	1 (4/5/83)
	165052020	Excavate/Lag Zone Z1	1 (4/5/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER W10	
**	165052050	Install W10 Bulkhead	1 (4/5/83)
	165053035	Excavate Pier 10W[2]	1 (9/17/82)
	165054030	Install & Load Pier 10W[3]	1 (4/5/83)
		PIER E10	
**	155052050	Install E10 Bulkhead	1 (4/5/83)
	155053035	Excavate Pier 10E[2]	1 (9/17/82)
	155054030	Install & Load Pier 10E[3]	1 (4/5/83)
		BEAM CONNECTIONS	
	102250201	Modify Beam Connections at elev 646 (1 connection)	1 (9/17/82) A (4/13/83)
	102250203	Modify Beam Connections at elev 659 (2 connections)	2(12/13/82) A (4/13/83)
	102250205	Modify Beam Connections at elev 704 (10 connections)	2(12/13/82) A (4/13/83)
**		SLAB Modification at El 659.0'	
	102250208	Survey/Layout for Engineering Review in Preparation for Slab Fix @ El 659	3 (4/5/83) A (4/5/83)
		PIER KC2	
	165052325	Drift from West Access Shaft to Pier KC2[1]	1 (9/17/82) A (4/22/83)
	165053320	Excavate Pier KC2[2]	1 (9/17/82) A (4/22/83)
	165054315	Install & Load Pier KC2[3]	1 (9/17/82) A (4/22/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER KC11	
	155052325	Drift from East Access Shaft to Pier KC11[1]	1 (9/17/82) A (4/22/83)
	155053320	Excavate Pier KC11[2]	1 (9/17/82) A (4/22/83)
	155054315	Install & Load Pier KC11[3]	1 (9/17/82) A (4/22/83)
		PIER KC3	
	165052310	Drift to KC3 from W8[1]	A (4/22/83)
	165053310	Excavate Pier KC3[2]	A (4/22/83)
	165054305	Install & Load KC3[3]	A (4/22/83)
		PIER KC10	
	155052310	Drift to KC10 from E8[1]	A (4/22/83)
	155053310	Excavate Pier KC10[2]	A (4/22/83)
	155054305	Install & Load KC10[2]	A (4/22/83)
		EXCAVATION ZONES	
	165056375	Excavate/Lag Zone Z2	
	155056375	Excavate/Lag Zone Y2	

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		SERVICE WATER PUMP STRUCTURE UNDERPINNING PROGRAM	
		POST TENSIONING SYSTEM	
	202555170	Post Tensioning Tendon inspection & maintenance	3(12/7/82) A(12/7/82)
		DEWATERING	
	207050618	Install 6 Preliminary Ejector Wells	A (3/10/83)
	207050605	Install Remaining Ejector Wells	R
	207050385	Core Drill SWPS Slab for Ejector Wells	A (3/17/83)
	207050386	Core Drill CWIS Slab for Ejector Wells	1(11/?/82) A (3/17/83)
	207050603	Probe for Shallow Utilities	3(12/29/82) A(12/29/82)
	207050604	Probe for Deep Utilities Within El 610 Excavation Limits (Ref Dwg C-2031)	1 (9/17/82) A (3/10/83)
	207050748	Probe for Deep Utilities Outside El 610 Excavation Limits (Ref Dwg C-2031)	1 (4/5/83)
*	207050380	Core drill SWPS and CWIS slabs for Piezometers	A (4/13/83)
	207050600	Install Piezometers	R
	207050645	Install Seal Between SWPS & CWIS	1 (8/25/82) A (2/22/83)
	207050635	Install Dewatering Discharge System (including headers, tank, pumps and electrical)	2 (9/17/82)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	207050387	Convert 7 Wells used on 72" pipe repair to support SWPS dewatering. (Includes install new ejectors, temporary headers, operate, & maintain)	1(11/1/82) A (2/11/83)
		BUILDING MONITORING	
	202550100	Install Deep Seated Bench Marks	1 (8/12/82) A (4/4/83)
	206050105	Crack Map SWPS	1 (9/17/82) A (3/10/83)
	202550130	Installation of Extensometer Anchors	1 (4/5/83) A (4/13/83)
	202550120	Installation of Extensometer Covers	3 (4/5/83) A (4/5/83)
	206050100	Install Extensometers	1 (9/17/82)
	206050106	Install Instruments and Terminate Instrument Cables (Includes testing & calibration)	1 (9/17/82)
	206050102	Install Brackets	1 (9/17/82) A (4/20/83)
	207550100	Rebar Mapping & Core Drilling for Conduit & Raceway	A (3/10/83)
	207550103	Install Conduit & Raceway	1 (9/17/82) A (2/22/83)
	202550104	Install cable and terminate at Data Acquisition Room	1 (9/17/82)
	206050101	Install Permanent Benchmark Covers	1 (9/17/82) A (4/20/83)
	206050104	Baseline, Operate, and Maintain Instrument System	R

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		ACCESS SHAFT & OPEN CUT EXCAVATION	
	207050335	Install Soldier Piles	1 (8/12/82)
	202550162	Relocate Fire Protection Pipeline	1 (8/12/82) A (9/17/82)
	207050400	Repair SWPS Duct Bank	1 (4/5/83) A (4/20/83)
		BORATED WATER STORAGE TANK FOUNDATION & TANK REPAIR PROGRAM	
		UNIT 1 TANK	
	312150111	Rebar Mapping	3 (8/25/82) A (8/25/82)
	312150005	Drill and Grout Shear Connectors	2(12/13/82) A (4/20/83
*	312150007	Prepare concrete surfaces, drill holes & remove concrete for rebar.	A (4/20/83)
	312150011	Construct New Ring Beam (set forms & place rebar, pour concrete)	1 (8/12/82)
	312150211	Strip Waterproof Membrane on Valve Pit	3 (8/25/82) A (8/25/82)
	312550019	Reinstall Electrical Ductbank	2 (9/17/82) A (4/6/83)
	312550018	Reinstall Piping, Pipe Hangers and Electrical Facilities	A (3/17/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		UNIT 2 TANK	
	322150111	Rebar Mapping	3 (8/25/82) A (8/25/82)
	322150005	Drill and Grout Shear Connectors	2(12/13/82) A (4/20/83)
*	322150007	Prepare concrete surfaces, drill holes & remove concrete for rebar	A (4/20/83)
	322150011	Construct New Ring Beam (set forms & place rebar, pour concrete)	1 (8/12/82)
	322150211	Strip Waterproof Membrane on Valve Pit	3 (8/25/82) A (8/25/82)
	322550019	Reinstall Electrical Duct Bank	2 (9/17/82) A (4/6/83)
	322550018	Reinstall Piping, Pipe Hangers and Electrical Facilities	A (3/17/83)
		UNDERGROUND PIPE REPLACEMENT, REBEDDING, AND MONITORING PROGRAM	
**		TRAIN A OF SERVICE WATER PIPE REPLACEMENT[4]	
*	407050400	Shallow probing for Phase II	
**	402550500	Excavate Existing Pipe	1 (8/12/82)
**	402550510	Remove Existing Pipe	1 (8/25/82)
**	402550520	Install new pipe & expansion coupling	1 (8/25/82)
	402550515	Hydro Test new pipe	R
	402550507	Perform Profiling & Ovality Check on New Piping	R

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	402550525	Temporary Backfill New Pipe	1 (4/5/83)
**		TRAIN B OF SERVICE WATER PIPE REPLACEMENT[4]	
*	402550446	Excavate Existing Pipe	1 (8/12/82)
*	402550550	Remove Existing Pipe	1 (8/25/82)
*	402550560	Install new pipe & expansion coupling	1 (8/25/82)
*	402550561	Hydro Test new pipe	R
*	402550508	Perform Profiling & Ovality Check on New Piping	R
*	402550562	Temporary Backfill New Pipe	1 (4/5/83)
		CONSTRUCTION WORK IN SOIL MATERIAL PROGRAMS	
		PERMANENT INTRUSION DETECTION SYSTEM	
	732050002	Install Wire (incl conduit)	3 (8/25/82) A (8/25/82)
	732050003	Install Fence (incl fence posts & concrete strip)	3 (8/25/82) A (8/25/82)
	732050004	Install Grounding	3 (9/17/82) A (9/17/82)
		OBS-4 Repair	
	522550018	Dutch Cone Soil Testing in Vicinity of OBS-4 for exploratory purposes	2(12/13/82) A (4/13/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY •	PREVIOUS REGION III DESIGNATION
		Acid-Caustic Unloading Station	
	822550001	Excavate, install and backfill drainline and slab for Acid-caustic unloading station at East end of Turbine Building	1(11/1/82)A(4/20/83)
		EMERGENCY PERSONNEL LOCKS - UNIT 2	
	792550005	Excavate for, Install and Backfill Concrete Airlock Structure	1 (9/17/82)
		SIT/ILRT TEST FACILITIES	
*	862450105	Exploratory Excavation at SIT/ILRT Duct Bank	
		PERMANENT DEWATERING PROGRAM	
	522150005	Install Remaining Wells	1 (9/17/82)
	522550010	Excavate, construct and backfill eletrical duct bank	1 (9/17/82)
	522550015	Install Guard Posts for Protection of Well J-1	3 (4/5/83) A (4/5/83)
**	522550016	Install electrical equipment & conduit	1 (9/17/82)
	522550020	Excavate, install and backfill header piping and pumps (including equipment slabs and metering pits)	1 (9/17/82)
*	522550025	Assemble and wire pump control panels	
		CATHODIC PROTECTION	
	752050001	Drill and replace annodes (as necessary)	1 (8/25/82)
	752050002	Drill & install new annodes	1 (11/1/82)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
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NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		DIESEL FUEL STORAGE LINES	
	722050001	Install missle shielding	1 (8/25/82)
	722050002	Excavate, remove, reinstall and backfill DFO supply lines	1(11/1/82)
*	802450005	Exporatory excavation for examiniation of diesel fuel oil lines	A (4/13/83)
		STORM DRAIN SYSTEM	
*	302050305	Storm Drain System in the Tank Farm Area	

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		AUXILIARY BUILDING & FIVP UNDERPINNING PROGRAM	
		PIER W16	
	165052055	Drift from West Access Shaft to Pier W16[1] (includes Access Pit)	
	165053037	Excavate Pier W16[2]	
		PIER E16	
	155052055	Drift from East Access Shaft to Pier E16[1]	
	155053037	Excavate Pier E16[2]	
		PIER W14	
	165052057	Drift from West Access Shaft to Pier W14[1] (includes Access Pit)	
	165053055	Excavate Pier W14[2]	
	165054050	Install Pier W14	
		PIER E14	
	155052057	Drift from East Access Shaft to Pier E14[1] (includes Access Pit)	
	155053055	Excavate Pier E14[2]	
	155054050	Install Pier E14	

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		SUPPORT BRACKET	
	152555010	Install Temporary Support Bracket at E1	
	162555010	Install Temporary Support Bracket at W1	
		SLAB MODIFICATION AT EL 659.0	
*	102250203	Install stiffener plates and related modifications to existing slab (includes any associated concrete removal)	
		PIER E13	
*	155053040	Excavate Pier E13[2]	
*	155054035	Install Pier E13	
		PIER W13	
*	165053040	Excavate Pier W13[2]	
*	165054035	Install Pier W13	
		DOWELS AT FIVP	
*	155050325	Install dowels at east FIVP	
*	165050325	Install dowels at west FIVP	

Consumers Power Company
Midland Plant Units 1 & 2

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SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER CT12	
*	155052035	Drift to CT12 from UAT[1]	
*	155053050	Excavate Pier CT12[2]	
		PIER CT1	
*	165052035	Drift to CT1 from UAT[1]	
*	165053050	Excavate Pier CT12[2]	
		PIER KC4	
*	155052320	Drift to KC4 from KC3[1]	
		PIER KC9	
*	165052320	Drift to KC9 from KC10[1]	
		SERVICE WATER PUMP STRUCTURE PROGRAM	
		EXCAVATION	
*	207050781	Excavate, lag, brace and install wales and struts in east section of access shaft (includes upper & lower level struts between soldier piles 15 thru 30)[5]	
*	207050782	Excavate, lag, brace and install wales and struts in west section of access shaft (includes upper & lower struts between soldier Piles 1 thru 14)[5]	

Consumers Power Company
Midland Plant Units 1 & 2

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SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	202550163	Remove abandoned fire protection pipeline	1 (11/1/82)
		DEWATERING SYSTEM	
	207050620	Activate, Operate and Maintain Dewatering System	1 (9/17/82)
		BORATED WATER STORAGE TANK FOUNDATION AND TANK REPAIR PROGRAM	
	312150015	Relevel Tank-Unit 1	1 (9/17/82)
	312550100	Install Instruments (includes testing and calibration)	1 (11/1/82)
	322550100	Install Instruments (includes testing and calibration)	1 (11/1/82)
		CONSTRUCTION WORK IN SOIL MATERIAL PROGRAMS	
		NITROGEN TANK INSTALLATION	
	782550005	Excavate for, install and backfill electrical duct bank	1 (9/17/82)
	782550010	Excavate for, install and backfill piping	1 (9/17/82)
	782550015	Excavate for, install and backfill concrete pad	1 (9/17/82)
	782550020	Excavate for, install and backfill nitrogen tanks and associated concrete structures	1 (9/17/82)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6678

SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN JUNE 1, 1983 AND JUNE 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PERMANENT DEWATERING	
*	522550014	Excavate Headers & Metering Pits, Install Header and Level Monitoring System, Install Pumps, Timers and Backfill	

FOOTNOTES

[1] Drift Activity normally includes
1. fabricate steel sets
2. excavate
3. install steel sets (Hilti bolts as necessary)
4. remove concrete (as necessary)
5. localized dewatering (as necessary)
6. install wood lagging
7. place mudmat
8. stabilize soil (as necessary)
9. brace and/or rebrace

[2] Excavate Pier activity normally includes
1. excavate
2. concrete removal (as necessary)
3. dewatering (as necessary)
4. fabricate steel lagging
5. install steel lagging
6. auger bottom of pit to determine hydrostatic water pressure & plug (piers 10 & 12 E&W)
7. place mudmat
8. stabilize soil (as necessary)

[3] Install & load Pier activity normally includes
1. fab & install embeds
2. fab & install reinforcing steel
3. install telltales
4. install Carlson meters (pier 11 E&W)
5. place concrete
6. fab & install leveling & bearing plates, jackstands
7. install jacks
8. transfer load.
*9. monitor and adjust pier jacks after load transfer

[4] These activities have been broken down into Train A and Train B. They were previously combined under the title "Train A & B of Service Water Pipe Replacement."

[5] Excavate Access Shaft Activity Normally Includes:
1. excavate
2. fabricate and install steel lagging
3. fabricate and install structural steel supports and bracing
4. place mudmat
5. stabilize soil (as necessary)
6. localized dewatering (as necessary)
7. support and protect utilities

NOTES

A single asterisk (*) in left hand column indicates the work activity is a new item.

A double asterisk (**) in left hand column indicates the work activity description has been revised.

Designation 1 in the right hand column indicates additional information is required by NRC Region III on this critical activity.

Designation 2 in the right hand column indicates no additional information is required by NRC Region III on this critical activity.

Designation 3 in the right hand column indicates that the activity is not critical and work can proceed.

The date shown after the designation corresponds to the date of the NRC letter that provided the designation.

An "A" following the designation indicates that Region III has provided approval to proceed with the activity. The date following the "A" corresponds with the date of the NRC letter that provides authorization to proceed with the work activity.

A "R" in the right hand column indicates that previous designation or approval has been recinded because of a significant revision to the work activity or 90 days has elapsed or is expected to elapse since the work was authorized without the work being initiated.

	ACTION	INFORMATION
J W Cook, P26-336B	———	———
R A Wells, MPQAD	———	———
A J Boos, Bechtel Ann Arbor	———	———
J A Mooney, P14-115A	———	———
J E Brunner, M-1079	———	———
J R Schaub, P14-305	———	———
R C Bauman, P14-312B	———	———
W R Bird, P14-418A	———	———
J K Meisenheimer, Midland	———	———
A R Mollenkopf, P14-408A	———	———
D B Miller, Midland	———	———
F W Buckman, P24-624A	———	———
D B Budzik, P24-517A	———	———
N J Saari, Midland	———	———
D F Lewis, Bechtel Ann Arbor	———	———
R W Huston, Consumers Power Company 7910 Woodmont Avenue Suite #220 Bethesda, Maryland 20014	———	———
R L Tueteberg, P24-505	———	———
NRC Correspondence File, P24-517	———	———
Mr. Mike Miller Isham, Lincoln & Beale 3 First National Plaza, Suite #5100 Chicago, IL 60602	———	———
Isham, Lincoln & Beale 1120 Connecticut Avenue N.W. Washington, D.C. 20036	———	———
R M Wheeler, Midland	———	———
A E Blocher, Midland	———	———
T R Thiruvengadam, P14-400	———	———
Neil Swanberg, Bechtel Ann Arbor	———	———
Mr. Ron Callen Michigan Public Service Commission 6545 Mercantile Way Lansing, MI 48909	———	———

File: 0485.16 UFI: 42*05*22*04

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

April 19, 1983

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

MIDLAND ENERGY CENTER - GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6672
12*32

We have completed our review for the following activities:

165052325 - Drift from West Access Shaft to Pier KC2
165053320 - Excavate Pier KC2
165054315 - Install and Load Pier KC2
165052310 - Drift to KC3 from W8
165053310 - Excavate Pier KC3
165054305 - Install and Load KC3
155052310 - Drift to KC10 from E8
155053310 - Excavate Pier KC10
155054305 - Install and Load KC10
155052325 - Drift from East Access Shaft to Pier KC11
155053320 - Excavate Pier KC11
155054315 - Install and Load Pier KC11
155052050 - Install E10 Bulkhead
155053035 - Excavate Pier 10E
155054030 - Install and Load Pier 10E
165052050 - Install W10 Bulkhead
165053035 - Excavate Pier 10W
165054030 - Install and Load Pier 10W

APR 20 1983

8304260287

162550010 - Install Platform a EL. 600' (West)
152550010 - Install Platform at EL. 600' (East)
207050400 - Repair SWPS Duct Bank
822550001 - Excavate for Install and Backfill Drainline and Slab for Acid-Caustic Unloading Station at East End of Turbine Building

In accordance with the NRC/CPCo Work Authorization Proecdure we request your concurrance to proceed with the above work.

DBM/GMM/lrb

James O. Cook
for D B Miller, Jr.

file

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

PRINCIPAL STAFF			
RA		ENF	
D/RA		SCS	@LG +3
A/RA		PAO	
DPRP		NLO	
DRMA		IRC	
LA/ISP			
DE			
M			
O.		FILE	

April 15, 1983

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

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6667
12*32

We have reviewed the work packages for the following and are ready to perform the activities. Per the work the Work Authorization Procedure, we request your authorization for this work:

312150005 - Unit 1 BWST - Drill and Grout Shear Connectors
322150005 - Unit 2 BWST - Drill and Grout Shear Connectors
312150007 - Unit 1 BWST - Prepare Concrete Surfaces, and Drill Holes and Remove Concrete for Rebar
322150007 - Unit 2 BWST - Prepare Concrete Surfaces, and Drill Holes and Remove Concrete for Rebar

DBM/RHW/klm

APR 18 1983

8304220184

file

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8660

PRINCIPAL STAFF			
RA		ENF	
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DE			
ML			
OL		FILE	

April 14, 1983

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

MIDLAND ENGERGY CENTER GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6666
12*32

We have completed our review of the documents for the activity listed below. Based on our review, we have concluded that we are ready to start the work:

802450005 Exploratory excavation for examination of diesel fuel lines.

According to the NRC/CPCo Work Authorization Procedure, we request authorization for the above activity.

DBM/DWP/klm

APR 18 1983

8304220375

file

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

PRINCIPAL STAFF			
RA		ENF	
D/RA		SCS	+ 3
A/RA		PAO	
DP/P		SLO	
[illegible]		IRC	
[illegible]			
DE			
NL			
NL		FILE	

April 13, 1983

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

MIDLAND ENERGY CENTER GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6660
12*32

We have completed our review of the documents for the activity listed below. Based on our review, we have concluded that we are ready to start the work:

207050380	Core drill SWPS and CWIS slabs for piezometers

According to the NRC/CPCo Work Authorization Procedure, we request authorization for the above activity.

DBM/DES/klm

APR 18 1983

8304220190

file

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

PRINCIPAL STAFF			
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DRPA		DC	
DRMSP			
DE			
ML			
OL		FILE	

April 7, 1983

Mr. W. D. Shafer, Chief
Midland Project Section
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6648
12*32

We have completed our review of the documents for the activities listed below. Based on our review, we have concluded that we are ready to start the work. Also, section 7.6 of specification 7220-C-113(Q), Static Core Penetration tests (Core Soundings) has been revised to read:

> Refusal shall be defined as a maximum gage pressure between 200 and 460 Kqf/CM^2 (thrust from 39 KN to 90 KN) as determined by the PGE.

According to the NRC/CPCo Work Authorization procedure, we request authorization for the following item.

522550018 Dutch core soil testing in vicinity of OBS-4 for exploratory purposes.

Please remove Item number 133150010, Yard Permanent Deep Seated Benchmarks, from the current activities list as it was placed on the list erroneously. This item is non Q and has been discussed and agreed to with Dr. Ross Landsman.

DBM/DES/dmh

APR 13 1983

8304180616

file

Consumers Power Company

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

PRINCIPAL STAFF			
RA		EAF	
D/RA		ECS	
A/RA		PAO	
DPRP		SLO	
DRMA		RC	
DRMSP			
DE			
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OL		FILE	

April 6, 1983

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

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6646
12*32

We have completed our review of the documents for the activities listed below. Based on our review, we concluded that we are ready to start the work:

155052025 - Drift from Pier 9E to Pier 8E
155053020 - Excavate Pier 8E
155054020 - Install and Load Pier 8E
165052025 - Drift from Pier 9W to Pier 8W
165053020 - Excavate Pier 8W
165054020 - Install and Load Pier 8W
102250201 - Modify Beam Connections at Elevation 646'(1)
102250203 - Modify Beam Connections at Elevation 659'(2)
102250205 - Modify Beam Connections at Elevation 704'(10)

According to the NRC/CPCo Work Authorization Procedure, we request authorization for the above activities.

D. B. Miller, Jr.
Site Manager

DBM/RMW/lrb

APR 11 1983

8304120240

file

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8660

PRINCIPAL STAFF			
RA		ENF	
D/RA		SCS	+ 3
A/RA		PAO	
DPRP		SLO	
DRMA		RC	
DRMSP			
DE			
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March 31, 1983

Mr. W. D. Shafer, Chief
Midland Project Section
U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6579
12*32

We have reviewed the work activity package for the following items and request your authorization to perform the work.

312550019	Reinstall Electrical Ductbank - Unit #1 BWST
322550019	Reinstall Electrical Ductbank - Unit #2 BWST

D. B. Miller
Site Manager

DBM/RHW/dmh

APR 1 1 1983

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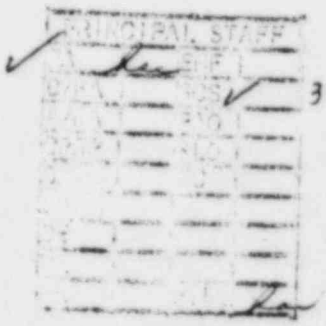
file

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8850



March 29, 1983

Mr. W. D. Shafer, Chief
Midland Project Section
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6635
12*32

We have completed our review of the documents for the activities listed below. Based on our review, we have concluded that we are ready to start the work.

202550130	SWPS Building Monitoring - Installation of Extonsometer anchors
202550120	SWPS Building Monitoring - Installation of Extonsometer covers

According to the NRC/CPCo Work Authorization Procedure, we request authorization for the above activities.

For D. B. Miller
Site Manager

DBM/GMM/dmh

8304120604

APR 8 1983

file

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

PRINCIPAL STAFF

RA		ENF	
D/RA		SCS ✓	
A/RA		PAO	
		SLO	
		RC	
DRSP			
DE			
ML			
CL		FILE	

March 29, 1983

Mr. W. D. Shafer, Chief
Midland Project Section
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6622
12*32

We are enclosing the proposed list of work in accordance with the "NRC and CPCo Work Authorization Procedure" for the period between April 1, 1983 and April 30, 1983. Please review this work list and authorize the specific work items as established in the procedure.

Also enclosed is a Supplemental Work Activity List for May 1983. Your review, comments and authorization of the specific work items as in accordance with the procedure are similarly requested.

We have completed our review of the documents associated with the following activities. Based on our review, we ask for your approval of these activities:

105050908 - Perform Pier Load Test (Pier 11W)
202550100 - Install Deep Seated Bench Marks (SWPS)
207050605 - SWPS Dewatering - Install Remaining Ejector Wells
207050600 - Install Piezometers (Full Release)
207050635 - SWPS Dewatering - Install Dewatering Discharge System

[signature]

File/ D. B. Miller, Jr.
Site Manager

DBM/GBJ/lrb

Attachments

APR 4 1983

8304070274

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN APRIL 1, 1983 AND APRIL 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		GENERAL	
		QUALITY PROGRAM	
	102351100	Approval of MPQP-2, Rev 1	A(10/22/82)
	102351115	Approval of MPQP-1, Rev 5	3 (1/11/83) A (1/11/83)
		AUXILIARY BUILDING & FIVP UNDERPINNING PROGRAM	
		ACCESS SHAFTS	
	105050906	Redress the slope lay back surfaces	A (3/17/83)
		WEST FIVP	
	102150010	Install Anchor Bolts & Rods (includes hardness test on rods, drill concrete & steel and tensioning)	1 (8/12/82) A (8/13/82)
		EAST FIVP	
	112150010	Install Anchor Bolts & Rods (includes hardness tests on rods, drill concrete & steel, and tension)	1 (8/12/82) A(8/13/82)
		CONTROL TOWER POST TENSION VERIFICATION	
	102550203	Verify Post Tension Loads	A(2/22/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN APRIL 1, 1983 AND APRIL 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	162550010	WEST TURBINE/AUX BUILDING PIPE TURNNEL MODIFICATION Install Platform at El 600' (includes installation of Pipe Tunnel Reinforcement, cutting of opening, Modification of Handrails and Ladder and Protection of Existing Piping)	
	152550010	EAST TURBINE/AUX BUILDING PIPE TUNNEL MODIFICATION Install Platform at El 600' (includes installation of Pipe Tunnel Reinforcement. cutting of opening, Modification of Handrails and Ladder and Protection of Existing Piping)	
		BUILDING MONITORING	
	136050043	Maintain Instrument System	3 (8/12/82) A(8/12/82)
	132550050	install, wire conduit and raceway from pier to data room for Pier Instrumentation	2(12/13/82) A(12/13/82)
	165052021	Terminate Cables in Data Room & Terminal Boxes & Pier Instrumentation	A(3/10/83)
		GENERAL TEMPORARY DEWATERING	
	125150050	Continue Monitoring Utility Protection Pits (4)	3 (8/12/82) A(8/12/82)
	115150020	Continue Operation of Freeze System & Wells	3 (8/12/82) A(8/12/82)
*	522550025	Excavate, Repair and Backfill Piezometer MP-2	
*	522550020	Repair Six (6) Existing Observation Wells (WB-1, WP-2, COE-10, PD-18, W-2, PD-38)	
	125150051	Install Clay to Below Duct Bank (pit 4)	1 (8/12/82)

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Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN APRIL 1, 1983 AND APRIL 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	125150052	Repair Ductbank (Pit 4) (includes excavate, drift, repair and backfill)	1 (8/25/82)
	115150026	Remove 36" Casing and Backfill 42" Hole	1 (9/17/82)
		CRACK MAPPING (includes scaffolding platforms, ladders and extra-ordinary clean up)	
	102250200	EPA (East & West)	3 (8/12/82) A(8/12/82)
	102250105	FIVP (East & West)	3 (8/12/82) A(8/12/82)
	102250100	Control Tower & Remainder of Aux Bldg	3 (8/12/82) A(8/12/82)
		PIER 12W	
	165054010	Install & Load Pier $12W^3$	1 (8/12/82) A(12/9/82)
		PIER 11W	
	165052027	Drift from Access Shaft to Pier $11W^1$ (includes access pit)	1 (8/25/82) A(2/22/83)
	165053015	Excavate Pier $11W^2$	1 (8/25/82) A(2/22/83)
	165054015	Install & Load Pier $11W^3$ (includes install bituminous plywood forms)	1 (8/25/82) A(2/22/83)
	105050908	Perform Pier Load Test	1 (8/25/82)
		PIER 9W	
	165054005	Install & Load Pier $9W^3$	1 (9/17/82) A(2/24/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN APRIL 1, 1983 AND APRIL 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER 12E	
	155054010	Install & Load Pier 12E[3]	1 (8/12/82) A(12/9/82)
		PIER 11E	
	155052027	Drift from Access Shaft to Pier 11E[1] (includes access pit)	1 (8/25/82) A(2/22/83)
	155053015	Excavate Pier 11E[2]	1 (8/25/82) A(2/22/83)
	155054015	Install & Load Pier 11E[3]	1 (8/25/82) A(2/22/83)
		PIER 9E	
	155054005	Install & Load Pier 9E[3]	1 (9/17/82) A(2/24/83)
		PIER 8E	
	155052025	Drift from Pier 9E to Pier 8E[1]	1 (9/17/82)
	155053020	Excavate Pier 8E[2]	1 (9/17/82)
	155054020	Install & Load Pier 8E[3]	1 (9/17/82)
		GRILLAGE STRUCTURE AT PIER 8E	
	155052305	Drift for and Install Bulkhead from Pier 8E north to Containment Wall[1]	1 (9/17/82)
	155059025	Excavate and Remove Mudslab for Grillage Beams Between Pier 8E and Containment[1]	1 (9/17/82)
	155053025	Excavate for Support Columns next to Containment[2]	1 (9/17/82)
	155055003	Install Steel Support Columns next to Containment	1 (9/17/82)
	155055010	Install & Load Grillage Structure at Pier 8E	1 (9/17/82)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN APRIL 1, 1983 AND APRIL 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		PIER 8W	
	165052025	Drift from Pier 9W to Pier 8W[1]	1 (9/17/82)
	165053020	Excavate Pier 8W[2]	1 (9/17/82)
	165054020	Install & Load Pier 8W[3]	1 (9/17/82)
		GRILLAGE STRUCTURE AT PIER 8W	
	165052305	Drift for and Install Bulkhead from Pier 8W north to Containment Wall[1]	1 (9/17/82)
	165059025	Excavate and Remove Mudslab for Grillage Beams Between Pier 8W and Containment[1]	1 (9/17/82)
	165053025	Excavate for Support Columns next to Containment[2]	1 (9/17/82)
	165055003	Install Steel Support Columns next to Containment	1 (9/17/82)
	165055010	Install & Load Grillage Structure at Pier 8W	1 (9/17/82)
		PIER KC2	
	165052325	Drift from West Access Shaft to Pier KC2[1]	1 (9/17/82)
		PIER KC11	
	155052325	Drift from East Access Shaft to Pier KC11[1]	1 (9/17/82)
		EXCAVATION ZONES	
*	155052020	Excavate/Lag Zone Y1	
*	165052020	Excavate/Lag Zone Z1	

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN APRIL 1, 1983 AND APRIL 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		RESHORE PIERS	
*	155052050	Reshore E9, E11, E12 and Install E10 Bulkhead[4]	
*	165052050	Reshore W9, W11, W12 and Install W10 Bulkhead[5]	
		PIER W10	
	165053035	Excavate Pier 10W[2]	1 (9/17/82)
*	165054030	Install & Load Pier 10W[3]	
		PIER E10	
	155053035	Excavate Pier 10E[2]	1 (9/17/82)
*	155054030	Install & Load Pier 10E[3]	
		BEAM CONNECTIONS	
	102250201	Modify Beam Connections at elev 646 (1 connection)	1 (9/17/82)
	102250203	Modify Beam Connections at elev 659 (2 connections)	2(12/13/82)
	102250205	Modify Beam Connections at elev 704 (10 connections)	2(12/13/82)
		El 569 SLAB FIX	
*	102250208	Survey/Layout for Engineering Review in Preparation for Slab Fix @ El 659	
		SERVICE WATER PUMP STRUCTURE UNDERPINNING PROGRAM	
		POST TENSIONING SYSTEM	
	202555170	Post Tensioning Tendon inspection & maintenance	3 (12/7/82) A(12/7/82)
		DEWATERING	
	207050618	Install 6 Preliminary Ejector Wells	A(3/10/83)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN APRIL 1, 1983 AND APRIL 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
**	207050605	Install Remaining Ejector Wells	R
	207050385	Core Drill SWPS Slab for Ejector Wells	A (3/17/83)
	207050386	Core Drill CWIS Slab for Ejector Wells	1 (11/1/82) A (3/17/83)
	207050603	Probe for Shallow Utilities	3(12/29/83) A(12/29/82)
**	207050604	Probe for Deep Utilities Within El 610 Excavation Limits (Ref Dwg C-2031)	1 (9/17/82) A(3/10/83)
*	207050748	Probe for Deep Utilities Outside El 610 Excavation Limits (Ref Dwg C-2031)	
	207050600	Install Piezometers	R
	207050645	Install Seal Between SWPS & CWIS	1 (8/25/82) A(2/22/83)
	207050635	Install Dewatering Discharge System (including headers, tank, pumps and electrical)	2 (9/17/82)
	207050387	Convert 7 Wells used on 72" pipe repair to support SWPS dewatering. (Includes install new ejectors, temporary headers, operate, & maintain)	1 (11/1/82) A(2/11/83)
		BUILDING MONITORING	
	202550100	Install Deep Seated Bench Marks	1 (8/12/82)
	206050105	Crack Map SWPS	1 (9/17/82) A(3/10/83)
	202550130	Installation of Extensometer Anchors	

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JEKostieiney 3/25/83

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN APRIL 1, 1983 AND APRIL 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	202550120	Installation of Extensometer Covers	
	206050100	Install Extensometers	1 (9/17/82)
**	206050106	Install Instruments and Terminate Instrument Cables (Includes testing & calibration)	1 (9/17/82)
	206050102	Install Brackets	1 (9/17/82)
	207550100	Rebar Mapping & Core Drilling for Conduit & Ra eway	A(3/10/83)
	207550103	Install Conduit & Raceway	1 (9/17/82) A(2/22/83)
	202550104	Install cable and terminate at Data Acquisition Room	1 (9/17/82)
**	206050101	Install Permanent Benchmark Covers	1 (9/17/82)
	206050104	Baseline, Operate, and Maintain Instrument System	P
		ACCESS SHAFT & OPEN CUT EXCAVATION	
	207050335	Install Soldier Piles	1 (8/12/82)
	202550162	Relocate Fire Protection Pipeline	1 (8/12/82) A (9/17/82)
*	207050400	Repair SWPS Duct Bank	
		BORATED WATER STORAGE TANK FOUNDATION & TANK REPAIR PROGRAM	
		UNIT 1 TANK	
	312150111	Rebar Mapping	3 (8/25/82) A (8/25/82)
	312150005	Drill and Grout Shear Connectors	2(12/13/82)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN APRIL 1, 1983 AND APRIL 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	312150011	Construct New Ring Beam (set forms & place rebar, pour concrete)	1 (8/12/82)
	312150211	Strip Waterproof Membrane on Valve Pit	3 (8/25/82) A (8/25/82)
	312550019	Reinstall Electrical Ductbank	2 (9/17/82)
	312550018	Reinstall Piping, Pipe Hangers and Electrical Facilities	A (3/17/83)
		UNIT 2 TANK	
	322150111	Rebar Mapping	3 (8/25/82) A (8/25/82)
	322150005	Drill and Grout Shear Connectors	2(12/13/82)
	322150011	Construct New Ring Beam (set forms & place rebar, pour concrete)	1 (8/12/82)
	322150211	Strip Waterproof Membrane on Valve Pit	3 (8/25/82) A (8/25/82)
	322550019	Reinstall Electrical Duct Bank	2 (9/17/82)
	322550018	Reinstall Piping, Pipe Hangers and Electrical Facilities	A (3/17/83)
		UNDERGROUND PIPE REPLACEMENT, REBEDDING, AND MONITORING PROGRAM	
		TRAIN A & B OF SERVICE WATER PIPE REPLACEMENT	
	202550500	Excavate Existing Pipe	1 (8/12/82)
	202550510	Remove Existing Pipe	1 (8/25/82)
	202550520	Install new pipe & expansion coupling	1 (8/25/82)

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN APRIL 1, 1983 AND APRIL 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
	402550515	Hydro Test new pipe	R
	402550507	Perform Profiling & Ovality Check on New Piping	R
*	402550525	Temporary Backfill New Pipe	
		PERMANENT INTRUSION DETECTION SYSTEM	
	732050002	Install Wire (incl conduit)	3 (8/25/82) A(8/25/82)
	732050003	Install Fence (incl fence posts & concrete strip	3 (8/25/82) A(8/25/82)
	732050004	Install Grounding	3 (9/17/82) A(9/17/82)
		OBS-4 Repair	
	522550018	Dutch Cone Soil Testing in Vicinity of OBS-4 for exploratory purposes	2(12/13/82)
		Acid-Caustic Unloading Station	
	822550001	Excavate for install and backfill drainline and slab for Acid-caustic unloading station at East end of Turbine Building	1(11/1/82)
		EMERGENCY PERSONNEL LOCKS - UNIT 2	
	792550005	Excavate for, Install and Backfill Concrete Airlock Structure	1 (9/17/82)
		PERMANENT DEWATERING PROGRAM	
*	522550015	Install Guard Posts for Protection of Well J-1	

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

WORK ACTIVITY LIST FOR THE PERIOD BETWEEN APRIL 1, 1983 AND APRIL 30, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		YARD PERMANENT DEEPSEATED BENCHMARKS	
*	133150010	Yard-Install Permanent Deepseated Benchmarks (PBM-4 and PBM-5)	

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
		AUXILIARY BUILDING & FIVP UNDERPINNING PROGRAM	
		PIER KC 2	
	165053320	Excavate Pier KC 2[2]	1 (9/17/82)
	165054315	Install & Load Pier KC 2[3]	1 (9/17/82)
		PIER KC 11	
	155053320	Excavate Pier KC 11[2]	1 (9/17/82)
	155054315	Install & Load Pier KC 11[3]	1 (9/17/82)
		PIER W16	
*	165052055	Drift from West Access Shaft to Pier W16[1] (includes Access Pit)	
*	165052055	Excavate Pier W16[2]	
		PIER E16	
*	155052055	Drift from East Access Shaft to Pier E16[1]	
*	155053037	Excavate Pier E16[2]	
		PIER KC 3	
*	165052310	Drift to KC[3] from W8[1]	
*	165053310	Excavate Pier KC 3[2]	

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
*	165054305	Install & Load KC 3[3]	
		PIER KC 10	
*	155052310	Drift to KC 10 from E8[1]	
*	155053310	Excavate Pier KC 10[2]	
*	155054305	Install & Load KC 10[3]	
		EXCAVATION ZONES	
*	165056375	Excavate/Lag Zone Z2	
*	155056375	Excavate/Lag Zone Y2	
		PIER W14	
*	165052057	Drift from West Access Shaft to Pier W14[1] (includes Access Pit)	
*	165053055	Excavate Pier W14[2]	
*	165054050	Install & Load Pier W14[3]	
		PIER E14	
*	155052057	Drift from East Access Shaft to Pier E14[1] (includes Access Pit)	
*	155053055	Excavate Pier E14[2]	

Consumers Power Company
Midland Plant Units 1 & 2

Attachment to Serial CSC-6622

SUPPLEMENTAL WORK ACTIVITY LIST FOR THE PERIOD BETWEEN MAY 1, 1983 AND MAY 31, 1983
DEVELOPED IN COMPLIANCE WITH ASLB ORDER OF APRIL 30, 1982

NEW OR REVISED ITEMS	ACTIVITY IDENTIFIER	PROGRAM, WORK AREA & ACTIVITY	PREVIOUS REGION III DESIGNATION
*	155054050	Install & Load Pier E14[3]	
		SUPPORT BRACKET	
*	152555010	Install Temporary Support Bracket at E1	
*	162555010	Install Temporary Support Bracket at W1	
		SERVICE WATER PUMP STRUCTURE PROGRAM	
		EXCAVATION	
*	207050780	Excavate East & North Wall of Access Shaft	
		DEWATERING SYSTEM	
	207050620	Activate, Operate and Maintain Dewatering System	1 (9/17/82)
		PERMANENT DEWATERING	
*	522550015	Excavate Headers & Metering Pits, Install Header and Level Monitoring System, Install Pumps, Timers and Backfill	
		BORATED WATER STORAGE TANK FOUNDATION AND TANK REPAIR PROGRAM	
	312550100	Install Instruments (includes testing and calibration)	1 (11/1/82)
	322550100	Install Instruments (includes testing and calibration)	1 (11/1/82)

NOTES

A single asterisk (*) in left hand column indicates the work activity is a new item.

A double asterisk (**) in left hand column indicates the work activity description has been revised.

Designation 1 in the right hand column indicates additional information is required by NRC Region III on this critical activity.

Designation 2 in the right hand column indicates no additional information is required by NRC Region III on this critical activity.

Designation 3 in the right hand column indicates that the activity is not critical and work can proceed.

The date shown after the designation corresponds to the date of the NRC letter that provided the designation.

An "A" following the designation indicates that Region III has provided approval to proceed with the activity. The date following the "A" corresponds with the date of the NRC letter that provides authorization to proceed with the work activity.

A "R" in the right hand column indicates that previous designation or approval has been recinded because of a significant revision to the work activity or 90 days has elapsed or is expected to elapse since the work was authorized without the work being initiated.

FOOTNOTES

[1] Drift Activity normally includes
1. fabricate steel sets
2. excavate
3. install steel sets (Hilti bolts as necessary)
4. remove concrete (as necessary)
5. localized dewatering (as necessary)
6. install wood lagging
7. place mudmat
8. stabilize soil (as necessary)
9. brace and/or rebrace

[2] Excavate Pier activity normally includes
1. excavate
2. concrete removal (as necessary)
3. dewatering (as necessary)
4. fabricate steel lagging
5. install steel lagging
6. auger bottom of pit to determine hydrostatic water pressure & plug (piers 10 & 12 E&W)
7. place mudmat
8. stabilize soil (as necessary)

[3] Install & load Pier activity normally includes
1. fab & install embeds
2. fab & install reinforcing steel
3. install telltales
4. install Carlson meters (pier 11 E&W)
5. place concrete
6. fab & install leveling & bearing plates, jackstands
7. install jacks
8. transfer load.
*9. monitor and adjust pier jacks after load transfer

[4] This number was previously associated with Excavate Access for Pier 10E which has been deleted from our list.

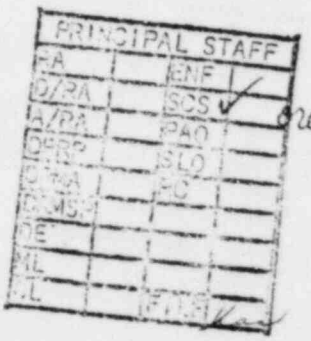
[5] This number was previously associated with Excavate Access for Pier 10W which has been deleted from our list.

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

March 25, 1983



Mr. W. D. Shafer, Chief
Midland Project Section
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6633
12*32

We have completed our review of the Documents for the activities listed below. Based on our review, we have concluded that we are ready to start the work.

202550100 Install Deep Seated Bench Mark

According to the NRC/CPCo Work Authorization Procedure, we request authorization for the above activities.

for D. B. Miller
Site Manager

DBM/DWP/dmh

APR 4 1983

8304070112

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

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PRINCIPAL STAFF

EA		ENF	
D/RA		ISCS	
A/RA		PRO	
DPRP		RLD	
DRMA		RC	
DRMSP			
DE			
ML			
OL		FILE	

March 16, 1983

Mr. W. D. Shafer, Chief
Midland Project Section
U. S. Nuclear Regulation Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6609
12*32

Per the "NRC and CPCo Work Authorization Procedure," we request authorization to proceed on the following resubmitted activities which were not started within 90 days of your original approval.

105050906 - Redress the slope layback surfaces

312550018 - #1 BWST, Reinstall Piping, Pipe Hangers and Electrical Facilities

322550018 - #2 BWST, Reinstall Piping, Pipe Hangers and Electrical Facilities

Also we request full release of the following activities:

207050385 - Core Drill SWPS Slab for Ejector Wells

207050386 - Core Drill CWIS Slab for Ejector Wells

D. B. Miller
Site Manager

DBM/GBJ/dmh

8303240043

MAR 21 1983

Consumers Power Company

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

Donald B Miller, Jr
Site Manager
Midland Project

PRINCIPAL STAFF			
RA		ENF	
D/RA		SCS	
A/RA		PAO	
DPRP		SLO	
DRMA		RS	
DRMSP			
DE			
ML			
OL		FILE	

March 9, 1983

Mr. W. D. Shafer, Chief
Midland Project Section
U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.15 UFI: 42*05*22*04 Serial: CSC-6598
12*32

Listed below are the items discussed per telephone conversation on March 8, 1983 with Dr. Ross Landsman, Joe Kane and others. We request your authorization to do this work:

207050618 - SWPS - 6 Preliminary Ejector Wells

207050604 - Probe for Deep Utilities within Elevation 610' Excavation Limits (Reference Drawing C-2031)

207050385 - SWPS - Core Drilling Slab for Ejector Wells

207050386 - CWIS - Core Drilling Slab for Ejector Wells

207050600 - Install Piezometers

In addition we have reviewed the Work Activity Package for the following items and request your authorization to do the work:

207550100 - SWPS - Building Monitoring - Rebar Mapping and Core Drilling for Conduit and Raceway

165052021 - Auxiliary Building - Building Monitoring - Terminate Cables in Data Room and Terminal Boxes and Pier Instrumentation.

If you have any questions please contact us.

DBMiller

D. B. Miller, Jr.
Site Manager

DBM/DES/lrh

MAR 14 1983

8303170388

Consumers Power Company

Donald B. Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

February 28, 1983

Mr. W. D. Shafer, Chief
Midland Project Section
U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6575
12*32

We request authorization to perform the following activity:

162550015	Release Spring Hanger on Feedwater Line in Unit 1 FIVP

D. B. Miller, Jr.
Site Manager

DBM/RHW/vlp

8303170489

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

February 18, 1983

Mr. W. D. Shafer, Chief
Midland Project Section
U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6562
12*32

We have completed our review of the documents for the activity listed below. Based on our review, we have concluded that we are ready to start the work.

207550103 SWPS Underpinning - "Building Monitoring" - Install Conduit and Raceway

According to the NRC/CPCo Work Authorization Procedure we request authorization for the above activity.

D. B. Miller, Jr.
Site Manager

DBM/GMM/lrb

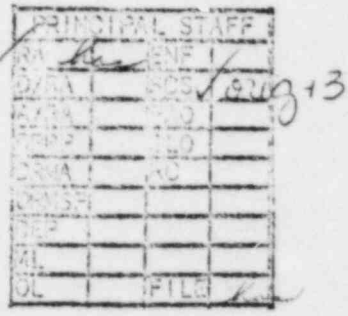
8302280300

file

Consumers Power Company

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8660



February 18, 1983

Mr. W. D. Shafer, Chief
Midland Project Section
U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6563
12*32

We have completed our review of the documents for the Service Water Pump Structure Crack Mapping. Based on our review, we have concluded that we are ready to start the work.

According to the "NRC and CPCo Work Authorization Procedure", we request authorization for the following activity:

206050105 Crack Map SWPS

D. B. Miller
Site Manager

DBM/GRJ/lrb

FEB 28 1983

8303140539

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

February 17, 1983

Mr. W. D. Shafer, Chief
Midland Project Section
U. S. Nuclear Regulatory Commission
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799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
FIle: 0485.16 UFI: 42*05*22*04 Serial: CSC-6558
12*32

To support the F.I.V.P. jacking on Unit 2, we request work authorization for the following activities:

Number	Activity
152550015	Release Spring Hanger for Feedwater Line
152550020	Install Temporary Gauges During Jacking

The temporary dial gauges are for additional engineering information and are to be purchased and installed non-Q.

D. B. Miller, Jr.
Site Manager

DBM/RHW/lrb

8302250230

Donald B Miller, Jr
Site Manager
Midland Project

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

February 16, 1983

Mr. W. D. Shafer
Midland Project Section
U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 SERIAL: CSC-6557
12*32

We have reviewed the work controlling documents associated with the verification of post tension loads in the control tower and are ready to perform this operation.

We therefore request authorization to perform the following activity:

No. 102550203 Verify Post Tension Loads

D. B. Miller, Jr.
Site Manager

DBM/RHW/lrb

8302280239

Consumers Power Company

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

January 25, 1983

Mr. W. D. Shafer, Chief
Midland Project Section
US Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6527
12*32

This letter confirms a telephone conversation on January 25, 1983 between our Mr. G. Johnson and Mr. R. Gardner of your staff, during which the installation of an additional conduit support for the Auxiliary Building underpinning instrumentation was discussed. This conduit support installation will disposition NCR No. FSO-033. The support will clamp on outside the conduit and the cable will not be disturbed. Mr. Gardner was contacted per the "NRC and CPCo Work Authorization Procedure." He considered this work to be minor and gave his permission to do it.

D. B. Miller
Site Manager

DBM/GBJ/dmw

8303280408

JAN 31 1983

Consumers
Power
Company

Midland Project: PO Box 1963, Midland, MI 48640 • (517) 631-8650

PRINCIPAL STAFF			
RA		OL	
D/RA		ENF	
A/RA		RP	orig + 3
DPRP		PAO	
DE/EOS		SLO	
DEGTP			
ML			
OL		FILE	

January 25, 1983

Mr. W. D. Shafer, Chief
Midland Project Section
US Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6526
12*32

This letter confirms a conversation on January 21, 1983 between our Mr. R. Wieland and Mr. G. Johnson and Dr. Landsman of your staff, during which the subject of probing to accurately locate electrical ductbank within the tank farm area was discussed. This probing is necessary to finalize the work packages for activities 312550019 and 322550019. The probing will be done by hand and will fall under the jurisdiction of the onsite Geo Tech group. Care will be taken not to undermine the BWST foundations.

Dr. Landsman verbally agreed with this work, however, as per the "NRC and CPCo Work Authorization Procedure" we now request formal written authorization for the following activities:

312550027 - #1 BWST Foundation and Tank Repair Program
Shallow Probing to Locate Electrical Ductbank

322550027 - #2 BWST Foundation and Tank Repair Program
Shallow Probing to Locate Electrical Ductbank

D. B. Miller
Site Manager

DBM/RHW/GBJ/dmw

Attachment

JAN 31 1983

8303290431

Consumers
Power
Company

Midland Project: P.O. Box 1963, Midland, Michigan 48640 · Area Code 517 631-0951

January 12, 1983

PRINCIPAL STAFF			
RA	hao	OL	
D/RA		ENF	
A/RA		SPOR	10+3
DRS&PP		PAO	
DRPSOS		SLO	
DE&TP			
ML			
OL		FILE	hRS

Mr. W. D. Shafer, Chief
Midland Project Section
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT GWO 7020
REMEDIAL SOILS WORK AUTHORIZATION
File: 0485.15 UFI: 12*32, 42*05*22*04 Serial: CSC-6495

The NRC and CPCo Work Authorization Procedure, Section 1.0 requires us to send to the NRC, at the beginning of each month, a list of items we plan on working on for the next 60-day period.

Due to recent NRC concerns regarding the information we have been sending to Dr. Landsman to facilitate his reviews of planned activities, we are hereby suspending submittal of monthly activities lists until such time as we feel we are able to satisfactorily resume the process.

The suspension of submittal of the monthly activities list was discussed with you by our Mr. Wheeler on January 12, 1983, and you concurred with our proposed action.

D. B. Miller
Site Manager

DBM/GBJ/RMW/klb

Response Required: No

JAN 19 1983

8303280232