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

January 25, 1983

MEMORANDUM FOR: W. D. Shafer, Chief, Section 2
Office of Special Cases

FROM: R. J. Cook, Senior Resident Inspector
Midland Site

SUBJECT: DENIAL OF FUEL LICENSE FOR THE MIDLAND SITE

In recent weeks, it has been noted that the licensee, Consumers Power Company, has increased their activity to procure a 10 CFR Part 70 license to receive, inspect, possess, store and package for transport special nuclear materials in the form of new, unirradiated nuclear fuel assemblies. In January, 1983, issuance of a Special Nuclear Material License was discussed with Mr. M. H. Killinger, Office of Nuclear Material Safety and Safeguards. At this time, I voiced an objection to Consumers Power Company receiving such a license for storage of special nuclear material in the "power block" area and questioned, because of existing public opinion towards the Midland plant, the wisdom of storing fuel on site in areas other than the "power block".

My objections to Consumers Power Company receiving a license are primarily based upon the extensiveness of the remedial soils work and the subsequent potential for this work to impact the Auxiliary Building - the proposed fuel storage location. The NRC concerns towards potential damage to the Auxiliary Building during the soils work has resulted in requiring the licensee to extensively instrument and monitor the movement of the Auxiliary Building and other structures. Historically, Consumers Power Company has demonstrated to date, an unacceptable regulatory performance during the entire remedial soils related activities. This type of regulatory performance, and similar performance in other areas, strengthen the objectives to Consumers Power Company being allowed to receive fuel on site. Especially, when considering that the proposed Auxiliary Building underpinning work (remedial soils work) has never been undertaken at a nuclear facility.

R. J. Cook

R. J. Cook
Senior Resident Inspector
Midland Site

RCook/BBurgess

Consumers Power Company

CONSUMERS POWER CO.
RECEIVED

JAN 28 1983

Site Mgr.
Midland Project

Roy A Wells
Executive Manager
Midland Project Office

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

DBM
GSS
JMB
VMB
T.,B
RFR
ADK
R.M
ALH
DHP

January 26, 1983

Mr J A Rutgers
Bechtel Associates Professional Corporation
P O Box 1000
Ann Arbor, MI 48106

MIDLAND PROJECT - DISCONTINUANCE OF IPINS
File: 5.8 Serial: 20668

The attached memorandum from me to W J Friedrich establishes the policy that IPINS will not be used to document nonconformances on any future inspection effort. J K Meisenheimer issued a similar directive prohibiting the use of IPINS prior to the start of work in the remedial soils area. We are presently exploring a revised process to replace the IPIN procedure with an NCR procedure that will allow the flexibility for appropriate and timely rework but will still meet the objective of identifying nonconformances in a formal nonconformance report.

Roy Wells

RAW/jln

cc: JWCook
WJFriedrich
LEDavis
✓DBMiller
WDGreenwell
DLDaniels

~~8312140020~~

To WJFriedrich, Midland

From RAWells, Midland

Date January 25, 1983

Subject MIDLAND PROJECT - PSP G-3.2, RELATIVE TO IPINS
FILE: 5.8 SERIAL: 20666

Consumers Power Company

INTERNAL CORRESPONDENCE

CC WRBird, P-14-418A
GFEwert, Midland
HPLeonard, Midland
JKMeisenheimer, Midland
MLCurland, Midland
DATaggart, Midland

Subject procedure provides an option during the inspection process to use either an IPIN or an NCR to document an identified nonconformance.

Considering the review that has been underway, relative to the use of IPINs, the following instruction will apply until further notice:

> In every case, identification of a nonconformance shall result in documentation by way of an NCR; IPINs are not to be used.

RAW/MLC/jkd

1-24-83 Head of the gang

if we don't get
some movement upward of FIVP due to 1700#

proves that we are carrying Concrete block wt.

can rods support extra wt of concrete

60# → 66#
rested

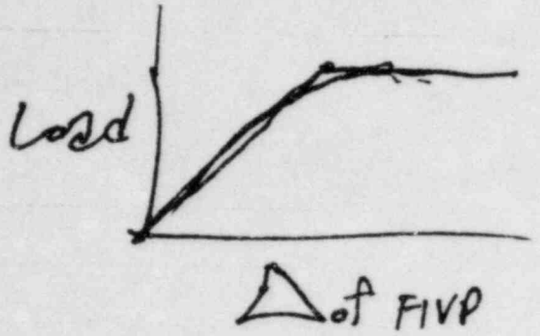
monitor instruments in area @ each load
increment change

letter of ~~enforcement~~ commitment
under oath

2ft - 4ft

1-24-83

Joe & Steve



relative FIVP & containment & DSB

1820^K

Check at.

Load = W + static friction

"

500^K

W + 10% ~~or 20%~~

lift off → movement

1) take at proof → transfer load to Grillage sensitivity

2) Safety

3) would not be able to yell if broken until to late

2400^K

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

JAN 19 1983

PRINCIPAL STAFF			
RA		OI	
D/RA		ENF	
A/RA		SP	
DPCRP		PAO	
DEP&OS		SLO	
DE&TP			
ML			
OL		FILE	

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

APPLICANT: Consumers Power Company

FACILITY: Midland Plant, Units 1 & 2

SUBJECT: TELEPHONE DISCUSSIONS OF JANUARY 11 & 12, 1983 REGARDING UNDERPINNING SETTLEMENT READINGS

On January 11 and 12, 1983, the NRC and its consultant from Geotechnical Engineers, Inc. (GEI) participated in a telephone discussion with Consumers Power Company (CPC) and Bechtel. The call primarily discussed settlement records for deep-seated benchmarks associated with underpinning construction of the two Electrical Penetration Areas (EPA's) located at the southern portion of the Midland Auxiliary Building. CPC's plans for underpinning the EPA's and the Service Water Pump Structure (SWPS) are described in Supplement 2 of the Safety Evaluation Report (NUREG-0793, October 1982).

Enclosure 1 is a record of this telephone conversation.

Darl Hood, Project Manager
Licensing Branch No. 4
Division of Licensing

Enclosure:
As stated

cc: See next page

8301240252

JAN 25 1983

MIDLAND

Mr. J. W. Cook
Vice President
Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

cc: Michael I. Miller, Esq.
Ronald G. Zamarin, Esq.
Alan S. Farnell, Esq.
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Consumers Power Company
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U.S. Nuclear Regulatory Commission
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Ms. Barbara Stamiris
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Mr. Paul A. Perry, Secretary
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Jackson, Michigan 49201

Mr. Walt Apley
c/o Mr. Max Clausen
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Mr. I. Charak, Manager
NRC Assistance Project
Argonne National Laboratory
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Argonne, Illinois 60439

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

cc: Lee L. Bishop
Harmon & Weiss
1725 I Street, N.W., Suite 506
Washington, D. C. 20006

Mr. Ron Callen
Michigan Public Service Commission
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Lansing, Michigan 48909

Mr. Paul Rau
Midland Daily News
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Midland, Michigan 48640

Billie Pirner Garde
Director, Citizens Clinic
for Accountable Government
Government Accountability Porject
Institute for Policy Studies
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Washington, D. C. 20009

Supplemental page to the Midland OM, OL Service List

cc: Commander, Naval Surface Weapons Center
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Silver Spring, Maryland 20910

Mr. L. J. Auge, Manager
Facility Design Engineering
Energy Technology Engineering Center
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Mr. Neil Gehring
U.S. Corps of Engineers
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Charles Bechhoefer, Esq.
Atomic Safety & Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dr. Frederick P. Cowan
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Boca Raton, Florida 33433

Jerry Harbour, Esq.
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Geotechnical Engineers, Inc.
ATTN: Dr. Steve J. Poulos
1017 Main Street
Winchester, Massachusetts 01890

ENCLOSURE

RECORD OF TELEPHONE CONVERSATION

DATE: January 11, 1983 @ 2:00 PM PROJECT: Midland
RECORDED BY: Joseph D. Kane

TALKED WITH:

CPC	Bechtel	GEI	NRC
J. Mooney	M. DasGupta	S. Poulos	R. Landsman
J. Schaub	W. Paris		J. Kane
T. Thiruvengadam	R. Wheeler		
K. Razdan	G. Murray		
R. Ramanujam	B. Cwikl		
	J. Darby		
	B. Adler		
	M. Lewis		
	B. Crouse		

ROUTE TO:

J. Knight	H. Singh, COE
G. Lear	S. Poulos, GEI
L. Heller	R. Landsman, Region III
D. Hood	J. Kane

MAIN SUBJECT OF CALL: To discuss background settlement readings - Auxiliary Building Underpinning

ITEMS DISCUSSED:

This call had been arranged at the request of NRC to discuss the background (underpinning had not yet started) settlement records provided to NRC for the period from 8/23/82 to 10/14/82. The records provided were for DSB-AN1, DSB-1E, DSB-2E, DSB-AS4 and DMD-3E and the ambient air temperatures for the same time frame. Region III had requested that HGEB review the background data and provide comments on the apparent upward movement of the EPA which is indicated by the settlement monitoring program.

1. CPC was asked to briefly describe the procedure that was followed to establish the uncorrected and corrected settlement curves which were provided for the deep-seated benchmarks (DSB). The uncorrected curves are based on the recorded LVDT readings. The occasional small triangles plotted on the curves are points established from the back-up dial gages. The corrected curves adjust the uncorrected curves for temperature changes measured at the deep-seated benchmarks (DSB) since the time of initial

installation. Temperature changes are measured at each DSB location at depths of 3 ft, 15 ft and 50 ft through thermocouples which were placed during installation. Minimal changes in temperature are being observed below the upper thermocouple. CPC is to provide the temperature readings with depth to support their position that temperature corrections at DSB-AN1, DSB-AN2 DSB-1E and DSB-1W are not required in the future. The plot of ambient air temperatures which was provided was not used in correcting for temperature variations.

2. During this call the following information was provided by CPC on Δ_1 values (See Drawing C-1493(Q) and prior reports for definition of differential settlement, Δ_1).

Building Monitoring Location	Uncorrected Settlement (in mils as of 1/11/83)	Corrected Settlement (in mils as of 1/11/83)
DSB-AN1 (North Main Auxil.)	68	118
DSB-AS4 (South Main Auxil.)	46	63
DSB-2E (East EPA)	35	43
DSB-3E (Control Tower)	22	44
DSB-2W (West EPA)	27	39

Computed values of Δ_1 that were given include:

DSB-2E: Δ_1 = -18 mils

DSB-3E: Δ_1 = -17 mils

DSB-2W: Δ_1 = -15 mils

DSB-3W: Δ_1 = -10 mils

These values are based on uncorrected readings for DSB-AN1 and corrected readings for the other locations. The minus signs reflects a magnitude of settlement at the EPA and Control Towers less than the Main Auxiliary Building.

3. Additional information provided by CPC included:

Building Monitoring Location	Actual Settlement (corrected) (in mils as of 1/3/83)
DSB-2W	29
DSB-3W	38
DSB-3E	39
DSB-2E	30

Estimated bearing pressures: EPA = 4.5 ksf, Control Tower = 5.2 ksf and Auxil. Bldg. = 9.5 ksf

4. Possible explanations for the larger amount of settlement occurring at the north end of the Main Auxiliary Building were discussed and included:

   a. The heavier loaded Auxiliary Building which rests on glacial till may be picking up additional load from the EPA and Control Tower through cantilever action because the more compressible till beneath the EPA and Control Tower is providing little foundation support.

   b. The EPA is affected more by changes in temperature than the other structures which causes an upward expansion of the EPA. This is reflected as less settlement than the other structures.

   c. The dewatering for underpinning is causing an uneven immediate settlement over a relatively large area in the thick glacial till layer.

5. The NRC Staff and its consultant made the following recommendations for plotting of the settlement data in order to sort out the many variables affecting the settlement readings.

   a. Plot the uncorrected and corrected readings for each monitor location along one line (North Auxil. Bldg. through to Control Tower) at the noon time interval. (On 1/12/83 this was later agreed to be at the midnight interval). Two settlement history plots on standard 11" by 17" graph paper should be developed for each monitoring location. One plot would have both horizontal and vertical (suggested 1 inch = 20 or 40 mils) arithmetic scales and the other plot would graph time in days (1, 10, 100, 1000) on semi-log paper. The temperatures used to correct the data should be plotted on the same graph at the same time interval (Temperature plot needed only on settlement graph plotted to arithmetic scales).

6. CPC indicated the requested settlement plots would be furnished to NRC in about one week's time. This was noted to be acceptable and will permit staff review prior to any site visit for reviewing underpinning progress (now planned for time when pier load test of W11 is being conducted).

7. The staff and its consultant believe the relatively small settlement values and the trends of that data which have been recorded to date are a result of temperature changes. It is felt that if sufficient background data were available, where comparable temperature and seasonal conditions were repeated, that the effects of sustained temperature changes would be clearer. It is also felt that the apparent upward movement of the EPA with respect to the other structures will be quickly reversed as underpinning operations progress beneath its foundation slab. The present trend indicated by the settlement readings is favorable with respect to the settlement acceptance criteria which has been established to control underpinning operations.

8. At the request of R. Ramanujam, CPC, several other items were discussed and included:

   a. CPC plans to explore for buried utilities in advance of drilling the SWPS dewatering wells and soldier piles by using a jet-wash type boring (3-1/2" diameter water pipe) which would be inspected by the Resident Geotechnical Engineer. R. Landsman and J. Kane, NRC, agreed that this type of boring would be acceptable for attempting to locate utilities when performed in foundation soils which would eventually be removed either in underpinning operations or in replacement of service water piping.

      There is a concern when using this type of drilling that the jetting and washing action, if not properly controlled, could cause development of voids and loosening of cohesionless foundation soils. The NRC staff expressed preference for other types of exploratory drilling (e.g., augering) in areas where future foundation stability was required. W. Paris of CPC indicated that this position does give them problems. At the staff's request, CPC is to identify the specific location of proposed borings which will be located in permanent foundation soils required to remain stable. This information will be used to guide the staff in a future response on the use of the jet-wash type boring.

b. R. Landsman indicated that his review of underpinning procedures developed by CPC has identified a problem. The procedures presently indicate that backpacking behind pit excavation lagging is not required when "neat cut" of the pit excavation is made. CPC indicated that the lagging would be essentially in direct contact with the foundation soils when neat cutting was performed. After considerable discussion the major difference became centered on the interpretation of essential and whether the entire length of lagging is required to be in contact, or if short, narrow intermittent voids were acceptable behind lagging. All parties did agree that backpacking should be required, even if neat cutting procedures were used, if sufficient voids behind lagging did exist. It was acknowledged that reasonable judgements will have to be made during construction when faced with widely differing conditions of voids that may run from several inches to several feet in length behind the lagging. It is hoped that the early planned site visit will permit the typical void conditions to be viewed where a consensus of agreement can be reached.

9. An additional call from J. Kane to R. Landsman and K. Razdan on 1/12/83 requested that settlement be plotted vertically downward in the conventional engineering manner on the settlement history plots which CPC has agreed to provide. In addition CPC agreed to provide the background readings for the extensometers and strain monitoring devices.

Jankins

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

JAN 18 1983

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Docket No. 50-329
Docket No. 50-330

Consumers Power Company
ATTN: Mr. James W. Cook
Vice President
Midland Project
1945 West Parnall Road
Jackson, MI 49201

Gentlemen:

This refers to a special investigation conducted by Mr. C. H. Weil of this office on April 6 - June 17, 1982 of activities related to the Midland Nuclear Power Plant authorized by License Numbers CPPR-81 and CPPR-82.

The investigation was conducted to determine whether misleading information was provided to NRC Region III inspectors on March 10 and 12, 1982 concerning the installation of underpinning instrumentation at the Midland Nuclear Power Plant. The report setting forth the results of the investigation is enclosed.

While the investigation failed to provide conclusive evidence that a material false statement was made with respect to the status of the underpinning instrumentation, several members of my staff believe they were misled by remarks made by Consumers Power Company and Bechtel employees during the meeting in Washington, D.C., on March 10 and the subsequent telephone call on March 12, 1982. When I look at the fact that cable pulling did not commence until March 11, 1982, the day before the phone call, and our inspectors were told that "instrumentation is essentially well underway," I can appreciate why our inspectors believe they were misled. On the basis of that statement, the NRC decided not to include the instrumentation work under the quality envelope.

As you know, the NRC regulatory program is based on the premise that information provided by licensees and their contractors is factual and complete. The review, evaluation, and inspection processes involved in the regulatory program rely on that premise. In that inaccurate or incomplete information could result in decisions which adversely affect

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the health and safety of the public, it is imperative for licensees to exercise the utmost care in providing accurate information to the NRC. While no enforcement action is being taken in this case, I urge you to stress the importance of accurate information throughout your organization and the organizations of your principal contractors. Where material false statements are established, strong enforcement action will be taken.

With respect to any possible misunderstanding regarding the NRC enforcement of noncompliance with the quality assurance activities related to the remedial soils work, the ASLB Orders of April 30 and May 7, 1982 require that all work performed in the areas defined by Drawing C-45(Q) will be accomplished under the quality assurance program.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosure will be placed in the NRC Public Document Room unless you notify this office, by telephone, within ten days of the date of this letter and submit written application to withhold information contained therein within thirty days of the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1).

Should you have any questions regarding this issue, I will be happy to discuss them with you.

Original signed by
James G. Keppler

James G. Keppler
Regional Administrator

Attachments: Investigation Report
No. 50-329/82-13;
50-330/82-13

cc w/attachment:
DMB/Document Control Desk (RIDS)
Resident Inspector, RIII
The Honorable Charles Bechhoefer, ASLB
The Honorable Jerry Harbour, ASLB
The Honorable Frederick P. Cowan, ASLB
The Honorable Ralph S. Decker, ASLB
William Paton, ELD
Michael Miller
Ronald Callen, Michigan
Public Service Commission
Myron M. Cherry
Barbara Stamiris
Mary Sinclair
Wendell Marshall
Colonel Steve J. Gadler (P. E.)

Discussed with Fortuna 1/10/83

OFFICE	RIII						
SURNAME	Gardner/la	Foster/Weil	Shafer/Warnick RFW	Fortuna	Schulez	Davis	Keppler
DATE	01/17/83	1/18/83			1/18	1/18	1/18/83

NRC FORM 318 (10-80) NRCM 0240

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-329/82-13(EIS)
Report No. 50-330/82-13(EIS)

Docket No. 50-329; 50-330 License No. CPPR-81; CPPR-82

Licensee: Consumers Power Company
1945 West Parnall Road
Jackson, MI 49201

Facility Name: Midland Nuclear Power Plant, Units 1 and 2

Investigation Conducted: April 6 - June 17, 1982

Investigation At: Bethesda, MD, Glen Ellyn, IL, Jackson and Midland, MI

Investigator: Charles H. Weil 9/14/82
Charles H. Weil Date

Reviewed By: Robert F. Warnick 9/14/82
Robert F. Warnick, Director Date
Enforcement and Investigation Staff

Investigation Summary

Investigation on April 6-June 17, 1982 (Report No. 50-329/82-13(EIS); 50-330/82-13(EIS))

Areas Investigated: Unannounced investigation of alleged misleading information provided to NRC Region III inspectors on March 10 and 12, 1982, concerning the installation of underpinning instrumentation at the Midland Nuclear Power Plant. This investigation involved 97 hours, both on and offsite, by one NRC investigator.

Results: NRC Region III inspectors were told "instrumentation is essentially well underway. Wiring has been pulled-raceway has been installed," which meant to the inspectors all wiring had been installed. The instrumentation system was reviewed and 32 of 159 cables had been pulled. The person making statement said, he had "no intent to mislead anyone. No reason to lie." Five NRR and nineteen licensee representatives were interviewed, and felt the statement meant work had begun without giving a report on the status of completion.

8302010623

REASON FOR INVESTIGATION

This investigation was initiated to determine the facts surrounding alleged misleading information provided on March 10 and 12, 1982, to NRC Region III (RIII) staff members by Alan J. Boos, the Bechtel Power Corporation Assistant Project Manager at the Midland Nuclear Power Plant.

SUMMARY OF FACTS

This investigation was conducted into the circumstances surrounding alleged misleading information, concerning underpinning instrumentation, provided on March 10 and 12, 1982, to RIII inspectors by Alan J. Boos. Region III personnel stated they were informed by Boos of the completion status of underpinning instrumentation on March 10 and 12. In a transcript of a telephone conversation on March 12th, Boos stated, "our instrumentation is essentially well underway. Wiring has been pulled - raceway has been installed." To the RIII inspectors, this meant all wiring had been installed. On March 17-18, 1982, the inspectors found approximately 10% of the wiring had been installed, and were informed the cable pulling had not begun until March 11, 1982. The instrumentation system was reviewed and 32 of 159 cables had been pulled.

Boos explained his statements as informing the RIII inspectors that underpinning instrumentation work had begun, but was not completed. Boos stated he had "no intent to mislead anyone. No reason to lie." Interviews of five NRR and nineteen licensee representatives in attendance on March 10 and 12 did not disclose any inaccurate information in Boos' statements; and those interviewed felt Boos was saying work had begun without giving a status of completion report to the RIII inspectors.

A second area examined during the investigation involved an alleged agreement between the RIII Administrator, James G. Keppler, and the Consumers Power Company's Vice President for the Midland Project, James W. Cook. This agreement was to the effect the NRC would treat Items of Noncompliance involving the Midland remedial soils program differently from other noncompliance with NRC requirement. Cook did contact Keppler to discuss the scope of the Quality Assurance Program being applied to the Midland remedial soils program, as Cook felt the NRC's interpretation of this program was too broad. According to Cook the conversation with Keppler ended without a decision or agreement as Keppler wanted to discuss the matter with his staff. Keppler recalled discussing with Cook the application of 10 CFR 50 Appendix B criteria to the Midland remedial soils program. Keppler never reached any agreement with Cook in this matter.

DETAILS

1. Persons Contacted

1.1 Consumers Power Company

*J. W. Cook, Vice President - Midland Project
W. R. Bird, Manager, Midland Project Quality Assurance Department (MPQAD)
*J. E. Brunner, Attorney
D. M. Budzik, Head, Midland Project Licensing Section
R. C. Hirzel, QA Engineer, MPQAD Remiedial Soils Group
D. E. Horn, MPQAD Civil Section Head
R. W. Huston, Licensing Engineer
E. L. Jones, MPQAD Electrical Group Supervisor
B. W. Marguglio, Director, MPQAD
D. W. Miller, Midland Site Manager
J. A. Mooney, Midland Project Executive Manager
G. L. Rogers, Scheduler
D. F. Ronk, Midland Project Planning and Scheduling Section Head
M. J. Schaeffer, MPQAD Electrical/Instrumentation and Controls Section Head
J. R. Schaub, Engineer
D. E. Sibbald, Technical Section Engineer
R. M. Wheeler, Technical Section Supervisor

(* denotes attendance at Exit Meeting on June 9, 1982)

1.2. Isham, Lincoln & Beale, Counselors-at-Law

P. P. Steptoe, III, Attorney
F. C. Williams, Attorney

1.3. Bechtel Power Corporation

A. J. Boos, Assistant Project Manager
R. T. Black, Field Engineer
M. A. Dietrich, Project QA Engineer
J. F. Fisher, Remedial Soils Group Manager
R. E. Sevo, Civil/Soils QA Engineering Supervisor
J. E. Simpson, Jr., Scheduling Engineer
N. W. Swanberg, Assistant Project Engineer

1.4. Wiss, Janney, Elstner and Associated, Inc.

G. M. Comer, Supervisor

1.5. Mergintine Corporation

R. F. Obleitner, Project Manager
K. A. VanderJagt, Scheduler

1.6. Nuclear Regulatory Commission Region III

J. G. Keppler, Regional Administrator
D. C. Boyd, Section Chief, Division of Project and Resident Programs
R. J. Cook, Senior Resident Inspector - Midland
R. N. Gardner, Reactor Inspector
R. B. Landsman, Reactor Inspector
C. E. Norelius, Director, Division of Engineering and Technical Programs
C. C. Williams, Section Chief, Division of Engineering and Technical Programs

1.7. Nuclear Regulatory Commission Office of Nuclear Reactor Regulation

E. G. Adensam, Chief Licensing Branch 4
J. W. Gilray, Principal QA Engineer
D. S. Hood, Midland Project Licensing Manager
J. D. Kane, Principal Geotechnical Engineer
F. P. Rinaldi, Structural Reviewer

2. Introduction

On December 15, 1972, the Atomic Energy Commission issued construction permits to the Consumers Power Company (CPCO) to build the Midland Nuclear Power Plant, Units 1 and 2 at Midland, Michigan. CPCO retained Bechtel Power Corporation (BPC) as the architect-engineer and constructor of the plant. The facilities will utilize Pressurized Water Reactors (PWR) supplied by the Babcock and Wilcox Company.

From 1975 through 1977 approximately thirty feet of compacted fill material was placed overlying the natural soils on the site. During August 1977, some settlement was detected in an Administration Building foundation beam. (The Administration Building houses plant offices and is a non-nuclear-safety-related structure.) CPCO conducted an investigation into the settling of the Administration Building during August and September 1977. CPCO concluded the soil beneath the building had been adequately compacted, except for the soil directly beneath the one foundation beam.

In October 1977 work began on the Diesel Generator Building foundation. During July 1978, the CPCO monitoring program detected excessive settlement of the Diesel Generator Building. The building had settled 3.5 inches at the pont of greatest settlement. This is compared to the design prediction of three inches for the expected plant operating life of forty years. CPCO took soil boring samples from under the Diesel Generator building and concluded the soil beneath the Diesel Generator Building had been inadequately compacted.

During 1979 CPCO conducted soil borings throughout the plant site. The borings indicated soil was inadequately compacted beneath the electrical penetrations of the Auxiliary Building and a portion of the Service Water Pump Structure. CPCO decided to underpin portions of the Auxiliary Building and the Service Water Pump Structure.

The NRC has conducted inspections and investigations of the soil settlement issues at the Midland Nuclear Power Plant. Numerous meetings, telephone conversations and correspondence have ensued. On March 10, 1982 CPCO, BPC and the NRC met at NRC Headquarters, Bethesda, MD, to discuss issues relating to the underpining of the structures. A telephone conversation between the same parties was held on March 12, 1982, to clarify the issues of the March 10 meeting.

3. Scope

This investigation was conducted to determine the circumstances under which RIII personnel were provided with alleged misleading information concerning the installation status of instrumentation to monitor the underpinning activities at the Midland Plant. When an attorney was requested by the person being interviewed, the interview was conducted in the presence of Mr. James E. Brunner, CPCO attorney (except those listed in paragraphs 4, 7, 11.4, 11.5 and 11.6).

4. Interview of RIII Personnel

4.1 Interview of RIII Civil Engineer

During the period April 6-19, 1982, Ross B. Landsman, Region III Reactor Inspector (Civil Engineer), provided the following:

On March 10, 1982, he attended a meeting with CPCO and BPC at NRC Headquarters, Bethesda, MD, to discuss the application of quality assurance criteria to the remedial foundation work at the Midland site. The NRC and CPCO agreed remedial foundation work started before March 10, 1982, would not be included in the CPCO quality assurance program, but work beginning after that date would be within the quality assurance program. During the meeting Alan J. Boos (BPC Assistant Project Manager for the Midland site) made statements that led Landsman to believe the installation of instrumentation for the remedial soils monitoring progam had been completed. In view of Boos' statement, the instrumentation was excluded from the quality assurance program.

NOTE: 'Q' refers to work falling within the Quality Assurance program. 'Non-Q'refers to work outside of that program).

On March 12, 1982, Landsman, Boos, and others participated in a conference telephone call to identify the areas that were excluded from the quality assurance program. During this telephone call, Boos made the following statement, "Gauges, backup gauges, have been procured as non-Q, but would be calibrated under a Q program. These are existing dial gauges. Our instrumentation is essentially well underway. Wiring has been pulled - raceway has been installed." The telephone call had been recorded by BPC. A copy of the transcript of the call is attached (Exhibit I).

On March 17, 1982, Landsman and Region III Electrical Inspector Ron Gardner arrived at the Midland plant to observe the remedial foundation work. During the course of their inspection, Gardner reviewed the instrumentation for the underpinning monitoring. Gardner learned from CPCO employee Mike Schaeffer that the underpinning instrumentation cable pulling had begun on March 11, 1982, and quality assurance criteria for the cable pulling had not been developed.

Landsman provided a written statement (Exhibit II). A copy of Landsman's inspection report (No. 50-329/82-05 (DETP); 50-330/82-05 (DETP)) is attached (Exhibit III).

4.2 Interview of RIII Electrical Inspector

On April 12, 1982, Ronald N. Gardner, Region III Reactor Inspector (Electrical) provided the following:

Region III Inspector Ross Landsman asked his (Gardner's) assistance in reviewing the instrumentation installations for the remedial soils monitoring program at the Midland Nuclear Power Plant. He accompanied Landsman to the Midland site, and on March 17, 1982, he reviewed the instrumentation.

He found quality assurance criteria had not been developed or implemented for the remedial soils instrumentation. Mark Schaeffer of CPCO informed Gardner that cable pulling had not begun until March 11, 1982. Through observation on March 17, 1982, Gardner found approximately 10% of the remedial soils monitoring instrumentation cables had been pulled to the Data Acquisition Room.

Gardner provided a written statement (Exhibit IV). A copy of Gardner's inspection report (No. 50-329/82-06 (DETP; 50-330/82-06 (DETP)) is attached (Exhibit V).

4.3 Interview of Region III Senior Resident Inspector - Midland

On April 8-9, 1982, Ronald J. Cook, Region III Senior Resident Inspector at the Midland site, provided the following information:

On March 10, 1982, he attended a meeting in Bethesda, MD, along with Landsman and representatives of CPCO and BPC. The purpose of the meeting was to review the CPCO quality assurance program under consideration for the remedial soils work at the Midland site. During the meeting CPCO and the NRC reached an agreement that all remedial soils work beginning after March 10, 1982, would be done under the CPCO quality Assurance program. Further, all work begun before March 10 would be excluded from the program. During the course of the meeting Boos stated the settlement monitoring instrumentation was completed. Because of Boos' statements that the instrumentation was completed, it was agreed the instrumentation would be excluded from the quality assurance program.

On March 12, 1982, CPCO requested Cook participate in a conference telephone call to Ross Landsman and Dwane Boyd in the Region III office. BPC employees, including Boos, participated in the telephone call. BPC recorded the call and provided a transcript (Exhibit I). Boos stated during the March 12th telephone call, "our instrumentation is essentially well underway. Wiring has been pulled, raceway has been installed." Boos statements meant to Cook that all instruments had been installed and wires had been pulled. Cook expected all work to be completed, except for a few terminations and the calibration of the instruments.

On March 17, 1982, Region III Inspectors Ross Landsman and Ron Gardner inspected the underpinning instrumentation and found a few cables had been pulled, but quality assurance criteria had not been developed for the instrumentation installation, including cable pulling. CPCO's Mike Schaeffer informed Gardner and Landsman that underpinning instrumentation had not begun until March 11, 1982.

On March 18, 1982, Schaeffer, Gardner, Landsman, CPCO's Ed Jones, and Cook visited the underpinning instrumentation Data Acquisition Room. They found about 10% (8 or 10 of 80 cables required for the instrumentation) of the cables had been pulled to the Data Acquisition Room.

Subsequently, Landsman, Gardner and Cook telephoned their supervisors (Dwane Boyd and Cordell Williams) in the Region III office to apprise them of the status of the underpinning instrumentation installation and the lack of quality assurance criteria for the underpinning instrumentation installation.

Cook provided a written statement (Exhibit VI).

4.4 Interview of Region III Section Chiefs

4.4.1 Interview of Region III Division of Project and Resident Programs Section Chief

On April 30, 1982, Dwane C. Boyd, Section Chief, Region III Division of Project and Resident Programs, provided the following information:

Boyd recalled participating with Landsman in the telephone call from CPCO and BPC. Prior to the telephone call, the NRC and CPCO had agreed that any work begun on the underpinning activities before March 10, 1982 would not be included in the CPCO quality assurance program. All work begun after March 10th would be fully covered by the quality assurance program.

During the March 10th telephone call, Boos stated the underpinning instrumentation installations were complete. A representative of CPCO stated that since the instrumentation installation was complete, then the instrumentation installation would be excluded from the quality assurance program. Landsman and Boyd agreed the installed instrumentation would not have to be re-done, as long as the instrumentation functional testing was conducted under the quality assurance program.

Several days after the above telephone call, Landsman and Gardner went to the Midland site. They telephoned from the site and informed Boyd that only four of the instrumentation cables had been pulled and none of the instruments had been installed. Boyd provided a written statement (Exhibit VI).

4.4.2 Interview of Region III Division of Engineering and Technical Programs Section Chief

Cordell C. Williams, Section Chief, Division of Engineering and Technical Programs, stated he could not recall any

information surrounding the March 18, 1982, telephone conversation with Cook, Gardner and Landsman.

5. Review of Status of Installed Instrumentation Cables

5.1 Interview of CPCO Electrical/Instrumentation and Control Section Head

On May 26-27, 1982, Michael J. Schaeffer, Section Head, Electrical/Instrumentation and Controls, Midland Project Quality Assurance Department (MPQAD), provided the following:

On March 17, 1982, Region III Inspector Ron Gardner asked to review the procedures and drawings for the underpinning monitoring instrumentation. Schaeffer informed Gardner that he (Schaeffer) was not aware this system was within the quality assurance program. On March 18, 1982, Schaeffer went to the field and observed that approximately 20% of the instrumentation system had been installed. Schaeffer recalled some conduits and cables had been installed (Schaeffer could not recall the amounts of cable or conduit). No instrumentation was installed. Schaeffer could not recall the date either the conduit installation or cable pulling had begun. On March 19, 1982, work was stopped on the installation of the underpinning monitoring system until quality assurance procedures were developed.

Schaeffer provided a written statement (Exhibit VIII).

5.2 Interview of CPCO Inspection Supervisor, Electrical/Instrumentation and Control Section-MPQAD

On June 2, 1982, Edgar L. Jones, Supervisor, Inspection, Examination and Test Verification Group, MPQAD Electrical/Instrumentation and Control Section, provided the following:

On March 17, 1982, Region III Inspector Ron Gardner asked to see the drawings and procedures for the underpinning instrumentation installations. Jones believed the underpinning instrumentation was considered to be non-nuclear-safety-related; therefore, Jones was not aware of the status of the drawings and procedures. Jones accompanied Gardner, Landsman and others to the field. He recalled seeing conduits, pull boxes, terminal block panels and some instrumentation installed. He remembered about ten cables having been pulled to the Data Acquisition Room.

Jones provided a written statement (Exhibit IX).

5.3 Interview of BPC Project Quality Assurance Engineer

On June 3, 1982, Marion Dietrich, BPC Project Quality Assurance Engineer, advised he had not accompanied Jones, Schaeffer, Landsman and Gardner to the field on March 18, 1982; rather,

Dietrich made the arrangements for their inspection tour. Dietrich could not recall if any engineers accompanied the tour group on March 18th.

5.4 Interview of BPC Field Engineer

During the period May 27-June 3, 1982, Richard T. Black, BPC Field Engineer, provided the following:

He was the field engineer responsible for the installation of the underpinning monitoring conduit and cable.

His work assignment in February 1982 was to determine the locations of the instrumentation from the 'C' Series Project Drawings (civil drawings), the location of the Data Acquisition Room, and decide on the quantitites of cable and conduit for the run. The conduits and cables were field routed, as this was considered to be a temporary installation.

During the third week of February 1982, the installation of the conduits and cables began. From that point, until work was stopped on March 19, 1982, 2400' of conduit was installed. On May 27, 1982, Black "walked-down" the conduit routes and found 2651' of conduit had been installed and thirty-two cables had been pulled to the Data Acquisition Room. Sixteen cables remained in the Data Acquisition Room and sixteen had been removed and scraped. No additional cables had been pulled since March 19, 1982.

Black reviewed the current drawing for the underpinning instrumentation installation (BPC Drawing No. 7220-C198-11-1, Instrument Cable Installation, approved March 30, 1982) and determined this drawing specified 213 cables would be installed in order to complete the system.

5.5 Interview of Assistant Project Engineer

On June 9, 1982, Neal W. Swanberg, BPC Assistant Project Engineer-Midland, provided the following:

As of March 17, 1982, the design of the underpinning instrumentation system was not finalized as only preliminary drawings had been produced. The drawings were:

Drawing No.	Drawing Title
C-1490	Auxiliary Building Instrument Locations for Underpinning
C-1491	Auxiliary Building Instrument Locations for Underpinning
C-1492-1	Instrument Location at Underpinning Piers
C-1493	Auxiliary Building and Feedwater Isolation Valve Pit Instrumentation System Monitoring Matrix

From the review of these drawings, Swanberg concluded 159 cables were needed to complete the instrumentation on March 17, 1982. The drawings specified one cable for each gauge or instrument. The 159 cables were:

61 cables for Linear Variable Differential Transducers (LVDT) and Differential Movement Devices (DMD).

50 cables for Carlsen stress meters for piers
48 cables for strain gauges on temporary steel columns

159 cables

5.6 Observation of Installed Instrumentation

On May 20 and 27, 1982, direct observation of the installed underpinning instrumentation disclosed the following:

The Data Acquisition Room was visited with G. Matt Comer of Wiss, Janney, Elstner and Associates (the instrumentation subcontractor). The monitor, data disc storage and printer were installed. The terminal board was available, but no terminations had been made. Eighteen cables entered the room.

Nine deepseated benchmarks (DSB) were examined with the assistance of Donald E. Sibbald of CPCO's Technical Section. Only two DSBs (DSB-2E and DSB-2W) had conduit and instrument brackets installed. Cables had been pulled to DSB-2E and DSB-2W. Conduits, cables and brackets were not found at the remaining benchmarks (DSB-AN, DSB-3E, DSB-3W, DSB-AS1, DSB-AS2, DSB-1E and DSB-1W).

6. Interview of BPC Assistant Project Manager

On May 27-28, 1982, Alan J. Boos, BPC Assistant Project Manager-Midland, provided the following:

He was in attendance at both the March 10, 1982, meeting in Bethesda, MD, with the NRC and CPCO and at the March 12th conference telephone call to Region III.

The March 10th meeting was to clarify the areas of the underpinning work to be "Q" listed (under the CPCO Quality Assurance Program). Much discussion, confusion and disagreement ensued. At the conclusion of the meeting, NRC's Darl Hood stated that all work beginning with Phase 2 of the underpinning activities would be included in the quality assurance program.

The discussions of the components of the underpinning work, except wood lagging and steel beams, were not discussed in detail, dealing only in the terms of the "general schedule" of work. Only wood lagging and steel beams, as components of the underpinning work, received detailed attention during the meeting.

Boos stated he could not recall making any specific statements pertaining to the status of completion of the instrumentation. Instrumentation was discussed in terms of CPCO's desire to have procurement and installation of the instruments excluded from the quality assurance program, but to have calibration, check-out frequency of reading and data usage falling within the quality assurance guidelines.

After the March 10th meeting Boos discussed with CPCO's Jim Mooney the necessity to come to an immediate resolution of what was, and what was not to be included in the underpinning quality assurance program. For that reason Region III was telephoned on March 12th.

On March 12, 1982, Boos, along with representatives of CPCO and BPC, placed a conference telephone call to Landsman and Boyd in Region III. The purpose of the call was to outline the areas CPCO and BPC considered to be within the quality assurance program, "Q listed", and those areas excluded, "non-Q". A matrix was prepared by CPCO and BPC and used during the call. The matrix outlined the "Q" and "non-Q" areas. A copy of the matrix was telefaxed (Exhibit X) to Landsman at the Region III office at the conclusion of the telephone call. BPC recorded the telephone call of March 12th and provided a copy to Region III (Exhibit I). Boos reviewed the transcript during the interview.

Boos stated the point he was trying to make during the telephone call was that work on the instrumentation system had begun. The procurement of system components and the installation of cable and conduit were being done "non-Q". The reasons for the statements were to inform Landsman not to be surprised during his next inspection that work had begun.

From weekly status meetings, Boos knew "some of the raceway had been installed," and he "felt raceway was pretty well underway." Boos knew the instrumentation was not installed, as it had not arrived onsite. But based upon the information presented by his staff at their weekly (Friday) status meeting, he knew work was underway for the installation of the underpinning instrumentation. Boos could not give an exact percentage of completion, and he could not recall which member of his staff informed him that instrumentation work had begun.

Boos stated he "was trying to say work was underway, but not complete." Additionally, Boos stated he had "no intent to mislead anyone. No reason to lie." Boos provided a written statement (Exhibit XI).

7. Interviews of NRC Employees in Attendance at Meeting and Telephone Call

7.1 Interviews of Region III Personnel

The interviews of the Region III staff members attending the March 10, 1982, meeting in Bethesda, MD, and those present for the March 12, 1982, telephone call were reported in paragraph four and Exhibits II, VI, and VII of this report.

7.2 Interviews of Office of Nuclear Reactor Regulation (NRR) Staff Members

7.2.1 Interview of NRR Licensing Manager

On April 14-16, 1982, Darl S. Hood, the NRR Licensing Manager for the Midland Project, provided the following:

On March 10, 1982, Hood and other members of the NRR staff attended a meeting with CPCO and BPC. The purpose of the meeting was to identify the areas of the Midland remedial soils program to be included, or excluded, from the CPCO Quality Assurance Program.

CPCO, with Boos' assistance, made a presentation which included a new quality assurance category. This new category, which CPCO termed "QA", would incorporate the quality assurance criteria for areas which were not nuclear-safety-related and would be excluded from the NRC's regulatory purview. One such area was the wood lagging for the underpinning access shafts.

After much debate a luncheon recess was called. During the recess the NRC staff members caucused on the CPCO proposal. Afterwards Hood informed the reassembled meeting, "from this point forward" all underpinning activities would be "Q listed" within the scope of the CPCO quality assurance program and the regulatory jurisdiction of the NRC. After discussions with Boos and CPCO's Jim Mooney, Hood clarified this point as all work beginning with Phase 2, unless CPCO requested relief from the commitment for a specific problem.

Hood recognized Phase 1 of the underpinning work had been accepted by the NRC as being non-nuclear-safety-related. Phase 1 of the underpinning consisted of digging the vertical access shaft before commencing with the tunnel beneath the Turbine Building (Phase 2). Hood stated the underpinning instrumentation was Phase 2 work which had to be completed during Phase 1. Hood continued, the instrumentation had to be installed and operational prior to commencing the tunnel beneath the Turbine Building, and the instrumentation was always considered to be nuclear-safety-related since the purpose of the instrumentation was to measure any movement of the structure while tunnelling. Hood did not recall any statements by Boos regarding the status of installation of instrumentation.

Hood provided a written statement (Exhibit XII) and a copy of a letter, dated March 22, 1982, which he had referenced in his statement (Exhibit XIII). Hood also provided the NRR report of the meeting of March 10, 1982 (Exhibit XIV).

7.2.2 Interview of Geotechnical Engineer

On April 14, 1982, Joseph D. Kane, Principal Geotechnical Engineer, NRR, provided the following information:

He attended the March 10, 1982 with CPCO and BPC concerning the quality assurance program to be applied to the underpinning work at the Midland plant. During the course of the meeting, Alan Boos of BPC stated, "a lot of instrumentation was installed."

Kane advised that Boos statement came during the discussion of applying the quality assurance program to all underpinning phases. Kane felt Boos was attempting to point out that instrumentation installation had begun and the adverse impact upon the completion of the work if the quality assurance criteria were applied at the current point of construction. Kane felt Boos was trying to add to the major discussion of "Q listing" and was not giving a report on the status of instrumentation installation.

Kane provided a written statement (Exhibit XV).

7.2.3 Interview of Principal Quality Assurance Engineer

On April 16, 1982, John W. Gilray, Principal Quality Assurance Engineer, NRR, provided the following:

He attended the March 10, 1982, meeting with CPCO and BPC in Bethesda, MD. The purpose of the meeting was to discuss the application of the CPCO Quality Assurance Program to the underpinning work at the Midland site. During the meeting, Hood stated, "all work associated with the underpinning would be under the quality assurance program, unless CPCO specifically requested otherwise."

Gilray did not recall any discussions about instrumentation or instrumentation installation during the March 10 meeting.

7.2.4 Interview of Structural Reviewer

On April 14, 1982, Frank P. Rinaldi, Structural Reviewer, NRR, provided the following:

He attended the March 10, 1982, meeting with CPCO and BPC where the application of quality assurance criteria to the underpinning was discussed. During the meeting, someone from BPC, possibly Boos, made a statement that instrumentation installation was underway. Rinaldi could not recall the specific statement or if Boos was actually the person making the statement. The meeting ended with NRR's Darl Hood stating, "everything installed after March 10th would be under the quality assurance program."

7.2.5 Interview of Licensing Branch Chief

On April 14, 1982, Elinor G. Adensam, Chief, Licensing Branch 4, advised she only attended the morning session of the March 10, 1982 meeting with CPCO and BPC. The meeting concerned the application of quality assurance requirements to the remedial soils program at the Midland Plant. She did not attend the afternoon session of that meeting. She did not recall anyone, including Boos, making any statements pertaining to the installation of underpinning instrumentation.

8. Interview of CPCO Representatives Present for Meeting and Telephone Call

8.1 Interview of Executive Manager of the Midland Project

On June 8, 1982, James A. Mooney, Executive Manager of the Midland Project, provided the following:

He attended the March 10, 1982 meeting in Bethesda, MD, with the NRC staff and he participated in the March 12th telephone call to Landsman and Boyd at the Region III office.

The March 10th meeting was to discuss the application of quality assurance criteria to the underpinning work at the Midland plant. The focus of the meeting was to consider what areas were to be "Q listed" and the areas that were exempt. At the March 10th meeting CPCO introduced a new category, "QA". The "QA" category included areas that CPCO knew were non-nuclear-safety-related, but for CPCO's commercial interest should be of high quality and therefore covered by the quality assurance program. CPCO pointed out that the "QA" category would be outside of the NRC's regulatory realm, as the area was not related to safeguarding the public health and safety (since it would not have any effect upon the safe shutdown and maintaining safe shutdown of the reactor). The tunnel beneath the Turbine Building was considered to be non-nuclear-safety related but was considered to be in the "QA" category in order to assure high quality work was done. The assurance of high quality work, by having quality assurance reviews, was in the best financial interest of the company.

A statement was made by NRR's Darl Hood during the March 10th meeting that, "Henceforth everything is Q." Which meant that everything dealing with the underpinning would be done under the quality assurance program. After much discussion of this statement, Hood restated the position as, "All work beginning with Phase 2 would be Q listed."

Mooney felt a clear understanding did not exist between CPCO and the NRC as to the differences between Phase 1 and Phase 2. The instrumentation was never defined as being a part of the Phase 1 work or a part of Phase 2. Mooney believed the instrumentation

was clearly a part of the Phase 1 work since the instrumentation would have to be installed and functioning before beginning Phase 2. Mooney did not consider the installation of conduit and cable pulling to be "Q listed" because any effect of the cable or conduit upon data collection (i.e., erratic signals) would be readily detected. However, Mooney considered the "check-out" of the system, including instrument calibration, and the collection of the data to be "Q listed." Since he believed the instrumentation installation (including cable and conduit) to be part of Phase 1 work, the installation of underpinning instrumentation was subject to Hood's statement of March 10 exempting Phase 1 work from the quality assurance program.

Mooney did not recall Al Boos, or anyone else, making a statement during the March 10th meeting concerning the installation status of the instrumentation.

CPCO and BPC placed the telephone call to Landsman and Boyd on March 12, 1982 in order to clarify which items were "Q listed" and which were not. A matrix (Exhibit X) was prepared for use during the telephone call. The matrix showed the status of items, including instrumentation, and whether or not an item was "Q listed". On March 12th. He explained to Ron Cook, the NRC Resident Inspector at Midland who was also participating in the telephone call, that the matrix preparation was rushed and it was somewhat confusing. Mooney also recalled informing Cook at the conclusion of the telephone call that a large amount of instrumentation work remained to be done.

Mooney stated the information presented by CPCO and BPC during the March 12, 1982, telephone call to Region III was accurate.

8.2 Interview of MPQAD Civil Section Head

On June 3, 1982, Donald E. Horn, MPQAD Civil Section, provided the following:

He was present for both the March 10, 1982 meeting in Bethesda, MD, and for the March 12, conference telephone call to Region III.

At the March 10th meeting CPCO outlined the underpinning areas to be included, or excluded, from the quality assurance program. The NRC rebutted the CPCO position with the statement that all of the underpinning activities would be included within the quality assurance program, unless CPCO made application for a specific exclusion. Horn did not recall any statements by Al Boos, or anyone else, concerning the installation status of the underpinning instrumentation.

The March 12th telephone call concerned the specific areas which were either "Q listed" or excluded from the "Q" listing. Most of the discussion dealt with specific areas and stating whether or

not the procurement, installation, and checkout were "Q listed." Horn was shown a copy of the transcript of the March 12th telephone call (Exhibit I).

Horn stated the final check-out of the instrumentation was always meant to be "Q listed." Horn believed Boos statements about instrumentation in the transcript were meant to inform Landsman that work had started and Boos was not trying to say "what stage of completion."

9. Interviews of CPCO and BPC Representatives at March 10th Meeting

9.1 Interview of Midland Project Quality Assurance Manager

On June 8, 1982, Walter R. Bird, Manager, Midland Project Quality Assurance Department (MPQAD) provided the following:

He recalled being present at the meeting on March 10, 1982, in Bethesda, MD, where CPCO proposed a new Quality Assurance category, "QA" for the underpinning work at the Midland Plant. The new category covered items that were non-nuclear safety-related, but were important to CPCO for various reasons to be included in the quality assurance program. The NRC objected to this proposition, stating it was too general and CPCO should develop a more specific plan.

Part of the CPCO proposal was underpinning instrumentation. The installation would not be "Q listed." However, the calibration, check-out and data taking would be included in the CPCO quality assurance program. The principle was to insure the final product, the data, was as good as possible.

Bird did not recall Al Boos, or anyone else, making any statements pertaining to the installation status of the underpinning instrumentation.

Bird stated he had a perception the instrumentation installation was farther along than the actual condition. Bird was aware the underpinning instrumentation system was incomplete, as the brackets had not been fabricated and the instruments had not arrived onsite. However, from the information he had been given during status meetings, he was surprised to learn the few number of cables pulled.

Bird provided a written statement (Exhibit XVI).

9.2 Interview of Midland Project Licensing Section Head

On June 9, 1982, Dennis M. Budzik, Licensing Section Head for the Midland Project, provided the following:

He attended the meeting in Bethesda, MD, on March 10, 1982. He was present for the entire morning session, but missed most of the afternoon session.

The purpose of the meeting was to come to an understanding with the NRC on which portions of the remedial soils work at the Midland plant would be subjected to the quality assurance program. CPCO presented three positions. The first position was to have none of the remedial soils work under the quality assurance program. The second position was called "QA".

The "QA" category would be applied to components of design and construction which were not related to nuclear safety, but components which CPCO felt should be done under the quality assurance program in order to minimize CPCO's financial risk. An example was the piers underneath the Turbine Building. The Turbine Building, being non-nuclear-safety-related, was not required to be inspected under the quality assurance criteria. However, the tunnelling beneath the building could cause significant damage to the structure and to minimize the risk CPCO would apply the quality assurance program. CPCO wanted the NRC to recognize the "QA" category as an area where the CPCO Quality Assurance Program had been applied, but was outside of the NRC's regulatory jurisdiction. CPCO emphasized the items under the "QA" category were not related to nuclear safety and would not endanger the public health and safety.

Underpinning instrumentation was discussed in the context that monitoring and assuring the data was correct were safety related. This included calibration, recording, and using the information. However, the instruments and associated hardware (i.e., cable and conduit) would not be "safety grade." Rather, CPCO would insure that high quality materials were used to assure a good product. The underpinning instrumentation does not affect the public health and safety, but shows the stress, or lack of stress, placed on a non-nuclear structure.

Budzik was aware on March 10, 1982, that some work had begun on the underpinning instrumentation and thought the system was less than 50% complete. Budzik did not recall any statements by Boos, or anyone else, at that meeting concerning the completion status of the underpinning instrumentation. Budzik recalled some discussion of work underway, but did not recall if the underpinning instrumentation had been discussed.

The portions of the afternoon sessions of the March 10th meeting that Budzik attended were spent in clarifying NRR's position on the CPCO proposals. NRR's position, that all underpinning work would be under the quality assurance program, started when Phase 2 work began. On March 10, 1982, Phase 2 of the underpinning had not begun.

9.3 Interview of BPC Assistant Project Engineer

On June 9, 1982, Neal W. Swanberg, BPC Assistant Project Engineer-Midland, provided the following:

He was present for the meeting on March 10, 1982, at NRC Headquarters in Bethesda, MD. The purpose of the meeting was to clarify the extent of underpinning work at the Midland plant that would be included in the quality assurance program.

CPCO presented a plan of the underpinning areas to be included in the quality assurance program. The NRC disagreed with CPCO's plan and stated that all underpinning activities would be included in the quality assurance program. Swanberg did not recall if a point-in-time was established to have all underpinning work included in the quality assurance program. Swanberg recalled the vertical access shaft and the dewatering wells were excluded from the quality assurance program, and thought the beginning of the Phase 2 work, the drift beneath the Turbine Building, was the beginning point where all work would be governed by the quality assurance program.

Instrumentation was discussed at the March 10th meeting, and an attempt was made to define the portions of the underpinning instrumentation included in the quality assurance program. The purpose of the instrumentation was to show the structures were not harmed during the underpinning. Swanberg did not recall any statements by Al Boos, or anyone else, concerning the completion status of the underpinning instrumentation.

Swanberg felt the NRC's mandate that all underpinning work was included in the quality assurance program was wide sweeping and ambigious. Since the mandate was so broad, Swanberg assumed the underpinning instrumentation was included. He made his assumption based upon his knowledge that the instrumentation would have to be installed and operating prior to Phase 2. Swanberg did not recall any conversations as to which phase, Phase 1 or 2, included the instrumentation. From a technical standpoint Swanberg considered the instrumentation to be required for Phase 2 work, but did not know if instrumentation was included in Phase 1 or the beginning of Phase 2.

9.4 Interview of Licensing Engineer

On June 8, 1982, Roger W. Huston, CPCO Licensing Engineer for the Midland Project, provided the following information:

He attended the March 10, 1982, meeting where CPCO presented a plan for the application of quality assurance criteria to the underpinning work at the Midland plant. The discussions surrounded the areas to be "Q listed" and the areas excluded from the quality assurance program. Instrumentation was discussed to the extent that a monitoring program would be used to detect settlement of the structures (the Auxiliary Building in relation to the Turbine Building). He did not remember any discussion pertaining to the completion status of the instrumentation.

9.5 Interview of Remedial Soils Quality Assurance Engineer

On May 28, 1982, Rudolph C. Hirzel, a quality assurance engineer under contract to CPCO MPQAD through Science Applications, Inc., provided the following:

He was at the March 10, 1982, meeting at NRC Headquarters where CPCO presented a quality assurance program for underpinning at the Midland site. The NRC rejected the CPCO program and a formal agreement between CPCO and the NRC was never completed. The CPCO and BPC representatives advised the NRC that they would have to discuss the position with their respective managements. On their return trip to Michigan, CPCO's Don Horn asked for a listing of areas to be excluded from the quality assurance plan. This was to be included in a composite listing of "non Q" items to be presented to the NRC at a later date.

Hirzel recalled benchmarks were the only specific component of the instrumentation discussed during the March 10th meeting. He did not recall anyone, including Al Boos, discussing the completion status of the instrumentation.

9.6 Interview of CPCO Attorneys

9.6.1 Interview of Corporate Attorney

On May 26, 1982, James E. Brunner, Attorney in CPCO's Corporate Legal Department, provided the following:

He attended the meeting in Bethesda, MD, on March 10, 1982. He was in-and-out of the sessions and did not recall anyone, including Boos, discussing the completion status of the underpinning instrumentation.

9.6.2 Interview of Retained Attorney

On June 10, 1982, Frederick C. Williams, an attorney with the firm of Isham, Lincoln and Beale under CPCO retainer, was telephonically interviewed from Las Vegas, NV, Williams provided the following:

He attended the meeting in Bethesda, MD, on March 10, 1982, where CPCO presented a program describing the Midland underpinning work to be included and excluded from the quality assurance program. He described the meeting as difficult with vast differences between CPCO's position and that of the NRC.

CPCO's position was to have some, but not all, underpinning work included in the quality assurance program. For the most part the underpinning would be in a new category, "QA," in the quality assurance program. The "QA" category would

be non-nuclear-safety-related areas covered by the quality assurance plan, but would be excluded from NRC review.

The NRC rebutted the CPCO position by stating that all underpinning work would be under the quality assurance program.

The discussions included the major categories of work (i.e. monitoring, tunnelling) to be "Q listed." There was some discussion of sub-components being subjected to quality assurance review, but "not every turn of a bolt." The general consensus was all work underway would be excluded from the quality assurance program. The application of the quality assurance program to the entire underpinning program would begin with Phase 2. The NRC agreed that work underway was "grandfathered out of the program."

Williams recalled during the general discuss of instrumentation that Boos made a statement that instrumentation cable had been pulled. Boos' statement was made during the discussion of the phases of the instrumentation to be included in the quality assurance program. Boos did not indicate an amount of cable pulled.

10. Interviews of CPCO and BPC Personnel Present for Telephone Call

10.1 Interview of BPC Remedial Soils Group Manager

On May 27, 1982, John F. Fisher, BPC Remedial Soils Group Manager, provided the following:

He was present for the March 12, 1982, telephone call to Region III. The purpose of the call was to identify the areas of the underpinning work to be excluded from the quality assurance program.

Al Boos did most of the talking during the call and was speaking about the work areas that CPCO and BPC considered to be "non-Q". Boos' statements were not meant as a status of work report, but to show that work had begun and that the work had been done "non-Q".

Fisher was aware the installation of instrumentation had begun, and was not complete. Fisher believed Boos' statement "our instrumentation is essentially well underway. Wiring has been pulled. Raceway has been installed," was accurate in that Fisher considered the instrumentation to be underway in preparation for the next work phase. Fisher thought Boos intended to communicate to the Region III personnel that instrumentation wiring and conduit had been installed "non Q".

10.2 Interview of BPC Scheduling Engineer

On May 27, 1982, John E. Simpson, Jr., BPC Scheduling Engineer, provided the following:

He was present for the conference telephone call to Region III on March 12, 1982, where CPCO and BPC sought the concurrence of Region III in the underpinning areas to be excluded from the quality assurance program. The conversation dealt with the "non-Q listed" areas and instrumentation was discussed in that context by Al Boos. The procurement and installation of the instrumentation was to be "non-Q", while the calibration and monitoring were "Q listed".

Prior to the conversation with Region III, Boos had requested Simpson to determine the status of the underpinning installation. Simpson did not retain any notes, but recalled he had asked a field engineer to get the installation status for him. The engineer returned with the information that four deep-seated benchmarks were completely installed. Other benchmark holes had been drilled, the pipe casing had been grouted, and conduit had been installed for eight benchmarks. Simpson stated he did not understand the technical significance of the field engineers information, as he was looking at the information from a scheduler's viewpoint. He knew eight benchmarks had to be installed before work could proceed and thought the installation work was about completed. The field engineer never gave him a specific percentage of completed work. He informed Boos the instrumentaiton was "essentially complete". Simpson never personally observed any portion of the instrumentation system.

To Simpson, all of the information that Boos provided to Region III during the telephone call on March 12th was accurate. Had Boos said something inaccurate during the telephone call, Simpson stated he would have interjected into the conversation and corrected Boos.

10.3 Interview of CPCO Engineer

On May 28, 1982, John R. Schaub, CPCO Engineer, provided the following:

He was present for a conference telephone call on March 12, 1982, to Landsman and Boyd in the Region III office. The call was placed to explain the areas CPCO and BPC wanted to remain "non-Q". A matrix (Exhibit X) was used to explain the status of the "non-Q" items beginning with procurement. The call was meant to discuss work that was underway and was not meant to be a status report.

Schaub was aware that some benchmarks had arrived onsite, but none of the instruments. It seemed logical to Schaub that without all of the benchmarks and with none of the instruments, it would not be possible to route the cable and conduit. Schaub thought Landsman was aware that none of the instruments were onsite. It also

seemed to Schaub that Landsman was "not tracking" with the conversation, even though Boos had clarified his points.

Additionally, Schaub advised that all of Boos' comments during the telephone call on March 12th were accurate and had they not been accurate he would have corrected Boos.

10.4 Interview of Planning and Scheduling Section Head

On June 8, 1982, David F. Ronk, Planning and Scheduling Section Head for the Midland Project, provided the following:

The March 12, 1982 telephone call started without him. After reviewing the BPC transcript of the telephone call (Exhibit I), he recalled entering the room at the point in the discussion of wood lagging.

The comments about instrumentation were to inform Region III that design and procurement of the instrumentation had been done "non-Q". Further, some raceway had been installed and cables pulled as "non-Q". Also, that the instrument reading would be considered "Q".

To the best of his knowledge none of Boos' comments during the telephone call were inaccurate.

10.5 Interview of MPQAD Civil Remedial Quality Assurance Engineer Supervisor

On May 28, 1982, Robert E. Sevo, BPC MPQAD Remedial Civil Quality Assurance Engineer Supervisor, provided the following:

He was present for the March 12, 1982 conference telephone call to Region III. However, he did not participate in the conversation and did not remember any of the details of the call.

Sevo was shown a copy of the BPC transcript of the telephone call (Exhibit I). Sevo stated that to the best of his knowledge all of the comments were accurate.

10.6 Interview of Mergintine Corp. Employees

10.6.1 Interview of Mergintine Corp. Project Manager

On May 27, 1982, Raymond E. Oberleitner, Mergintine Corp. Project Manager, was interviewed. Overleitner stated his firm was contracted to do the underpinning work at Midland. Oberleitner advised he was present during the opening remarks of the telephone call to Region III on March 12, 1982, but left the room early in the conversation. He recalled some discussion about underpinning work to be excluded from the quality assurance program, but did not

pay much attention as he was not directly involved. He did not remember any discussion of instrumentation.

Oberleitner was shown a copy of the transcript of the March 12th telephone conversation (Exhibit I). He stated he could not comment on the accuracy of the information as it did not involve his company or work area.

10.6.2 Interview of Mergintine Scheduling Consultant

On May 27, 1982, Kenneth A. Vander Jagt, Mergintine Scheduling Consultant, was interviewed. Vander Jagt advised he attended only a small portion of the March 12, 1982 telephone call to Region III. He did not recall the discussion on instrumentation. Vander Jagt was shown a copy of the telephone call transcript (Exhibit I) and advised he could not comment on the accuracy of the information as it did not pertain to his company's activities.

10.7 Interview of CPCO Scheduler

On June 14, 1982, Gary L. Rogers, Planning and Scheduling Consultant to CPCO, was telephonically interviewed. From Los Angeles, CA, he provided the following:

He recalled being present for the telephone call to Region III on March 12, 1982, but did not contribute to the discussions.

He recalled the discussion surrounded potential changes to various phases of the underpinning work. There was a general discussion about instrumentation and what had been done in design and status in the field. Various topics concerning instrumentation were discussed, including system design, conduit placement and benchmark installation. However, he could not recall any specifics of the conversation. He did not recall hearing anything during the telephone call which was inaccurate.

10.8 Interview of Quality Assurance Department Director

On June 8, 1982, Benjamin W. Marguglio, Director of the Midland Quality Assurance Department, provided the following:

He was present for the conference telephone call on March 12, 1982, to the Region III office. The purpose of the call was to inform Region III of the underpinning activities that were "Q" or "non-Q" listed, and not to report the status of installation .

He was present for the conference telephone call on March 12, 1982, to the Region III office. The purpose of the call was to inform Region III of the underpinning activities that were "Q" or "non-Q" listed, and not to report the status of installation.

Al Boos did most of the talking during the call and had used a matrix (Exhibit X) in his discussion. Boos went down the matrix as he spoke and provided the project's designation, "Q" or "non-Q" for an area and the reason(s) the area was not considered to be within the quality assurance program.

Marguglio was confused by the Matrix's format, as he had been asked to join the conference call "at the eleventh hour" and had not had the opportunity to consult with Don Horn. (The Head of the MPQAD Civil Section). He was "new to the discussion area" and had not attended the March 10th meeting in Bethesda, MD.

Also, it was the project policy for project management, not MPQAD, to determine the areas covered by the quality assurance program.

Marguglio was shown a copy of the BPC transcript of the March 12th telephone conversation (Exhibit I). He advised his participation in the conference call was limited to clarification of the matrix as it was used for the instrumentation. Marguglio advised he injected into the conversation to clarify the instrumentation comments, as he did not have the background of the March 10th meeting to fully understand the instrumentation matrix. Marguglio stated he was focusing on the communication of the information in the matrix and not on what Boos was actually saying.

At the time of the conversation the transcript (Exhibit I) was correct. In retrospect Marguglio felt "wiring has been pulled" could be misconstrued as, "all wiring was pulled," when in fact only some wiring had been pulled. Marguglio also felt that Boos' statement, "our instrumentation is essentially well underway," referred to procurement of the instrumentation. Marguglio believed that Boos could have been more specific during his conversation with Region III on March 12, 1982.

11. Review of Additional Information

11.1 Interview of Region III Personnel

During the interviews of the Region III staff members (Ross B. Landsman, paragraph 4.1, Exhibit II; Ronald N. Gardner, paragraph 4.2, Exhibit IV; and, Ronald J. Cook, paragraph 4.3, Exhibit VI), each advised Ben Marguglio had apprised them (Landsman, Gardner and Cook) of an agreement between James W. Cook, CPCO Vice President-Midland Project and James G. Keppler, Region III Administrator, that the NRC would treat Items of Noncompliance involving the Midland remedial soils program differently from other noncompliances with NRC requirements.

11.2 Interview of Quality Assurance Department Director

The following information was obtained from Benjamin W. Marguglio, Director, Midland Quality Assurance Department, during an interview on June 8, 1982:

About the time of the March 10, 1982 meeting, Marguglio was informed by James Cook of a conversation between Cook and Keppler about the remedial soils program. The conversation dealt with CPCO's position of including non-nuclear-safety-related areas of the underpinning work into the quality assurance program. Cook informed Marguglio that Keppler had agreed that any problems arising in a non-nuclear-safety-related underpinning activity, included by CPCO in the quality assurance program and agreed to by the NRC that the activity was not related to nuclear safety, would not be treated as noncompliance with NRC requirements. Marguglio informed Landsman, Ron Cook, and Gardner of the James Cook-James Keppler conversation only to illustrate to the Region III staff the installation of underpinning instrumentation was not related to nuclear safety; although the calibration of instrumentation and use of the information was.

11.3 Interview of CPCO Vice President

On June 9, 1982, James W. Cook, Vice President-Midland Project, provided the following:

Cook reviewed CPCO's position with Marguglio prior to the March 10, 1982 meeting at NRC Headquarters. Cook wanted a single quality assurance program for the underpinning. He recognized if all underpinning work came within the scope of the quality assurance program, then CPCO could be held in noncompliance with NRC requirements for areas not related to nuclear safety. He told Marguglio that he (Cook) would telephone Keppler to discuss this concern.

Cook telephoned Keppler after hearing the results of the March 10th meeting. Cook was concerned the NRC had too broad a definition of the underpinning areas to be included in the Quality Assurance Program. Cook "felt it was necessary to go to Region III management for resolution" of the problems, and telephoned Keppler. He told Keppler CPCO was willing to have a single quality assurance program for the underpinning work, but felt CPCO should not be penalized for underpinning work not associated with nuclear safety.

Keppler had agreed CPCO should not be held in noncompliance by the NRC for non-nuclear-safety-related work. Keppler told Cook that before making a final decision he (Keppler) would discuss this matter with the Region III staff.

11.4 Interview of Region III Administrator

On June 11, 1982, James G. Keppler, Region III Administrator, provided the following:

He had several telephone calls with CPCO's James Cook during mid-March. The calls dealt with several areas, including the application of 10 CFR 50 Appendix B to the soils problems at the Midland plant.

Cook's question dealt with the NRC staff's position of applying 10 CFR 50 Appendix B to the soils problems. Cook was willing to have Region III inspect all of the underpinning work at Midland, but felt it would be unfair to CPCO to have citations written against 10 CFR 50 Appendix B criteria for areas which were not related to nuclear safety. Rather, Cook felt the NRC could inspect the non-nuclear-safety areas, and if deficiencies were found they could be written in the body of the Region III report without making a citation against 10 CFR 50 Appendix B. Cook wanted the problems to be reviewed by the NRC. Keppler did not reach any agreement with Cook, and referred Cook to Charles Norelius, Region III Director of Engineering and Technical Programs.

11.5 Interview of Region III Division Director

On June 16, 1982, Charles E. Norelius, Region III Director of Engineering and Technical Programs, provided the following:

During March 1982, numerous discussions were held by his staff, including Gardner and Landsman, concerning the underpinning instrumentation cable pulling at the Midland site. The discussions surrounded CPCO's pulling of underpinning instrumentation cable without it being included in the CPCO Quality Assurance Program. Based upon the discussions it was decided to issue a Confirmation of Action letter to CPCO and to involve CPCO in a meeting at the Region III offices in late March. Norelius was certain he had spoken to Cook about the cable pulling and the meeting; however, he could not recall any details of the conversations.

Bill Little, Region III Engineering Inspection Branch Chief, was responsible for the details of the meeting and Little had spoken to Cook to arrange the meeting. Cook advised Little that CPCO had been doing some remedial soils work which had not been included in the quality assurance program, and Cook and Keppler had agreed that non-nuclear-safety-related underpinning work would not be subject to NRC regulatory review.

Norelius spoke to Keppler about the conversation between Cook and Little. Keppler advised Norelius that Cook had telephoned. Cook had apprised Keppler that CPCO wanted to have a single quality assurance program for the underpinning work and the quality assurance program would include nuclear-safety-related and non-safety-related work alike in the program. Cook had said that CPCO should not be held in noncompliance with NRC requirements for the non-safety-related areas of the underpinning quality assurance program. Keppler acknowledge to Cook that this seemed reasonable, but wanted to speak to his staff before making a final decision.

11.6 Interview of Region III Branch Chief

On June 17, 1982, William S. Little, Region III Engineering Inspection Branch Chief, provided the following:

During March 1982, Region III Inspectors Ross Landsman and Ronald Gardner inspected the underpinning instrumentation cable at the Midland project. They learned that cables had been pulled, but quality assurance criteria had not been developed for those cables pulled. CPCO agreed to stop the underpinning instrumentation cable pulling until the necessary quality assurance procedures were developed. Region III decided to issue a Confirmation of Action Letter to CPCO for stopping the cable pulls.

Little and James Cook, CPCO Vice President, discussed the Confirmation of Action Letter by telephone. Cook told Little of an agreement between Cook and Keppler that the NRC would not take regulatory action for non-nuclear-safety-related work included in the underpinning quality assurance program. Cook said certain areas of the underpinning work were not related to nuclear safety, but were included in the quality assurance program to insure high quality workmanship. These areas were included in the program for CPCO's benefit and were not related to nuclear safety; therefore, the areas were not subject to the NRC's regulatory process.

Little informed Cook he did not know of any agreement between Cook and Keppler. Little also told Cook that the underpinning instrumentation was definitely safety related as the instrumentation would determine if any damage had been caused to safety related structures during the tunnelling process.

Little advised Norelius of Cook's comments about an agreement with Keppler. Norelius spoke to Keppler and learned Cook had telephoned. Cook had explained to Keppler the CPCO position to have non-nuclear safety-related areas included in the underpinning quality assurance program and that these areas would be excluded from the NRC's regulatory review. Keppler told Norelius he never had an agreement with Cook.

12. Exit Meeting

On June 10, 1982, the results of the investigation to date were discussed with James W. Cook, CPCO Vice President-Midland Project, and James E. Brunner, CPCO attorney.

Exhibits:

I Transcript of March 12, 1982, telephone call
II Statement of Ross B. Landsman
III NRC Inspection Rpt. No. 50-329/82-05(DETP); 50-330/82-05(DETP)
IV Statement of Ronald N. Gardner
V NRC Inspection Rpt. No. 50-329/82-06(DETP); 50-330/82-06(DETP)
VI Statement of Ronald J. Cook
VII Statement of Dwane C. Boyd
VIII Statement of Michael J. Schaeffer
IX Statement of Edgar L. Jones

X Telefax Copy of Matrix used in March 12th telephone call
XI Statement of Alan J. Boos
XII Statement of Darl S. Hood
XIII Ltr, March 22, 1982, Tedesco to J. W. Cook
XIV NRR Summary Rpt of March 10, 1982 meeting
XV Statement of Joseph D. Kane
XVI Statement of Walter R. Bird

Don- Please prep out & make distribution as necessary. per A. Boos. 3/12/82.

March 12, 1982 2:08 p.m.

Conference telephone call between Bechtel/Consumers and NRC.

Call initiated by Don Horn/Al Boos to Dr. Ross Landsman, NRC, Region 3.

In attendance:

BECHTEL/CPCo

Al Boos
J. Fisher
R. Cook (NRC - Site)
D. Horn
J. Schaub
Jim Moore
Ben Marguglio
J. Simpson
Bob Sevo
Dave Ronk
Gary Rogers
Ray Oberleitner (Mergentime)
Ken Vanderjack

NRC-Region III -Chicago

Ross Landsman
Mr. Boyd

Boos: Hello, Ross, this is Al Boos, with Don Horn.

Who is there with you?

Ross: Landsman and Boyd.

Boos: Who else?

~~Ross~~ BOYD: That is it.

Were you able to get through to the NRR or not?

Couldn't raise anybody - will handle without them.

Boos: (Brief introductory remark) With respect to remedial soils work, it was the staff's position that all items were Q unless applicant could demonstrate that certain activities should be non-Q data. When I came back to Michigan, we have a weekly coordination meeting and one of the first things we did this morning was to draw up a list of those items which either have been completed or in process or are proposed which we feel can, in fact, be treated as non-Q items. Since we are working under the

EXHIBIT I

business as usual concept of you making audits, we felt it was prudent to review with you this list prior to making inspection so that we would have a very clear dialogue in terms of those items remaining Q, primarily because in some respects we elect to bid it may not be physically possible to replace that item - like removing ~~wood logging~~ ~~log wood~~ or drift. Since we don't want to be cited, we are going to attempt to identify items we feel are non-Q. We feel it is essentially a complete list. May be a need from time to time to offer other items. We will try to do it before we undertake the work. I will ask Don to take us through this.

Boos: Access shafts below 609 - drifts, the piers and instrumentation (Ron Cook has a copy of it. If necessary for interpretation, he can help me).

1. Access shafts below 609 - Soldier Piles.

It may help you if you have a clean sheet of paper to put down four column headings. I will try and summarize. With respect to soldier piles, we have procured those piles and have installed them as non-Q as you are aware. With respect to access shafts below 609. In this case, in general, other than just access shafts at 609, we feel that the purchase of tools and equipment like torque wrenches, jacks, gauges and threading machines should be non-Q. Our rationale is that there is either provision for calibration or an end inspection of the fabrication, like the reinforcing steel that is threaded by the threading machine. Again, tools and equipment is intended to be a generic comment.

Question: Is this construction equipment?

Answer: Yes, tools and equipment.

Cook: (This is being transcribed for purposes of preparing a telephone summary. QA required it.)

3. Access shafts below 609. Purchaseof steel and wood ~~legging~~ logging and I believe we talked about that the other day in Bethesda.

J. Fisher: To differentiate - steel shape = whalers in wood ~~legging~~ logging.

Ross: When we talked on the Washington, we were talking about the no certs.

Al: That is what makes it a Q purchase. We would not be buying this with mill certs because this steel doesn't stay in - it is temporary and non permanent. Standard manufactured item.

Ross: We are just talking about the mill cert?

Al: We are not talking about buying it Q.

Cook: The tons of concrete that you pour around here - did you have mill certs on the wood forms you used before? Why on this particular job? Isn't wood ~~legging~~ logging steel shapes?

Al: That is right - We didn't think it needs to be bought Q.

Cook: You didn't talk about this before.

Al: This is a whole new thing.

Cook: NRC - what is the meaning of all this?

Al: We were directed that everything was to be Q unless the applicant could demonstrate that item could be classified as non-Q - we feel that it is imperative for us to check off with you even though you may say ~~that~~ they need not be purchased Q. We want to leave a trail that is crystal clear.

Cook: The point is that historically we never have approved anything. Our function is that you are obligated to assure the world that you have done all things appropriate and have invoked QA. We cannot either agree or disagree.

Al: I am not asking for you - I am making a statement of our policy in advance. We will know in an audit what our position is. If he is not in agreement with that position it is in our mutual interests for us to know now from a cost, schedule, quality and personnel safety standpoint.

Cook: Go ahead and revert back to the fact that you poured tons of concrete.

Fisher: We are doing this because of what you told us the other day.

Al: Last item under access shafts below 609 is purchase of rock bolts.

Ross: Which rock bolts?

Al: Rock bolts Turbine Building and buttress access shaft. Again, purchase Non Q installation would be handled as Q. In all of these cases, I have talked about you will note I have talked about only procurement of material with exception of soldier piles. Tools and equipment, etc. Installation would be Q.

Ross: Continue.

Al: New subject - drifts. We are planning to procure the material for the steel sheets which are basically the box-shaped frames that accept ~~lagging~~ lagging in the drift as non-Q. Fabrication of those steel sheets would be Q and installation.

Al: The next item - the procurement of the wood ~~legging~~ logging and wood wedges for the drifts would also be non-Q. Procurement. Procurement of the back packing material for the drifts would be non-Q. And as a 4th item, the procurement of the rock and earth anchors would be non-Q. Those are the sets of items under the classification of drifts. Under piers - - -

Don has asked me to again reiterate that fabrication and installation of the drifts classification items would be Q. Under classification of piers, Ross, you may be aware that there is Ethifoam to be put behind metal ~~leggings~~ logging as back packing. May be gluing Ethifoam to steel . We will propose to procure that glue as a non-Q commodity. Verification that is in place would be a Q-listed activity. That is the only entry I have under piers.

Last item is instrumentation. We are talking about the settlement monitoring instrumentation, pier monitoring instrumentation, etc.

Our position here is that the raceway, the wire and the brackets that would accept the instrumentation would be procured and installed as non-Q. The checkout of the system and the ~~making~~ taking of the reading would be Q.

Ross: What would you say about the instrumentation in that area?

Al: Instrumentation has been purchased Q.

The instrumentation system is in a data room - it has been procured and installed with environmental controls as non-Q.

Al: The last item which is essentially a repeat of that above under access shafts gauges, backup gauges, have been procured as non-Q but would be calibrated under a Q program. These are existing dial gauges. Our instrumentation is essentially well under way. Wiring has been pulled - raceway has been installed, etc. Those are the only comments I have.

Ross: Okay. Let us talk here a minute and we will get back with you in just a second.

B. Marguglio: Didn't those dotted lines mean all non Q?

Al: Yes, across the board.

BM: Did that come across in the conversation?

Al: I will reiterate it. It becomes Q at the checkout of the system.

Cook: I am here.

Ross: Feel free to make your own comment.

Boyd: We would like to digest this list and get back with your designated person on Monday. We'd like to sit down and look it over and get back with you, but not to say that we approve or disapprove. If we have any problems or = does not constitute approval - it means we don't have any problems with what is here.

Al: We recognize that you are not going to sign anything as co-approvers.

Boyd: But we can look over and make judgments whether we have any problems and identify anything that does give us problems. Who should we get back with on Monday?

Al: Don Horn.

Boyd: Okay.

Boyd: Ron, do you have any problems with that?

Cook: I think that can be quite livable. We might appear not to have any problems but later on we get into construction and problem is created. I don't want to have relinquished our right to enforcement in that area.

Ross: That is exactly why we don't go into approval process. My judgment is there will be very ~~fes~~ few that will happen that way but we want the door open.

Ross: Okay.

Al: Very good. The rest of us in the room will wait to hear from you and your results on Monday.

BM: I have a question. Will it be both of you gentlemen calling Don Horn Monday?

Boyd: Ron Cook and Ross and myself will get together and talk - one of us will make the call. We will get back with you on Monday with our findings.

Al: To clarify one point, to make sure I didn't mislead the people in Chicago - with respect to the raceway material - the wire, the fabrication of brackets that, ~~except~~ except instrumentation, and termination of wire that we are talking about that, with respect to procurement through installation.

Boyd: Could you give Ron Cook a copy of that so he can fax it to us?

Cook: I will try to fax it to you right away.

Boyd: I think that is important.

Al: Thank you very much.

Glen Ellyn, Illinois
(LOCATION)

April 19, 1982
(DATE)

I, Ross B. Landsman, hereby make the following statement to Charles H. Weil, who has identified himself to me as an Investigator of the United States Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

RBK I am presently employed by the Nuclear Regulatory Commission as a Civil Engineer Reactor Inspector. I was recently assigned to inspect remedial foundation work at the Midland Nuclear Power Plant construction site in Midland, Michigan.

On March 10, 1982, I initiated a meeting at the Nuclear Regulatory Commission's headquarters in Bethesda, MD. The purpose of this meeting was to discuss the application of quality assurance criteria and procedures to remedial foundation work underway at the Midland site. During the meeting it was agreed between the Nuclear Regulatory Commission and the Consumers Power Company that work started before March 10, 1982, would not be included in the remedial foundation work quality assurance program. Work commencing after that date would be included in the quality assurance program.

Ross B. Landsman

One of the topics of conversation at the March 10th meeting was the status of the installation of instrumentation to measure the settlement of the Midland Auxiliary Building. Mr. Al J. Boos, the Bechtel Power Corporation's Assistant Project Manager at Midland, attended the March 10th meeting. During the course of the meeting, Boos made a statement that lead me to believe the instruments had been installed to measure the settling of the Auxiliary Building, and since the instruments were installed the instruments would not have to be included in the quality assurance program under consideration for the remedial foundation work.

On March 12, 1982, I participated in a telephone conversation initiated by the Consumers Power Company. The purpose of this telephone call was to have Consumers Power Company identify the items, either completed or where installation was underway, not included in the quality assurance program for the Midland remedial foundation work. During the telephone conversation, Al Boos stated, "Gauges, backup gauges, have been procured as non-Q but would be calibrated under a Q program. These are existing dial gauges. Our instrumentation is essentially well under way. Wiring has been pulled - raceway has been installed."

Based on Boos' statements of March 10 and 12, 1982, I understood the instrumentation (i.e. settlement gauges and strain gauges) for the Auxiliary Building settlement monitoring would not be included in the remedial foundation work quality assurance program, as work had begun before March 10, 1982.

On March 17, 1982, I was at the Midland site, along with Region III Inspector Ron Gardner, to observe the remedial foundation work. During the course of the inspection, Gardner and I found cables for the Auxiliary Building settlement RBK instruments were being pulled without the benefit of quality assurance or quality control. Later that day, I questioned Mike Schaeffer of the Consumers Power Company Quality Assurance Department about the absence of quality control/ RBK

RBK

EXHIBIT II

RBL quality assurance for the instrumentation installation. Schaeffer informed me the cable pulling was not considered to be under the quality assurance program for the remedial foundation work. After discussing the cable pulling with Schaeffer, Schaeffer stated the cable pulling would be stopped since there seemed to be some confusion on the quality assurance status of the cable pulls. Schaeffer also told me that the installation of the settlement instrumentation for the Auxiliary Building had begun on March 11, 1982.

On the morning of March 18, 1982, I observed cable pulling was continuing without quality control/quality assurance, and I informed Mr. Ben W. Marguglio, Consumers Power's Director of the Midland Project Quality Assurance Department, of my observations. Marguglio stated the cable pulling had begun prior to March 10, 1982; therefore, the cable pulling was not a part of the quality assurance program for the remedial foundation work. Also, Marguglio stated it was his understanding that Consumers Power Company Vice President Jim Cook and NRC Region III Director Jim Keppler had previously agreed the Midland project would not be cited by the NRC for things that were obviously non-Q (not included) under the remedial foundation work quality assurance program.

On March 19, 1982, Marguglio informed me that he had stopped the cable pulling because it would now be considered under the remedial foundation work quality assurance program and quality assurance/quality control procedures would be developed to control the work. RBL

RBL

RBL

I have read the foregoing statement consisting of two pages. I have made any necessary corrections, and I have initialed those corrections. This statement is the truth to the best of my knowledge and belief. I declare under the penalty of perjury that the foregoing is true and correct. Executed on April 19, 1982 (Date) at 3:50 pm (Time).

Ross B. Landsman
(Signature)

Ross B. Landsman, Nuclear Regulatory Commission Region III, Glen Ellyn, IL.
(Address)

Subscribed and sworn to before me this 19th day of April, 19 82 at Glen Ellyn, Illinois.

Charles H. Weil, Investigator
Nuclear Regulatory Commission Region III
Glen Ellyn, Illinois 60137

RIII PDR

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

APR 20 1982

Docket No. 50-329
Docket No. 50-330

82-05

Consumers Power Company
ATTN: Mr. James W. Cook
Vice President
Midland Project
1945 West Parnall Road
Jackson, MI 49201

Gentlemen:

This refers to the routine safety inspections conducted by Mr. R. B. Landsman of this office on February 3-5, 17-19 and March 17-19, 1982, of activities at the Midland Nuclear Power Plant, Units 1 and 2, authorized by NRC Construction Permits No. CPPR-81 and No. CPPR-82 and to the discussion of our findings with you and Mr. W. R. Bird at the conclusion of the inspections. This report also refers to three meetings; two at NRC Headquarters on February 22-26 and March 9-10, 1982, and one conducted at our office in Glen Ellyn on March 30, 1982.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

During this inspection, certain of your activities appeared to be in noncompliance with NRC requirements, as specified in the enclosed Appendix A. A written response is required.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room. If this report contains any information that you (or your contractors) believe to be exempt from disclosure under 10 CFR 9.5(a)(4), it is necessary that you (a) notify this office by telephone within ten (10) days from the date of this letter of your intention to file a request for withholding; and (b) submit within twenty-five (25) days from the date of this letter a written application to this office to withhold such information. If your receipt of this letter has been delayed such that less than seven (7) days

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EXHIBIT III

are available for your review, please notify this office promptly so that a new due date may be established. Consistent with Section 2.790(b)(1), any such application must be accompanied by an affidavit executed by the owner of the information which identifies the document or part sought to be withheld, and which contains a full statement of the reasons which are the bases for the claim that the information should be withheld from public disclosure. This section further requires the statement to address with specificity the considerations listed in 10 CFR 2.790(b)(4). The information sought to be withheld shall be incorporated as far as possible into a separate part of the affidavit. If we do not hear from you in this regard within the specified periods noted above, a copy of this letter and the enclosed inspection report will be placed in the Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

C. E. Norelius, Director
Division of Engineering and
Technical Programs

Enclosures:
1. Appendix A, Notice of Violation
2. Appendix B, Notice of Deviation
3. Inspection Reports
   No. 50-329/82-05(DETP)
   and No. 50-330/82-05(DETP)

cc w/encls:
DMB/Document Control Desk (RIDS)
Resident Inspector, RIII
The Honorable Charles Bechhoefer, ASLB
The Honorable Jerry Harbour, ASLB
The Honorable Frederick P. Cowan, ASLB
The Honorable Ralph S. Decker, ASLB
Michael Miller
Ronald Callen, Michigan
  Public Service Commission
Myron M. Cherry
Barbara Stamiris
Mary Sinclair
Wendell Marshall
Colonel Steve J. Gadler (P.E.)

Appendix A

NOTICE OF VIOLATION

Consumers Power Company

Docket No. 50-329
Docket No. 50-330

As a result of the inspection conducted on February 3-5, 17-19 and March 17-19, 1982, and in accordance with the NRC Enforcement Policy, 47 FR 9987 (March 9, 1982), the following violation was identified:

10 CFR 50, Appendix B, Criterion V, states in part that, "Activities affecting quality shall be prescribed by documented instructions...and shall be accomplished in accordance with these instructions...instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished."

CPCo Quality Assurance Program Policy No. 5, states in part that, "organizations...prepare and maintain procedures as necessary to provide instructions...for a consistent method of performing recurring engineering, construction and Quality Assurance activities...these documents provide qualitative and quantitative acceptance criteria for determining that important activities have been satisfactorily accomplished."

Contrary to the above, the inspector determined the following four examples of noncompliance:

a. Mergentine's Field Procedure FPC-1.00, Revision 3, dated January 26, 1981, was not reviewed and approved prior to initiation of access shaft work as required by Site Procedure FPG-1.000. This was the result of CPCo allowing Mergentine to proceed without having an approved procedure to prepare procedures.

b. Site Procedure EDPI 4.49.1 does not have time limits established from engineer approval of the SCN, to distribution of the controlled copies of the specifications on site. This results in untimely delays for important changes.

c. Specification C-88, for the initial 20 dewatering wells, does not have acceptance criteria for determining if the actual amount of gravel pack/grout used in the dewatering wells was within an acceptable range.

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This resulted in inadequate assurance that the wells are acceptable. Furthermore, Specification C-118, for the remaining 40 wells, does not have acceptance criteria for this attribute.

d. Site Procedure E-1M does not have adequate instructions to prepare or implement overinspection plans. In that, it did not address how SCN's, FCN's, FCR's and DCN's are incorporated into the plans. This resulted in Overinspection Plan C-17B having contradicting and nuclear acceptance criteria. As a result, the inspection reports document erroneous results.

This is a Severity Level IV violation (Supplement II).

Pursuant to the provisions of 10 CFR 2.201, you are required to submit to this office within thirty days of the date of this Notice a written statement or explanation in reply, including for each item of noncompliance: (1) corrective action taken and the results achieved; (2) corrective action to be taken to avoid further noncompliance; and (3) the date when full compliance will be achieved. Consideration may be given to extending your response time for good cause shown.

4/23/82
Dated

C. E. Norelius, Director
Division of Engineering and
Technical Programs

Appendix B

NOTICE OF DEVIATION

Consumers Power Company

Docket No. 50-329
Docket No. 50-330

As a result of the inspection conducted on February 3-5, 17-19 and March 17-19, 1982, the following was cited as a deviation

During IE Inspection No. 81-12, the licensee committed to provide additional qualified QA civil staff prior to the initiation of the remedial soils work.

Contrary to the above, it was determined that certain of the assigned personnel do not satisfy the commitment to provide qualified staff needed to support the remedial soils work.

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-329/82-05(DETP); 50-330/82-05(DETP)

Docket Nos. 50-329; 50-330 Licenses No. CPPR-81; CPPR-82

Licensee: Consumers Power Company
1945 West Parnall Road
Jackson, MI 49201

Facility Name: Midland Nuclear Power Plant, Units 1 and 2

Inspection At: Midland Site, Midland, MI

Inspection Conducted: February 3-5, 17-19, 22-26, March 9-10, 17-19, and 30, 1982

Inspector: R. B. Landsman RB Landsman 4-19-82

Appproved By: C. C. Williams, Chief
Plant Systems Section CC Williams 4/19/82

Inspection Summary

Inspection on February 3-5, 17-19, 22-26, March 9-10, 17-19, and 30, 1982 (Reports No. 50-329/82-05(DETP); 50-330/82-05(DETP))

Areas Inspected: Verification of QA Program for Civil QA Staffing, Permanent Plant Dewatering Wells, Drawdown - Recharge Test, BWST Surcharge Test, and Auxiliary Building Access Shafts being done as part of the Remedial Soils measures. The inspector also attended three meetings, two in NRC Headquarters with the licensee and their consultants and one conducted in the Region III office in Glen Ellyn. The inspections involved a total of 86 inspector-hours by one NRC inspector.

Results: Of the areas inspected, one item of noncompliance and one deviation was identified - Severity Level IV, Inadequate Procedures; Deviation from commitment to provide adequate technical QA staff for the Remedial Soils work.

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DETAILS

Persons Contacted

Consumers Power Company (CPCo)

B. W. Marguglio, MPQAD Director
W. R. Bird, MPQAD Manager
M. Curland, MPQAD Site Superintendent
D. E. Horn, MPQAD Civil Group Supervisor
R. Akers, MOQAD Civil QAE Supervisor
R. E. Sevo, MPQAD Civil IE and TV Supervisor

Bechtel Power Corporation

A. Boos, Assistant Project Manager
N. Swanberg, Assistant Project Engineer
J. Fisher, Remedial Soils Group Manager
M. A. Dietrich, Project QA Engineer

NRC

R. Cook, Resident Inspector

Other licensee and contractor personnel were routinely contacted during the course of these inspections.

Functional or Program Areas Inspected

1. Quality Assurance Staffing (Civil Area)

   During this inspection a review of the quality assurance staff for the civil work activities was made to determine that adequate technical, quality assurance depth and personnel availability exist for the planned remedial measures to be performed as a result of the soil settlement issue.

   The onsite QA group is divided into two sections; (1) Quality Assurance Engineering (QAE), and (2) Inspection-Examination and Testing Verification (IE&TV). The QAE section presently consists of a supervisor (an industrial engineer) and three civil engineers. The IE&TV section presently consists of a supervisor (a civil engineer), one civil engineer, a geologist, and two other individuals, one of which has an associate degree in environmental studies. The following determinations were made:

   a. The QAE section supervisor does not have the technical experience to implement the MPQAD program for the required remedial measures.

   b. The IE&TV staff has very limited technical depth for the complex nature of the remedial actions.

Staffing problems were previously discussed with the licensee (as described in IE Reports No. 81-01 and No. 81-12). CPCo committed to provide, prior to the initiation of the complex remedial activities, additional qualified staff to participate in these activities. It is the assessment of the inspector that the staff is not fully adequate and are judged not to be commensurable with the complexity of the task. Therefore, it has been determined that CPCo is in deviation from an NRC commitment as described in Appendix B of the report transmittal letter (50-329/82-05-01; 50-330/82-05-01).

Subsequent to the inspection, CPCo informed the Region III office that the civil QA section will be reorganized into a remedial soils group and a structural group. The remedial soils group, will have a qualified civil engineering staff. Additional qualified staff will also be provided. This action will be verified during a subsequent inspection.

2. Permanent Plant Dewatering Wells

The inspection was conducted to verify the implementation of the QA program for the initial 20 wells already installed and for the remaining 40 wells presently being installed.

The inspector reviewed the initial 20 well data sheets which are required by Specification C-88 to document all field data obtained during the well installation. From this review, the inspector determined that one of the important well log parameters, comparing the amount of actual gravel pack/grout used to the calculated amounts, was not reviewed. This was determined because the actual amount of gravel pack used was up to 10 cubic feet less than the calculated amount. The hydrogeologist preparing and approving these well logs failed to identify and correct these adverse conditions. This was because the controlling Specification C-88, did not have appropriate acceptance criteria for determining that important activities have been satisfactorily accomplished. This is in noncompliance with 10 CFR 50, Appendix B, Criterion V as described in Appendix A of the report transmittal letter (329/82-05-02C; 330/82-05-02C). The licensee committed to review the well logs to determine if the dewatering wells are acceptable.

The inspector reviewed the following documents controlling the remaining 40 dewatering wells:

a. Specification C-118, "Subcontract to Install Observation Wells and Permanent Dewatering Wells System," Revision 3, dated December 16, 1981.

b. PQCI 7220/C-2.02, "Permanent Gravel-Packed Wells," Revision 0, dated January 18, 1981.

c. Subcontractor Procedure 7220-C118-1-1, "Procedure for Installation of Dewatering and Observation Wells," Revision 0, dated January 11, 1982.

d. PIPR 7220-C-20D, "Installation of Gravel-Packed Wells," Revision 0, dated January 13, 1982.

e. Drawing C-2016, Revision 5, dated January 8, 1982.

f. Drawing C-2017, Revision 0, dated October 30, 1981.

g. Drawing C-2018, Revision 0, dated October 30, 1981.

h. Drawing C-2019, Revision 0, dated October 30, 1981.

From this review the inspector concluded that the documents appear to be satisfactory to control the installation of the remaining 40 wells. The licensee agreed to revise Section 6.5 of Specification C-118 to incorporate appropriate acceptance criteria for the actual amount of gravel pack/grout used. This item remains open and will be addressed in the previous item of noncompliance.

3. Drawdown-Recharge Test

The inspection was conducted to verify the implementation of the QA program for the recharge test. It is being done to establish that even if all the wells are lost that the water table will not rise significantly during a certain time period to make the loose sands underlying the plant site liquifiable.

The inspector reviewed the following documents controlling the recharge test:

a. PQCI 7220/C-2.03, "Drawdown Recharge Test," Revision 2, dated February 3, 1982.

b. PIPR 7220/C-20C, "Drawdown/Recharge Test," Revision 1, dated February 3, 1982.

c. Drawing C-1300, Revision 1, dated February 1, 1982.

d. Drawing C-1301, Revision 1, dated February 1, 1982.

e. Drawing C-1302, Revision 2, dated February 1, 1982.

From this review the inspector concluded that the documents appear to be satisfactory to control the recharge test. The licensee took baseline readings on February 3, 1982, and shut the dewatering pumps off on February 4, 1982.

4. BWST Surcharge Test

The inspection was conducted to verify theimplementation of the QA program for BWST valve pit surcharge. The inspector reviewed the following documents controlling the surcharge:

a. Specification C-93, "Surcharging and the Instrumentation and Monitoring during Surcharging, for the Borated Water Storage Tank Area," Revision 1, dated December 3, 1981.

b. PIPR 7220/D-17B, "Surcharging and Settlement Monitoring of the Borated Water Tank Area," Revision 4, dated November 13, 1981.

c. Drawing C-1148, Revision 3, dated September 14, 1981.

d. Drawing C-1152, Revision 4, dated November 18, 1981.

From this review, the following concerns were discussed with the licensee. Overinspection Plan C-17B, Revision 4 has contradictory inspection criteria in Item Nos. 4.3D and 4.4A. Item No. 4.3D states that an acceptable crack width of 20 mils will be allowed. The reference document given was Specification C-93, Revision D, Section 5.5.4. The inspector determined that Section 5.5.4 was deleted by SCN 11003. SCN 11003 also added Section 6.0 to Specification C-93 which stated that an acceptable crack width of 16 mils will be allowed. This is also reflected in the overinspection plan in Item No. 4.4A which contradicts Item No. 4.3D.

Furthermore, while reviewing completed Overinspection Plans C-17B, No. 1 and No. 2, the inspector determined the MPQAD inspectors listed SCN 11003 as one of the documents reviewed while making the inspections. In fact, in the remarks column under Item No. 4.3D of the overinspection plans, Plan No. 1 stated, "less than 20 mils" and Plan No. 2 stated, "no deviations noted." Neither inspection plan identified that Item No. 4.3D was a superceded inspection criteria.

Additionally, the inspector determined that site Procedure E-1M, "Site Inspection Planning and Site Inspection," Revision 1, dated November 13, 1981, the controlling document for preparing and implementing overinspection plans, was inadequate. There are no instructions for the preparer of the plan to list SCN's that were used in the preparation of the plan. There are also no instructions for the inspectors to list SCN's that were issued after the plan was prepared and were subsequently used by the inspector.

In summary, design criteria outlined in the specification, have not been adequately translated into inspection procedures, in that they provide contradicting acceptance criteria. This appears to be the result of an inadequate department procedure. As a result of this, the inspection reports document erroneous results. This is contrary to 10 CFR 50, Appendix B, Criterion V as described in Appendix A of the report transmittal letter (329/82-05-02D; 330/82-05-02D).

The licensee committed to revise Procedure E-1M to clarify the use of SCNs, FCNs, FCRs and DCNs both in preparation and implementation of the overinspection plans. They also agreed to revise overinspection Plan C-17B to delete the contradictions.

Additionally, the inspector determined that site Procedure EDPI 4.49.1, "Specification Change Notice," under Section 3.3, has no time limit set to distribute approved SCNs to the affected specifications on site. This failure to have an adequate procedure is another example of non-compliance with 10 CFR 50, Appendix B, Criterion V as described in Appendix A of the report transmittal letter (329/82-05-02B; 330/82-05-02B).

Another concern raised by the inspector was that QC was using a Field Inspection Report (FIR) in lieu of the usual PQCI's to do their inspections. Site Procedure PSPG-1.1 intent was to use the FIR's merely as daily recording documents, i.e., similar to a daily report, not repetitive inspections. They were not to be used for preplanned comprehensive inspections. This appears to be an isolated case and the licensee has agreed not to use the FIRs in this manner again.

5. Auxiliary Building Access Shafts

The inspection was conducted to verify the implementation of the QA program for the access shaft installations. The inspector determined that the installation of the access shafts was being done without complete QC/QA requirements. For example, the access shaft by Unit 1 required seven soldier piles to be installed. From a review of the notes on Q Drawing C-1420, Revision 2, the inspector determined that the drilling of the holes for the piles was non-Q. The piles themselves were also non-Q. However, the concrete and grout used to backfill the holes was Q. The inspector further determined from a review of Specifications C-196 and C-45, that only one and one-half holes and piles were Q. Five and one-half were considered non-Q because they were in non-Q soil. This fragmented approach is the result of the shafts being considered as a non.quality related activity.

This is a continuation of the same problem that the inspector has had with trying to inspect the soils borings and the initial 20 permanent dewatering wells. Only portions of each activity were considered Q. This fragmented approach to quality activities is detrimental to the overall satisfactory completion of the remedial soils work.

After numerous discussions with site QA personnel, the issue could not be resolved and it was decided to have a meeting between CPCo, Bechtel, NRR and IE to finally address the inspector's concerns in this area. See Section 6.b of this report.

Furthermore, the inspector determined that site controlled Field Procedure FPC-1.00 for installing the soldier piles for the access shaft was not reviewed and approved by the contractor prior to the initiation of work on Q-piles as required by Site Procedure FPG-1.000. The inspector determined that this was the result of CPCo allowing Mergentine Corp. to proceed without having an approved procedure to prepare procedures. This failure to follow procedures, is another example of the licensee's noncompliance with 10 CFR 50, Appendix B,

Criterion V as discussed in Appendix A of the report transmittal letter (50-329/82-05-02A; 50-330/82-05-02A).

6. Meetings with CPCo, Bechtel, and NRR

a. The inspector attended meetings held on February 22-26, 1981, in NRC Headquarters regarding the remedial measures to be taken for the soils deficiencies. In particular, the following items were discussed:

(1) Recharge Test
(2) Dewatering Concerns
(3) BWST Surcharge Program
(4) SWPS Soils Issues
(5) SWPS Structural Issues
(6) SWPS Remedial Construction Issues
(7) DG Soils Issues
(8) DG Structural Issues
(9) DG Cracking Concerns
(10) Auxiliary Building Remedial Work Monitoring Program
(11) Auxiliary Building Spring Constants

b. The inspector also attended a meeting held on March 9-10, 1982, in NRC Headquarters regarding the quality assurance program for the remedial soil work activities.

The purpose of the meeting was to discuss concerns raised by IE-RIII over the amount of limited involvement that MPQAD has with the remedial soils work. Following discussions, the meeting ended with the licensee verbally committing to the following:

(1) All remaining remedial work will be Q-listed except on very specific items which can be shown to justify non-Q treatment. NRR/IE concurrence in this justification must be obtained prior to conducting any work outside of the QA program.

(2) Continue the access shafts down to EL.609 as non-Q, but from there on, Q.

(3) Continue the freeze-wall and dewatering wells as non-Q.

c. The inspector also attended a meeting held on March 30, 1982, in Region III offices. The meeting was initiated by Region III to discuss: (1) the issues raised from the inspection of the auxiliary building remedial soils instrumentation; (2) the specifics on how our inspection program for the remedial soils work will be handled; and, (3) the licensee's QA program for the remedial soils work. Those in attendance were:

CPCo

J. Cook, Vice President
B. W. Marguglio, MPQAD Director
W. R. Bird, MPQAD Manager
J. A. Mooney, Projects
J. Brunner, Lawyer

NRC

C. E. Norelius, Director, Division of Engineering and Technical Programs
W. S. Little, Chief, Engineering Inspection Branch
R. C. Knop, Chief, Projects Branch 1
E. G. Adensam, Chief, NRR Licensing Branch No. 4
C. C. Williams, Chief, Plant Systems Section
D. C. Boyd, Chief, Reactor Projects Section 1A
D. S. Hood, NRR Project Manager Midland
J. Gilray, NRR QA Branch
R. Gardner, Inspector
R. Cook, SRI Midland
M. Blume, ELD Lawyer

A summary of the items discussed is as follows:

(1) The auxiliary building remedial instrumentation was specifically identified as Q on the licensee's January 7, 1982, submittal to the NRC. As such, a Confirmation of Action Letter was discussed with the licensee and it was decided, at the licensee's request, that they would submit a confirmatory action letter to the NRC.

(2) The licensee was informed that one inspector has been dedicated to the Midland Soils Area; and, inspections will be conducted in accordance with our standard inspection program. They were requested to provide the NRC with upcoming weekly construction schedules, including any abnormalities that occurred during the prior week. They were also requested to provide a principal point of contact for the remedial soils work.

(3) The agreements reached during the March 10, 1982, meeting were reconfirmed. That is, the remaining remedial soils work will all fall under the "Q" classification. Exceptions on very specific items will require NRC concurrence prior to conducting any work outside of the Quality Assurance Program.

Exit Meetings

The inspector met with the licensee and contractor representatives at the conclusion of the inspections on February 5, 9 and March 17, 1982, and summarized the inspection scope and findings. The licensee acknowledged the findings reported herein. However, as a result of the findings identified, the inspector again informed the licensee that more emphasis must

be placed on the attention to detail in the preparation, review and implementation of documents. The enforcement history in this area indicates a continued lack of attention to detail. As a result of these findings, it is clear that upper management is not playing an active role in conveying the principles of Quality Assurance to the working staff to assure QA principles are being properly carried out.

Glen Ellyn, Illinois
(LOCATION)

April 12, 1982
(DATE)

I, Ronald N. Gardner, hereby make the following statement to Charles H. Weil, who has identified himself to me as an Investigator of the United States Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

I am employed by the Nuclear Regulatory Commission Region III as an Electrical Inspector. During March 1982, Ross Landsman, another Region III inspector, requested that I assist him in an upcoming inspection of the remedial soils program at the Midland Nuclear Power Plant, Midland, MI. Landsman and I were at the Midland site during the period March 17-19, 1982.

On March 17, 1982, I spoke to Mike Schaeffer of Consumers Power Company's Electrical Quality Assurance Group. It was apparent from talking to Schaeffer that he was confused as to the quality assurance requirements for the installation of the instrumentation to monitor the remedial soils work at the Midland plant. It seemed as if Schaeffer had just learned the instrumentation was within the scope of the Consumers Power Company's Quality Assurance Program. Most of Schaeffer's answers to my questions concerning the instrumentation installation were, "I'm not sure." From talking to Schaeffer, I found the Quality Assurance Department had not defined a quality assurance program for the installation of the instrumentation to monitor the remedial soils program.

Ronald N. Gardner

On March 17th, during our inspection at Midland, Landsman informed me that he had attended a meeting on March 10, 1982, in Bethesda, MD, between the Nuclear Regulatory Commission and the Consumers Power Company. During this meeting, the Consumers Power Company inferred that the installation of the instrumentation to monitor the remedial soils work was esentially complete. Landsman told me Consumers Power Company and the Nuclear Regulatory Commission had reached an agreement during the meeting that all work after March 10, 1982, involving the remedial soils work at the Midland plant would be done under the Consumers Power Company's Quality Assurance Program. Also, Landsman told me on March 12, he had participated in a telephone conversation with the Consumers Power Company, and a representative of Consumers Power had informed Landsman that the instrumentation installation was well underway.

On March 17, 1982, I inspected the cables pulled from the measuring devices to the Data Acquisition Room on the roof of the Auxiliary Building. I found that the instrument cable raceway had been installed and that 10%, or less, of the instrument cables had been pulled to the Data Acquisition Room. Schaeffer was with me during the inspection and I asked Schaeffer to determine when the cable pulling began. Schaeffer later informed me the cable pulling had begun on March 11, 1982.

Based upon my observation that 10% of the cables had been pulled and the apparent lack of quality assurance requirements for cable pulling, I concluded the cables had been pulled without the protection of the Quality Assurance Program. I

EXHIBIT IV

RNG recommended to Schaeffer and Mr. M. L. Curland, Consumers Power Company's Site Quality Assurance Superintendent, the instrumentation cable pulling be stopped until such time as the quality assurance criteria were developed. Curland and Schaeffer assured me the cable pulling was stopped for the day as it was quitting time.

On March 18, 1982, Schaeffer and Curland informed me that Ben Marguglio, Consumers Power Company's Director of the Midland Project Quality Assurance Department, would not stop the cable pulling until he had done additional investigation into the matter.

On March 18th, Landsman, Ron Cook (the NRC Senior Resident Inspector at Midland) and I met with Marguglio. Marguglio explained to us that the cable pulling was one of the areas exempted from the Quality Assurance Program during the March 10, 1982, meeting in Bethesda, MD. Also, Marguglio made inferences to an agreement between Jim Cook, a Consumers Power Company Vice President, and Jim Keppler, the Director of NRC Region III. Marguglio contended Jim Cook and Keppler had an understanding that unresolved areas and items of noncompliance with NRC requirements dealing with the remedial soils work would be handled differently from noncompliances found during NRC inspection of other activities at the Midland site. Marguglio did not explain any further.

On March 18th, Landsman, Ron Cook and I telephoned the Region III office and spoke to Cordell Williams and Dwane Boyd. We agreed the instrumentation installation should cease until Consumers Power Company develped quality assurance requirements for the installation, and, if Consumers Power Company did not agree to suspend the installation then they would have to be ordered to do so. I also informed Williams and Boyd of Marguglio's comments of an understanding between Jim Cook and Keppler concerning citations for items of noncompliance.

Also, on March 18th Landsman, Ron Cook and I participated in a conference telephone call with Marguglio and the Bechtel Power Corporation's instrumentation engineers. During this telephone call, Marguglio questioned the need for a quality review of the cable pulling. I expressed my concerns to the instrumentation engineers during the call. I was not certain of the conclusions reached at the end of the call, as Marguglio requested more time to study the matter.

On March 19, 1982, Marguglio informed Landsman, Ron Cook and I that he (Marguglio) had suspended the instrumentation cable pulling on the afternoon of March 18th.

RNG

I have read the foregoing statement consisting of RNG two pages. I have made any necessary corrections, and I have initialed those corrections. This statement is the truth to the best of my knowledge and belief. I declare under the penalty of perjury that the foregoing is true and correct. Executed on April 12, 1982 (Date) 2:29 PM (Time).

Ronald N Gardner
(Signature)

Ronald N. Gardner, U.S. Nuclear Regulator Commission, Region III, Glen Ellyn, Illin
(Address)

Subscribed and sworn to before me this 12th day of April, 19 82 at Glen Ellyn, Illinois.

Charles H. Weil

Charles H. Weil, Investigatior

RIII BRR

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

APR 2 6 1982

82-06

Docket No. 50-329(DETP)
Docket No. 50-330(DETP)

Consumers Power Company
ATTN: Mr. James W. Cook
Vice President
Midland Project
1945 West Parnall Road
Jackson, MI 49201

Gentlemen:

This refers to the routine safety inspection conducted by Messrs. R. Gardner and R. B. Landsman of this office on March 17-19, 1982, of activities at Midland Nuclear Power Plant, Units 1 and 2, authorized by NRC Construction Permits No. CPPR-81 and No. CPPR-82 and to the discussion of our findings with Mr. Marguglio at the conclusion of the inspection.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

During this inspection, certain of your activities appeared to be in noncompliance with NRC requirements, as specified in the enclosed Appendix. A written response is required.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter, the enclosures, and your response to this letter will be placed in the NRC's Public Document Room. If this report contains any information that you (or your contractors) believe to be exempt from disclosure under 10 CFR 9.5(a)(4), it is necessary that you (a) notify this office by telephone within ten (10) days from the date of this letter of your intention to file a request for withholding; and (b) submit within twenty-five (25) days from the date of this letter a written application to this office to withhold such information. If your receipt of this letter has been delayed such that less than seven (7) days are available for your review,

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EXHIBIT V

please notify this office promptly so that a new due date may be established. Consistent with Section 2.790(b)(1), any such application must be accompanied by an affidavit executed by the owner of the information which identifies the document or part sought to be withheld, and which contains a full statement of the reasons which are the bases for the claim that the information should be withheld from public disclosure. This section further requires the statement to address with specificity the considerations listed in 10 CFR 2.790(b)(4). The information sought to be withheld shall be incorporated as far as possible into a separate part of the affidavit. If we do not hear from you in this regard within the specified periods noted above, a copy of this letter, the enclosures, and your response to this letter will be placed in the Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/s/ W. D. Shafer

for C. E. Norelius, Director
Division of Engineering and
Technical Programs

Enclosures:
1. Appendix, Notice of Violation
2. Inspection Reports No. 50-329/82-06(DETP) and No. 50-330/82-06(DETP)

cc w/encls:
DMB/Document Control Desk (RIDS)
Resident Inspector, RIII
The Honorable Charles Bechhoefer, ASLB
The Honorable Jerry Harbour, ASLB
The Honorable Frederick P. Cowan, ASLB
The Honorable Ralph S. Decker, ASLB
Michael Miller
Ronald Callen, Michigan Public Service Commission
Myron M. Cherry
Barbara Stamiris
Mary Sinclair
Wendell Marshall
Colonel Steve J. Gadler (P.E.)

Appendix

NOTICE OF VIOLATION

Consumers Power Company

Docket No. 50-329
Docket No. 50-330

As a result of the inspection conducted on March 17-19, 1982, and in accordance with the NRC Enforcement Policy, 47 FR 9987 (March 9, 1982), the following violations were identified:

1. 10 CFR 50, Appendix B, Criterion II states, in part, "The quality assurance program shall provide control over activities affecting the quality of the identified structures, systems, and components, to an extent consistent with their importance to safety. Activities affecting quality shall be accomplished under suitably controlled conditions."

   Consumers Power Company Quality Assurance Program Policy No. 2, Revision 11, Paragraph 1.0 states, in part, "The Quality Assurance Program assures that activities affecting quality are accomplished by use of appropriate equipment and under suitable environmental conditions. The program establishes the requirements for special controls, processes, test equipment..."

   Contrary to the above, the Midland Project Quality Assurance Department has not adequately established a Quality Assurance Program which provides controls over the installation of underpinning instrumentation. This condition is exemplified by the installation of underpinning instrumentation cables without documented procedures, approved drawings, or the development and implementation of inspection and audit requirements.

   This is a Severity Level IV violation (Supplement II).

2. 10 CFR 50, Appendix B, Criterion X states, in part, "A program for inspection activities affecting quality shall be established and executed by or for the organization performing the activity to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity."

Consumers Power Company Quality Assurance Program Policy No. 10, Revision 11, Paragraph 1.0 states, in part, "Inspection and surveillance are performed to assure that activities affecting quality comply with documented instructions, design documents..."

Contrary to the above, licensee construction quality control inspections performed during the period of October 9, 1978 and July 21, 1981 failed to verify conformance of cable pulling activities with documented instructions as follows:

a. Paragraph 2.6 of Project Quality Control Instruction E-4.0 states, in part, "Verify that the cable is correctly installed in the identified vias as specified on the cable pull card." Fifty-five Class 1E cables were inspected and accepted even though the cables were not routed in accordance with the cable pull cards.

b. Paragraph 2.1 of Project Quality Control Instruction E-4.0 states, in part, "Verify that the cable to be installed...is identified by a reel number which incorporates the purchase order number and the manufacturer's reel number." Sixty-six Class 1E cables were inspected and accepted even though nonconforming cable reel numbers were recorded on inspection records.

This is a Severity Level IV violation (Supplement II).

Pursuant to the provisions of 10 CFR 2.201, you are required to submit to this office within thirty days of the date of this Notice a written statement or explanation in reply, including for each item of noncompliance: (1) corrective action taken and the results achieved; (2) corrective action to be taken to avoid further noncompliance; and (3) the date when full compliance will be achieved. Consideration may be given to extending your response time for good cause shown.

April 21, 1982
Dated

for C. E. Norelius, Director
Division of Engineering and
Technical Programs

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-329/82-06(DETP), 50-330/82-06(DETP)

Docket Nos. 50-329; 50-330 Licenses No. CPPR-81; CPPR-82

Licensee: Consumers Power Company
1945 West Parnall Road
Jackson, MI 49201

Facility Name: Midland Nuclear Power Plant, Units 1 and 2

Inspection At: Midland Site, Midland, MI

Inspection Conducted: March 17-19, 1982

Inspectors: R. N. Gardner 4/12/82

R. B. Landsman 4/13/82

Approved By: C. C. Williams, Chief 4/13/82
Plant Systems Section

Inspection Summary

Inspection on March 17-19, 1982 (Reports No. 50-329/82-06(DETP); 50-330/82-06(DETP))
Areas Inspected: Verification of QA program for auxiliary building remedial soils instrumentation and a review of a previously identified item.
Results: Of the areas inspected, two items of noncompliance were identified - Severity Level IV, Lack of QA Program; Severity Level IV, Lack of Adequate Inspection.

8205110456

DETAILS

Persons at Exit Interview

Consumers Power Company (CPCo)

B. Marguglio, QA Director
W. Bird, QA Manager
M. Corland, MPQAD, Site Superintendent
D. E. Horn, MPQAD, Civil Section Head
M. J. Schaeffer, MPQAD, Electrical Section Head
R. E. Savo, MPQAD, IE&TV Civil Supervisor
*J. Mooney, Project Office
*J. Schaub, Engineering

Bechtel Power Corporation

*A. Boos, Assistant Project Manager
M. A. Dietrich, PQAE
S. Kirker, QC Civil

NRC

R. Cook, Resident Inspector

Other licensee and contractor personnel were routinely contacted during the course of the inspection.

*Denotes those attending the exit interview by telecon.

1. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (329/81-12-08; 330/81-12-09): During a previous inspection, it was determined that the Midland Project Quality Assurance Department (MPQAD) was identifying numerous non-conforming conditions pertaining to items that had been previously inspected and accepted by the electrical contractor's Quality Control (QC) inspectors. As a result of the inspectors' concerns with this matter, the licensee was requested to perform the following:

a. Verify the adequacy of the training, qualification, and examination of personnel.

The licensee has conducted two audits of the Bechtel QC department. Audit No. M-01-24-01 was conducted during the period of June 2 to July 3, 1981. Audit No. M-01-72-1 was conducted during the period of November 2-6, 1981. These audits evaluated the adequacy of the Bechtel QC training and certification program. As a result of the audits, the following improvements have been made in the area of QC inspector training and certification.

(1) Bechtel is now documenting on-the-job training as part of the certification/training process for QC inspectors.

(2) MPQAD site personnel are overviewing Bechtel's certification process to ensure that the certification of QC inspectors meets Midland Project requirements.

The inspector selected three QC inspectors to be questioned concerning two Quality Control Instructions (QCI's) to which they had previously been certified. The QCI's pertained to cable pulling and cable terminations. The selected QC inspectors were each hired in 1981, had no prior QC experience, and were certified within approximately three months of their reporting date. In answering the inspector's questions, the QC inspectors demonstrated acceptable knowledge in the two areas.

b. Determine if previous inspections performed by the QC inspectors, against whom MPQAD had initiated nonconformance reports, were acceptable.

The licensee has reported to the inspector that MPQAD and Bechtel QC personnel have performed overinspections of 1,084 Class 1E cables pulled and inspected during the period of October 9, 1978 to July 21, 1981. During these overinspections, MPQAD and Bechtel QC inspectors have identified 55 misrouted cables. This is contrary to the inspection requirements of Paragraph 2.6 of Project Quality Control Instruction (PQCI) E-4.0 which states, in part, "Verify that the cable is correctly installed in the identified vias as specified on the Cable Pull Card." In performing the overinspections, MPQAD personnel and Bechtel QC personnel have identified 66 instances in which nonconforming cable reel numbers were recorded on inspection documents. This is contrary to the inspection requirements of Paragraph 2.1 of PQCI E-4.0 which states, in part, "Verify that the cable to be installed...is identified by a reel number which incorporates the purchase order number and the manufacturer's reel number."

The inspector informed the licensee that this unresolved item is escalated to an item of noncompliance with 10 CFR 50, Appendix B, Criterion X, as described in Appendix A of the report transmittal letter. (329/82-06-01; 330/82-06-01)

2. Observation of Underpinning Instrumentation Installation Activities

a. At the conclusion of the March 10, 1982, meeting in Bethesda, Maryland between licensee representatives, NRR Licensing representatives, and NRC Region III representatives, all remaining underpinning activities were classified as "Q." The purpose of this inspection was to observe underpinning instrumentation installation activities and determine the conformance of these activities with documented instructions, procedures, and drawings. During this inspection, it was determined that the licensee had

initiated underpinning instrumentation cable pulling activities on March 11, 1982. In observing the instrumentation cable pulling activities, the inspectors determined the following:

(1) Cable pulling activities were being conducted without approved instructions or procedures.

(2) Cable routing was being conducted in accordance with an unapproved drawing. (C-1493(Q))

(3) Inspection and audit requirements for cable pulling activities were not developed or implemented.

(4) Measures had not been established for the selection and review for acceptability of purchased underpinning instrumentation.

The inspectors questioned MPQAD personnel concerning the Quality Assurance program established to control the cable pulling activities. The inspectors were informed that no Quality Assurance program had been established to provide controls over these activities.

This failure to establish a Quality Assurance program which provides controls over the installation of underpinning instrumentation cables is considered to be in noncompliance with 10 CFR 50, Appendix B, Criterion II as described in Appendix A of the report transmittal letter. (329/82-06-02; 330/82-06-02)

Subsequent to the inspectors' identification of this matter, the licensee's QA staff informed the inspectors that cable pulling would be stopped. On the following day, the inspectors observed that cable pulling was continuing. Based on discussions with licensee personnel, it was determined that some confusion existed on the part of the licensee as to whether this activity was "Q" or not. The licensee requested another day to decide if this activity was "Q" or not.

Based on this evaluation, the licensee again informed the inspectors that cable pulling would be suspended. However, licensee personnel indicated that no formal stop work would be issued. The licensee was informed that the Region was considering the initiation of escalated enforcement action on this matter pending a meeting to be held in the Region III office. See IE Report No. 82-05.

b. The inspectors determined from reviewing Drawings C-1490 and C-1491 that there were nine outstanding FCR's on each drawing. These FCR's are, by site procedures, taped onto the back of each drawing. To say the least, it is confusing to review let alone figure out what the designers intent really is. The inspectors further determined that site Procedure MED 4.62 controls

the revisions of drawings with changes. The procedure requires that a drawing be revised after five DCN's have been issued and after ten FCN's have been issued. However, it only requires for FCR's that a drawing be revised after 180 days have elapsed. It does not have a limit on the number of FCR's that can be issued on a drawing before requiring a revision. The licensee agreed to review their criteria for outstanding FCR's in Procedure MED 4.62. Pending results of their review, this item remains open. (329/82-06-03; 330/82-06-03)

Open Items

Open items are matters, not otherwise categorized in the report, that require followup during future inspections. Open items disclosed during this inspection are discussed in Section 2, Paragraph b.

Exit Interivew

The inspectors met with licensee representatives (denoted under Persons at Exit Interview) at the conclusion of the inspection on March 19, 1982. The inspectors summarized the scope and findings of the inspection. The licensee acknowledged the information.

Midland, Michigan
(LOCATION)

April 9, 1982
(DATE)

I, Ronald J. Cook, hereby make the following statement to Charles H. Weil, who has identified himself to me as an Investigator of the United States Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

I am presently employed by the Nuclear Regulatory Commission as the Senior Resident Inspector at the Midland Nuclear Power Plant, Midland, Michigan.

On March 10, 1982, I attended a meeting at the Nuclear Regulatory Commission's headquarters in Bethesda, MD. This meeting concerned the quality assurance program under consideration for remedial soils work at the Midland plant. One discussion topic at this meeting was the instrumentation to be used to monitor the settling of the soils. Al Boos of Bechtel Power Corporation was in attendance at this meeting, and Boos made statement which indicated the settlement instrumentation was installed. Because of Boos' statements that the instrumentation was installed, it was agreed between the Nuclear Regulatory Commission and the Consumers Power Company that quality assurance requirements would not be backfitted and imposed on instrumentation already installed. Rather the quality assurance requirements would be imposed on additional remedial soils work starting with Phase 2. Phase 1 of the remedial soils work was the access shaft above the 609' elevation; Phase 2 being additional excavation, including the access shaft, below the 609' elevation. Also Consumers Power Company and the Nuclear Regulatory Commission agreed that instrumentation installation starting after March 10, 1982, would be included in the quality assurance program, and any installations completed prior to March 10th would not be included, but reliability of the work would have to be demonstrated. At the conclusion of the March 10th meeting, it was understood and stated by the Nuclear Regulatory Commission that all remedial soils work beyond Phase 2 would be under the quality assurance program, unless specific relief from the quality assurance program had been granted. This statement was made in the connotation that the Nuclear Regulatory Commission would not require the removal or rework of any installations which were either completed or well under way to completion at that time - provided Consumers Power Company and Bechtel Power Corporation could demonstrate the completed work was not detrimental to the job.

R. J. Cook

On March 12, 1982, Consumers Power Company requested that I participate in a conference telephone call to the Nuclear Regulatory Commission's Region III Office. This telephone call was placed to Ross Landsman and Dwane Boyd at the Region III Office to discuss some of the items which would be included, or excluded, under the remedial soils quality assurance program. Al Boos of Bechtel participated in this telephone call from the Midland site. During the conversation Boos stated, "Our instrumentation is essentially well under way. Wiring has been pulled, raceway has been installed." To me Boos' statement that "our instrumentation is essentially well under way. Wiring has been pulled, raceway has been installed, " meant that all instruments were installed and all wires had been pulled. I expected all work to be complete, except for a few terminations and the calibration of the instruments, and "debugging the system."

On March 16, 1982, Mike Schaeffer, Consumers Power Company's Electrical Quality Assurance Section Head, telephoned me. Schaeffer stated he had heard Ron Gardner

EXHIBIT VI

an electrical inspector assigned to NRC Region III, was coming to the Midland site on the following day, and Schaeffer wanted to know the reason for Gardner's visit. I told Schaeffer that Gardner was coming with NRC Inspector Ross Landsman to look at the foundation under pinning work and that Gardner would be looking at the electrical installation of the instruments for the underpinning. Schaeffer told me that he did not know any electrical work was being done in the underpinning and there were no quality assurance requirements to inspect the electrical installations associated with the underpinning. Schaeffer stated he had better get geared-up and find out what was going on with the soils settlement instrumentation. He (Schaeffer) was supprised to find out that there was NRC attention to the soils settlement instrumentation.

On March 17, 1982, Landsman and Gardner arrived at the Midland site. They inspected the electrical installation of the instrumentation for the remedial soils work of the Auxiliary Building and they found very little work had been done. They contacted Mike Schaeffer and found that quality assurance criteria and quality control inspection requirements had not been established for the installation of instrumentation for the Auxiliary Building remedial soils work. Schaeffer told Landsman, Gardner and myself that work would be stopped on the instrument installation until quality assurance criteria were established.

On March 18, 1982, Landsman and Gardner told me they had been to the Auxiliary Building and had found that instrument wire was being pulled without quality control inspectors being present or quality ~~control~~ assurance requirements established. Landsman, Gardner and I, along with Mike Schaeffer and Ed Jones (who works for Schaeffer) went to the Data Room for the remedial soils instrumentation on the roof of the Auxiliary Building. We found, by counting, only about 10% of the wires had been pulled to the Data Room. As I recall, this was eight or ten of the eighty, plus, wires required for the instrumentation. Later Schaeffer informed Landsman that the pulling of instrumentation wires from the devices at the foundation of the Auxiliary Building to the Data Room on the roof of the Auxiliary Building had begun on March 11, 1982.

R. J. Cook

After making the above observations, Landsman, Gardner and I telephoned Dwane Boyd and Cordell Williams at the Region III Office to inform the regional office of our findings. After this telephone call, we went to Ben Marguglio, Consumers Power Company's Director of Quality Assurance. We informed Marguglio of our observations and that Consumers Power Company was in noncompliance with NRC requirements for not having established quality assurance criteria or performing quality control inspections for the installation of instrumentation for the remedial soils work.

Marguglio stated to us that there was no basis for our citation for noncompliance, as the installation of instrumentation for monitoring the remedial soils work was not within the scope of the quality assurance program as defined in the March 10th meeting in Bethesda, MD. Marguglio continued that Jim Cook, a Consumers Power Company Vice President, and Jim Keppler, the Director of NRC Region III, had made an agreement not to cite for items of noncompliance with NRC requirements for any installation work involving the remedial soils program for work started before March 10, 1982, or work which was obviously considered to be non-safety related.

Later on March 18, 1982, Marguglio stopped work on the instrumentation installation for the remedial soils program. I do not know Marguglio's reason for stopping the work. I assume the work was stopped as a result of the observations made by Landsman, Gardner and myself on March 18, 1982, and that our observations and concerns were compatable with those of the instrumentation engineers located at Bechtel Power Corporation's office in Ann Arbor, Michigan. The concerns of the instrumentation engineers (Bechtel Power Corporation and Bechtel's subcontractor, Wiss, Janney, Elstner and Associates, Incorporated) were discussed during a conference telephone call on March 18th. The call was between Bechtel and its subcontractor in Ann Arbor and the NRC (Landsman, Gardner and I) and Consumer Power Company (Marguglio, Schaeffer and Jones) at the Midland site. The instrumentation engineers indicated the instrument installation, including the wires, would be adequate, provided excess wire pull force was not exceeded, excess bending occurred, and pull boxes, no more than 100 feet apart were used. These were the same technical concerns expressed by the Nuclear Regulatory Commission, during the inspection of the instrumentation for the remedial soils work, on March 17-19, 1982.

I have read the foregoing statement consisting of three pages. I have made any necessary corrections, and I have initialed those corrections. This statement is the truth to the best of my knowledge and belief. I declare under the penalty of perjury that the foregoing is true and correct. Executed on April 9, 1982 (Date) at 11:01 AM (Time).

R. J. Cook
(Signature)

Ronald J. Cook, Senior Resident Inspector
Midland Nuclear Power Plant, Midland, MI.
(Address)

Subscribed and sworn to before me this 9th day of April, 1982 at Midland, Michigan.

Charles H. Weil
Charles H. Weil, Investigator
NRC Region III, Glen Ellyn, Illinois

Glen Ellyn, Illinois
(LOCATION)

April 30, 1982
(DATE)

I, Dwane C. Boyd, hereby make the following statement to Charles H. Weil, who has identified himself to me as an Investigator of the United States Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

Dwane C. Boyd

I am currently employed by the U.S. Nuclear Regulatory Commission (NRC) as a Section Chief in the Region III Division of Project and Resident Programs.

During March 1982, Ross Landsman, one of the Inspectors in the Region III Division of Engineering and Technical Programs, attended a meeting at the NRC Headquarters in Bethesda, MD. This meeting concerned the foundation underpinning work at the Midland Nuclear Power Plant being built by Consumers Power Company at Midland, MI. During this meeting, representatives of Consumers Power Company and Consumers Power's architect-engineer, Bechtel Power Corporation, made statements concerning the status of instrumentation installation for the underpinning work at the Midland plant. These statements lead Landsman, and the other NRC representatives at the meeting, to believe that all underpinning monitoring instrumentation had been installed and the only remaining work was to calibrate the instrumentation.

Several days after that March 1982 meeting in Bethesda, Landsman and I participated in a conference telephone call with Ben Marguglio, Consumers' Power Director of Quality Assurance, and Al Boos, a representative of Bechtel Power Corporation. The purpose of this telephone conversation was to come to an agreement with Consumers Power Company over the necessity of installing the underpinning instrumentation under the Consumers Power Quality Assurance Program.

During this telephone call, Boos made statements to the effect that the instrumentation had already been installed and the Quality Assurance Program had not covered the already installed instrumentation. It was Consumers Power's position not to re-do any of the previously installed underpinning instrumentation if Consumers Power could demonstrate the reliability of the instrumentation through functional testing under Consumers Power's Quality Assurance Program.

Based upon Boos' statements that all instrumentation installation had been completed, Landsman and I agreed with Consumers Power that all previously installed instrumentation would not have to be re-done as long as the instrumentation passed functional testing conducted under their Quality Assurance Program.

Several days after the telephone call with Boos and Marguglio, Landsman and Ron Gardner, a Region III Electrical Inspector, went to the Midland plant. Landsman and Gardner found only four of the underpinning instrumentation cables had been pulled and none of the instruments had been

DCB
EXHIBIT VII

DCB

installed. In a telephone conversation with Marguglio subsequent to Landsman's and Gardner's observations, I told Consumers Power to cease all underpinning instrumentation installations until such time as this activity was brought under their Quality Assurance Program. In a subsequent letter, Consumers Power informed Region III that all underpinning instrumentation installations would be done under the Quality Assurance Program.

The instrumentation Quality Assurance Program was discussed by Consumers Power at a meeting in the Region III office at the end of March 1982. During this meeting, Boos explained that he had been mislead by his employees as to the completion status of the underpinning instrumentation. Boos also said he had not intended to mislead the Nuclear Regulatory Commission, rather a misunderstanding had occurred.

Boos said the misunderstanding was caused by the differences between Phase 1 and Phase 2 of the underpinning work. Phase 1 work was above a certain level and was not to be accomplished under the Quality Assurance Program. Phase 2 work was below that level and was to be done under Quality Assurance. Consumers Power considered the instrumentation installations be a part of the Phase 1 work; therefore, quality assurance was not necessary. It was pointed out to the representatives of Consumers Power the reason for the underpinning instrumentation was to monitor the settling of the Midland buildings and the monitoring instrumentation had to be installed before starting Phase 2, the work beneath the building foundations. Because the monitoring instrumentation had to be installed before the Phase 2 work, under the Quality Assurance Program, began the installation of the instrumentation was considered to be part of the Quality Assurance Program.

I must note that the terms "Phase 1" and "Phase 2" were not used at all during the mid-March telephone call with Boos and Marguglio.

DCB

I have read the foregoing statement consisting of 2 pages. I have made any necessary corrections, and I have initialed those corrections. This statement is the truth to the best of my knowledge and belief. I declare under the penalty of perjury that the foregoing is true and correct. Executed on April 30, 1982 (Date) at 3:30 PM. (Time)

Dwane C. Boyd
(Signature)

Dwane C. Boyd, US NRC Region III
Glen Ellyn, Illinois
(Address)

Subscribed and sworn to before me this 30th day of April, 1982 at Glen Ellyn, Illinois.

Charles H. Weil, Investigator
US NRC, Glen Ellyn, Illinois

DCB

Midland Project
(LOCATION)

May 27, 1982
(DATE)

I, Michael J. Schaeffer, hereby make the following statement to Mr. C H Weil, who has identified himself to me as an Investigator of the United States Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

This statement describes the events regarding the Instrumentation Installation for the Underpinning at the Midland site.

I, Michael J. Schaeffer, am employed by Consumers Power Company as Section Head in charge of Electrical/Instrumentation and Controls/MPQAD.

On Tuesday, March 16, 1982, Ron Cook, the NRC's Midland Project Senior Resident Inspector, alerted me that Mr. R. Gardner and Dr. R. Landsman would be on site Wednesday, March 17, 1982, to review procedures that dealt with installation of the Instrumentation System which monitors the Underpinning activities.

On Wednesday, March 17, 1982, I asked Mr. Gardner what specifically he was on site for. He told me that he was here to review procedures and drawings that covered the Instrumentation activities for the Underpinning work. Specifically, he was concerned about conduit and cable pulling.

My response to Mr. Gardner was that I was totally unaware that the Electrical Metallic Tubing (EMT)/Conduit and cable pulling installation activities concerning Instrumentation for the Underpinning were "Q", or under the Midland Project Quality Assurance Program. Immediately after my conversation with Mr. Gardner, I started inquiring about the subject with the MPQAD Soils Group and learned that Consumers Power Company believed these activities were non-Q (not under the Midland Project Quality Assurance Program) and that the NRC believed that these activities were "Q-listed".

After discovering that the installation of conduit, cable pulling, etc., were not covered by approved procedures, I called the CPCo night shift supervisor (Mark Dewitt) asking him to stop any cable pulling, conduit installation, or any other instrumentation activities that dealt with the Underpinning Instrumentation.

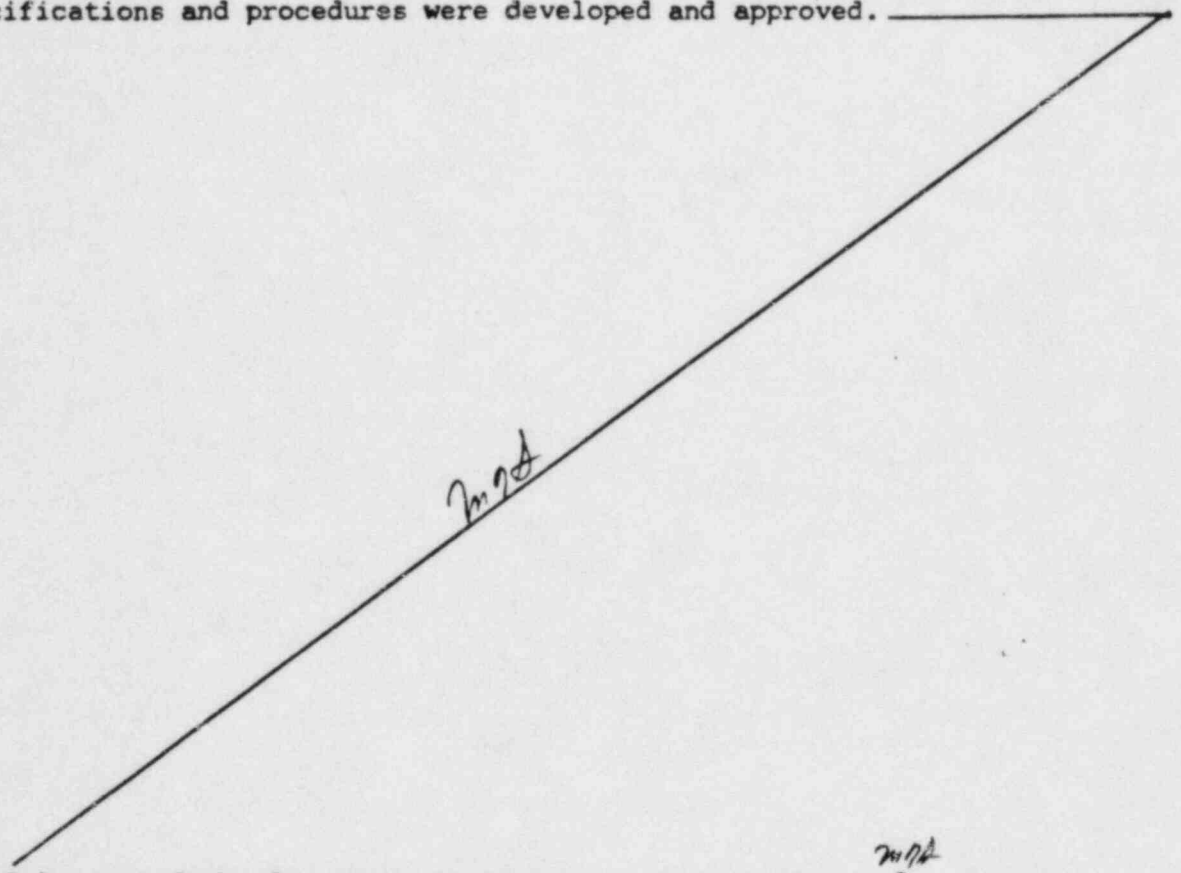
Thursday, March 18, 1982, I went to the field to assess what activities had been done prior to March 17, 1982, and discovered that approximately 20% of the Instrumentation System had been installed, ie., some conduit was run from the Data Acquisition Room to the deep seated benchmarks, some cable was pulled, however, no Instrumentation was installed at the benchmark locations.

EXHIBIT VIII

MJS After going to various benchmark locations, I went to the Data Acquisition Room where I found the following had been installed:

1. Data Acquisition Computer and Peripherals
2. Power Supply
3. Terminal Boards

On Friday, March 19, 1982, I attended the NRC Exit Meeting and learned that Mr. B W Marguglio had stopped the work on Underpinning INSTRUMENTATION activities until MJS 5/27/82 specifications and procedures were developed and approved.



I have read the foregoing statement consisting of MJS 2 pages. I have made any necessary corrections, and I have initialed those corrections. This statement is the truth to the best of my knowledge and belief. I declare under the penalty of perjury that the foregoing is true and correct. Executed on 5/27/82 (Date) at 8:59 AM (Time).

M. J. Schaffer
(Signature)

Midland Plant
(Address)

Subscribed and sworn to before me this 27th day of May, 1982 at Midland MI.

CHARLES H. WEIL, INVESTIGATOR
NRC-REGION III, GLEN ELLYN, IL

witness
James E Brunner

Midland MPQAD
(LOCATION)

June 2, 1982
(DATE)

I, Edgar L. Jones, hereby make the following statement to Charles H. Weil, who has identified himself to me as an Investigator of the United States Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

I am a self employed contractor with the Midland Project Quality Assurance Department (MPQAD). I have worked at Midland for MPQAD since June 1978, except for six months in 1980 and two months in 1981. I am currently the Group Supervisor of the Inspection, Examination and Test Verification group, Electrical and I&C (Instrumentation and Control) Section.

On or about March 17, 1982, Mr. Ron Gardner, Reactor Inspector Region III, came into Mr. Mike Schaeffer's office and asked what the status of drawings and procedures for the Underpinning Instrumentation was at this time. Both Mr. Schaeffer and I indicated to Mr. Gardner that we believed Underpinning Instrumentation was Non Class 1E and that we were not aware of the status of the drawings and procedures.

We did tour the Data Acquisition Room on top of the Auxiliary Building with the following:

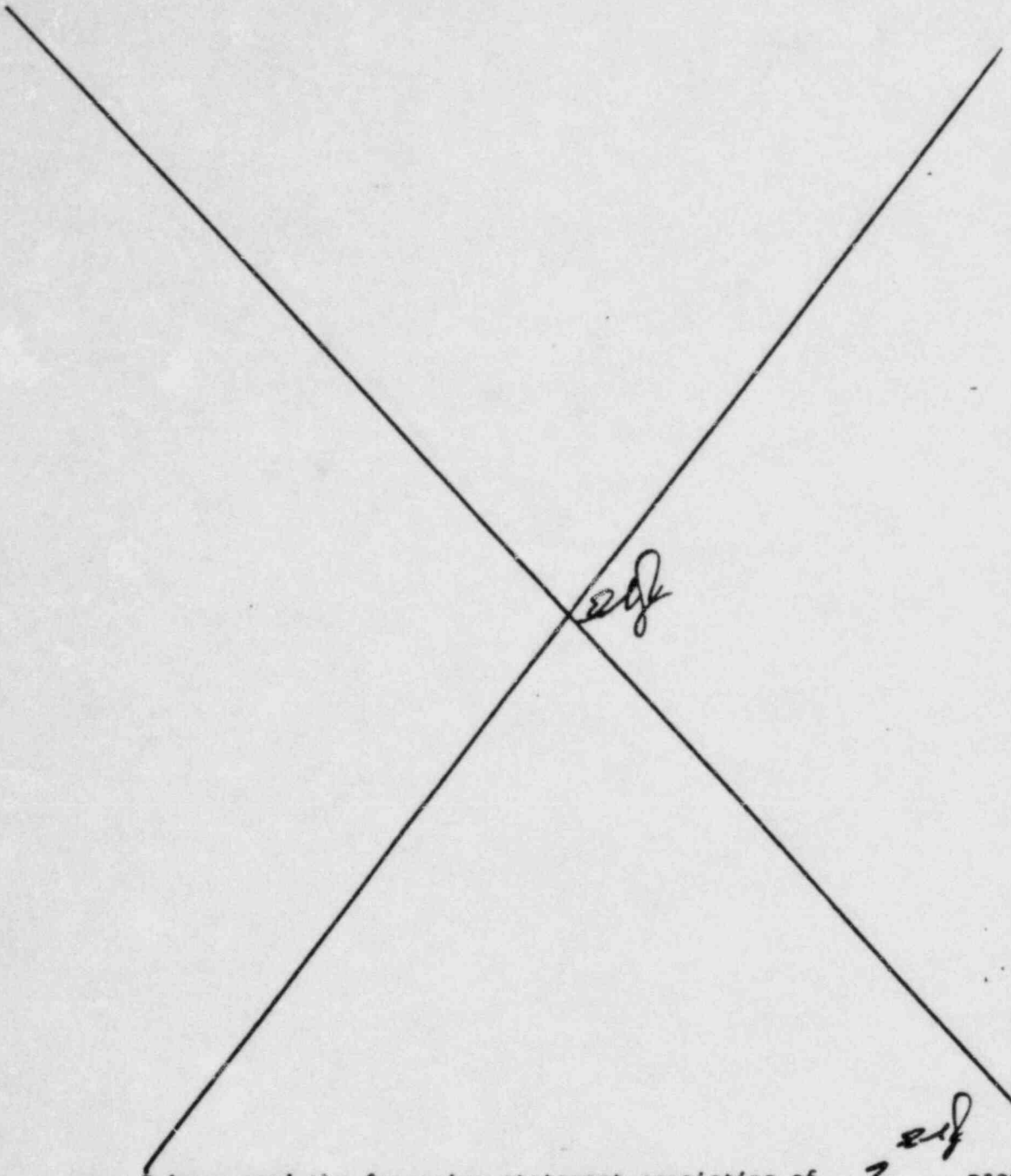
Mr. Marion Dietrich
Mr. Michael Schaeffer
Mr. Ron Gardner
Mr. Ross Landsman
Two engineers
Ed Jones

I found conduits, pull box, terminal block panel and some instrumentation installed. There were approximately ten cables that had been pulled into the Data Acquisition Room.

Approximately two weeks ago, I toured the same Data Acquisition Room. I do not recall observing any changes to the installed equipment between this visit and the visit on or about March 17, 1982.

Edgar L. Jones

EXHIBIT IX



I have read the foregoing statement consisting of 2 pages. I have made any necessary corrections, and I have initialed those corrections. This statement is the truth to the best of my knowledge and belief. I declare under the penalty of perjury that the foregoing is true and correct. Executed on 2 JUNE 1982 (Date) at 2:19 PM (Time).

(Signature)

Midland Project

(Address)

Subscribed and sworn to before me this 2ND day of JUNE, 1982 at MIDLAND, MI.

CHARLES H. WEIL, INVESTIGATOR
U-NAC REGION III, GLEN ELLYN, IL

Witness:

March 12 phone call list

BECHTEL

MIDLAND, MI

1-312-932-2665 OR 2693
CONFIRM - 1-312-932-2659

ATTENTION: DR. R. LANDSMAN

CITY: GLEN ELLYN IL

FROM: RON COOK

NUMBER OF PAGES: 2

SUBJECT: UNDER PINNING

DATE: MARCH 12, 82 TIME: 3:12 PM

SHOULD THIS COPY BE RETURNED TO YOU? YES EX 538

EXHIBIT X

Procurement of Material	Drawing and Specification	Procedure	Physical Work
Access Shafts Below 609'			
Soldier Pile	---------->		
Tools and Equipment Torque wrench, jacks, gueges, threading machines.	Calibration or end irspection is Q.		
Steel and wood lagging (shapes).			
Rock Bolts (Williams).			
Drifts			
Steel sets material (beams) for access drift. (Offsite fabrication will be Q.)			
Wood lagging for access drift and wedges.			
Back packing material.			
Rock and earth anchors.			
Piers			
Glue, for ethafoam behind metal lagging.			
Instrumentation			
Raceway material	---------->		
Wire	---------->		
Steel brackets fabrication [Q material]	---------->		
	Termination	Termination	Termination
	<----------	(Check out is Q)	---------->
Data room and HVAC to maintain constant temperature.	---------->		
Dial gages [Non-Q]			

Historical	Completed Items	Inprocess Items	
BWST Control Survey Settlement test during hydro. Stress relief on detensioning of bolts? (Lift off loads) Auxiliary Bldg. Fabrication and installation of temporary detensions. Fabrication and installation of temporary support of FWP. Underground Utilities All data collection was done Non-Q		SWPS Deep seated bench marks and attached bracket and dial gages. Procurement and installation of temporary tendons and support plates (stressing Q).	

Midland, Michigan
(LOCATION)

May 28, 1982
(DATE)

I, Alan J. Boos, hereby make the following statement to Charles H. Weil, who has identified himself to me as an Investigator of the United States Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

I am an Assistant Project Manager for Bechtel Power Corporation on the Midland Project. This statement describes the events which occurred during a March 10, 1982, meeting with the NRC and a subsequent March 12, 1982, telephone conference call.

Prior to the March 10, 1982, meeting in Bethesda, Maryland, it had become apparent that there was some confusion between Consumers Power Company, Bechtel, the NRR and NRC Region III, personnel as to what parts of the Auxiliary Building underpinning work were to be "Q" listed (under the Quality Assurance Program).

The March 10, 1982, meeting in Bethesda was an attempt to clarify this issue. Consumers Power, as supported by Bechtel, presented its rationale as to which elements of the Auxiliary Building underpinning work were to be "Q" listed. In brief summary, these were the checkout and operation of the underpinning instrumentation system, as well as the installation of the final underpinning. To the best of my recollection, there was no discussion of the components of the instrumentation system (e.g., cable, protective covers, data room) or the status of completion for this work. A large portion of the temporary underpinning, e.g., installation of temporary piers underneath the Electrical Penetration Areas, was felt to be Non-"Q"; however, Consumers Power committed to apply a Quality Assurance Program to this work, with the exception that they felt that the enforcement requirements of 10CFR50 Appendix B need not be applied to this work. Other activities, e.g., procurement of wooden lagging, were considered to be Non-"Q".

The NRC listened to Consumers Power's presentation and, after a luncheon break, presented its position. In brief summary, NRR's Darl Hood stated that all underpinning activities were to be "Q" listed unless Consumers Power could demonstrate to the satisfaction of the NRC that the item should be Non-"Q". In making this statement, Mr. Hood reviewed the position presented by Consumers Power. I then inquired as to the effective date of the NRC's policy, since certain activities were currently underway and were being done as Non-"Q" work. Mr. Hood replied that the effective date for enforcement of this policy would be the start of Phase II of the underpinning work. Bechtel

EXHIBIT XI

questioned the NRC on whether they felt a commodity like wooden lagging should be procured Non-"Q". This was an attempt to get a feeling for what items the NRC would accept as being Non-"Q". The NRC responded to this query by stating that the wood lagging could be purchased Non-"Q".

During the March 10, 1982, meeting, Consumers Power Company inquired as to whether the NRC would assign a resident inspector from Region III to the Midland jobsite to provide coverage for remedial soils work. This request, which also had been made previously, was made in an attempt to establish better lines of communication with Region III. Mr. Hood stated that the NRC's inspection and enforcement program for the remedial soils work would be conducted under a "business as usual approach", which meant that there would be periodic audits. There were no plans to assign a resident inspector for this work.

Immediately after the March 10, 1982, meeting, Mr. Jim Mooney, Consumers Power Company Executive Manager for the Midland Project, and myself discussed the urgent need to develop a listing of those Non-"Q" activities which had been completed, were underway, or were proposed as future work. This was in keeping with Mr. Hood's policy that the Consumers Power Company was to receive concurrence from the NRC on items it planned to undertake as Non-"Q" work. We felt it was important to reach a concurrence with the NRC on this listing since we were unable to predict when the NRC would conduct an audit and because it was not in the best interest of either Consumers Power or the NRC to leave the resolution of this list until such an audit. To this end, on the morning of March 12, 1982, Messrs. Mooney, Boos, and other representatives of Consumers Power, Bechtel, and Mergentime (the underpinning subcontractor) developed a matrix of Non-"Q" activities which were either underway or proposed. This matrix included the underpinning instrumentation system. An additional list was prepared which identified those work activities which had been completed as Non-"Q".

On the afternoon of March 12, 1982, a conference call was held between Messrs. Landsman and Boyd of the NRC Region III office in Chicago, and Messrs. Mooney, Boos, Don Horn (Consumers' MPQAD) and others, to present the aforementioned matrix to Messrs. Landsman and Boyd. Mr. Ron Cook, NRC Site Representative, participated in the call.

The intent of this call was to allow Consumers Power to present the matrix for the NRC's review and, hopefully, concurrence. The conference call was intended to be an overview of those items which could be Non-"Q" and was not intended to include a detailed schedule presentation. Since Messrs. Landsman and Boyd did not have a copy of the matrix, we outlined it to them. A transcript of this call was made with the knowledge of Messrs. Landsman, Boyd and Cook.

Subsequent to this call, a question has arisen as to whether I made misleading statements with respect to the status of the instrumentation system installation.

On the 5th page of the transcript, I introduced the instrumentation subject. Our position was that the raceway, electrical wire and brackets that would accept the instrumentation would be procured and installed as Non-"Q". I further stated that the checkout of the system and the taking of readings would be "Q". This position was consistent with the presentation which Consumers Power made during the March 10, 1982, meeting in Bethesda. This was a statement of policy, not of status of completion of the work. My comment pursuant to status of completion can be found on Page 6 of the telephone call transcript wherein I stated that, "Our instrumentation is essentially well underway. Wiring has been pulled - raceway has been installed, etc." This was not a statement that the work was complete; rather that the work was underway. In fact, at the time I made those statements, I did not have detailed knowledge of the exact percentage of completion of each activity. I had received status information on a continuing basis as to which activities were underway or completed but do not recall having exact knowledge as to percentages of completion. It should also be reiterated that the purpose of this call was to inform the NRC as to the items which we felt could be Non-"Q". In conclusion, I feel that my statements in the March 12, 1982, conference call were accurate. My statements were not intended to mislead the NRC or to indicate that all instrumentation activities were complete.

I have read the foregoing statement consisting of 3 pages. I have made any necessary correction, and I have initialed those corrections. This statement is the truth to the best of my knowledge and belief. I declare under the penalty of perjury that the foregoing is true and correct. Executed on May 28, 1982 (Date) at 11:45 A.M. (Time).

(Signature)

777 East Eisenhower Parkway
Ann Arbor, Michigan
(Address)

Subscribed and sworn to before me this 28th day of May, 1982 at Midland, Michigan.

Charles H. Weil, Investigator
US-NRC Region III, Glen Ellyn, IL

Witness:
James E Brunner

Bethesda, Maryland
(LOCATION)

April 16, 1982
(DATE)

I, Darl S. Hood, hereby make the following statement to Charles H. Weil, who has identified himself to me as an Investigator of the United States Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

DSH On March 10, 1982, I attended a meeting in Bethesda, Maryland with other NRC, Consumers Power Company (CPCo), and Bechtel personnel to discuss quality assurance to be applied to remedial foundation work at the Midland Plant, Units 1 and 2. A summary of this meeting, dated March 12, 1982, was subsequently issued under my signature. I also attended a meeting on March 30, 1982, in Glen Ellen, Ill. with other NRR, Region III, and CPCo personnel regarding earlier observations of Region III inspectors that cable pulling for monitoring instrumentation to be relied upon during underpinning construction of the Midland Auxiliary Building was not being performed in accordance with appropriate quality requirements. The purpose of this statement is to describe my recollection of statements during the March 10 and March 30, 1982, meetings as to whether installation of underpinning monitoring instrumentation was to be Q-listed. DSH

As noted in the March 12, 1982, summary report of the March 10 meeting, CPCo and Bechtel proposed a new designation of "QA" for certain underpinning work on the basic premise that adverse DSH impact to the structure from this temporary work would only affect CPCo's ability to obtain a license, and would not DSH impact public health and safety. The proposal, however, as described by Mr. A. Boos of Bechtel on behalf of CPCo, was that a monitoring program to determine the affect on safety-related structures of all work, including temporary loads, would be in place and would be "Q". Following a caucus to consider the proposal, I advised CPCo that the NRC does not accept the "QA" classification, and that "from this point forward", March 10, 1982, all further underpinning activities are to be Q-listed except for very specific items which can be shown on a specific basis to justify non-Q treatment. I further stated that NRC concurrence in this justification must be obtained prior to conducting any work efforts completely outside the quality plan. In the March 12, 1982, summary report, the term "NRR" is used, rather than "NRC". At the March 30, 1982, meeting I identified this error and reiterated that the March 10, 1982, discussion had identified this as a Region III lead item.

Mr. Mooney of CPCo asked if this position applied to "Phase I" activities which had already been approved by the NRC, and he noted that "certain activities are now in process". Mr. A. Boos also stated this meant they would have to immediately stop work. I replied that by "from this point forward", I did not mean to include Phase I since the staff had already approved that on a non-Q basis, and that I was aware that installation of the vertical access shaft was well underway. Rather, I continued, I meant the position to begin with the start of Phase 2. Other than the possibility DSH

DSH

EXHIBIT XII

DSH of Mr. Mooney's comment that "certain activities are now in process" (which I took to be directed to installation of the vertical assess shaft), I do not recall any statement, on March 10, 1982, that instrumentation was to be other than Q or that CPCo considered this to be part of Phase 1. I do not recall any discussion at the March 10th meeting regarding the status of instrumentation installation.

On March 18, 1982, I was at the Midland site along with Messrs Joseph Kane and Frank Rinaldi of NRR to observe and discuss cracks in the Diesel Generator Building. Mr. Kane and I observed the location of a deep seated bench mark DSH being relocated inside the Auxiliary Building which had encountered artesian DSH pressure. We were told that the new location had not been established at that time. We also met briefly with Messrs. R. Landsman, R. Gardner, and R. Cook of Region III who informed us that underpinning instrumentation was being installed without Q listed cable pulling procedures and that they had called their Region III Office about issuance of an Immediate Action letter. Mr. Landsman also stated that he had been told by CPCo personnel that installation of the instrumentation was in progress during the March 10, 1982, meeting and therefore was not subject to the NRC position given at that meeting. Mr. Landsman said that this statement by CPCo personnel was not accurate. He had also been told that CPCo planned to perform a post-installation check and that CPCo considered this to be sufficient. Mr. Landsman then asked me if I would support a decision to issue an Immediate Action letter to stop the work. I replied that installation without Regions III's previouse concurrence of non-Q status was inconsistent with the NRC's March 10, 1982, position since the instrumentation is part of Phase 2, and that I would support his decision on this basis. I also replied that whether a post-installation check was sufficient was up to Region III, and that NRR's position is that the monitoring instrumentation must be both reliable and accurate.

Paul S. Hood

On March 30, 1982, I attended a meeting at the Region III Offices, Glen Ellen, Ill. with other NRR, Region III and CPCo personnel to discuss Region III's concern on this instrumentation matter. During this meeting Mr. J. Cook of CPCo indicated he considered installation of the instrumentation to be part of Phase 1 because NRR had previously stated that instrumentation must be in place and operational before beginning Phase 2. Mr. J. Cook's statement appears to be consistent with the title of Enclosure 1 of Mr. R. Tedesco's letter of March 22, 1982. R. Tedesco's letter of March 22, 1982, "Compilation of Information Requested for Completion of Staff Review of Phase 2 Underpinning of Midland Auxiliary Building" forwards an Enclosure 1 entitled "Identification of Review Concerns Prior to Initiating Phase 2 Underpinning Work Midland-Auxiliary Building". Page 1 of that enclosure (which documents earlier, identified discussions) lists, in part:

4. CPC commitment to have 6 deep seated bench marks with instruments installed and operational before beginning Phase 2a work. (Telephone record, March 8, 1982, Par. 4.B and Par. 5). Also instruments DMD-1W, DMD-1E, DSB-1W, DSB-1E are to be installed and operational. (Feb. 3-5 Design Audit).

DSH

Continuation of Statement of Darl S. Hood

I replied to Mr. J. Cook that this interpretation was not what had been intended. It was the NRR's intent that the instrumentation be in place and operating before any excavation beneath structures commences. Moreover, activities associated with installation of the vertical assess shaft was part of Phase 1, and activities associated with excavation beneath structures (the Turbine Building and Feedwater Isolation Valve Pits) was Phase 2. Hence, it was the NRR's intent that instrumentation be installed under the Quality Assurance program and operating as the initial step of Phase 2.

On the basis of Mr. J. Cook's statement of March 30, 1982, I am now of the opinion that miscommunication occurred between NRR and CPCo with respect to whether the instrumentation was required by NRR to be Q-listed and that this apparently contributed to CPCo's decision to pull the cables without Q-listed procedures. DSH

I have read the foregoing statement consisting of 3 (DSH) pages. I have made any necessary corrections, and I have initialed those corrections. This statement is the truth to the best of my knowledge and belief. I declare under the penalty of perjury that the foregoing is true and correct. Executed on April 16, 1982 at 8:04am.
(Date) (Time)

Darl S. Hood
(Signature)
U S Nuclear Regulatory Commission
Washington D.C. 20555
(Address)

Subscribed and sworn to before me this 16th day of April, 19 82 at Bethesda, MD.

Charles H. Weil
Charles H. Weil, Investigator
U.S. Nuclear Regulatory Commission
Glen Ellyn, Illinois 60137

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

MAR 22 1982

Docket Nos: 50-329/330 OM, OL

Mr. J. W. Cook
Vice President
Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

Dear Mr. Cook:

Subject: Compilation of Information Requested for Completion of Staff Review of Phase 2 Underpinning of Midland Auxiliary Building

Pursuant to the request of Mr. J. Mooney of your Company on March 11, 1982, Enclosure 1 is a compilation of the information needed for completion of the NRC's review of "phase 2" of the construction activities for underpinning of the Midland Auxiliary Building. "Phase 2" is defined by the Construction Sequence Logic Diagram provided the staff during a January 18-19, 1982 audit meeting (Enclosure 1 of our meeting summary dated March 10, 1982), and generally provides for further deepening of the vertical access shaft, construction of limited drifts under the Feedwater Isolation Valve Pits (FIVPs) and Turbine Building, and installation of certain piers.

Your prompt attention to these matters should provide for staff concurrence with minimal impact to your present construction schedule.

The reporting and/or recordkeeping requirements contained in this affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

R Tedesco

Robert L. Tedesco, Assistant Director
for Licensing
Division of Licensing

Enclosure:
As stated

cc: See next page

8204190115

EXHIBIT XIII

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Winchester, Massachusetts 01890

ENCLOSURE 1

Identification of Review Concerns Prior to Initiating Phase 2 Underpinning Work Midland - Auxiliary Building

I. GEOTECHNICAL ENGINEERING

Phase 2a*

No.	Review Concern
1	Submittal of Updated Construction Sequence Drawing (Identified in Feb. 3-5 Audit and Feb. 26, 1982 Meeting).
2.	Letter documenting actual work to be performed under Phase 2a (telephone record, March 8, 1982, Par. 3). Letter should provide commitment not to proceed with 2b until the analyses using NRC recommended stiffness valves are completed and results reviewed by NRC Staff.
3.	Update drawing of "Monitoring Matrix", No. C-1493(Q) that will include tolerance criteria (Telephone record, Mar. 8, 1982, Par. 4.b).
4.	CPC commitment to have 6 deep seated bench marks with instrument installed and operational before beginning Phase 2a work. (Telephone record, March 8, 1982, Par. 4.B and Par. 5). Also instruments DMD-1W, DMD-1E, DSB-1W, DSB-1E are to be installed and operational. (Feb 3-5 Design Audit).
5.	Submittal of strain gage installation details @ El 659 with limiting strain valves and basis (Feb. 26, 1982 meeting and telephone record, Mar. 8, 1982, Par 4.d).
6.	Commitment to perform test load above design load (e.g., 1.30 times) on installed pier to develop load-deflection curve for verification of hard clay soil modulus. Identify pier. (Feb. 3-5 Design Audit).
7.	Submittal of measures to be required during periods of work shutdown to support faces of drifts and bottoms of pits (Feb. 3-5 Design Audit).
8.	Submittal of plans for dewatering localized water pockets (e.g., placing wells i sand fill around reactor perimeter) in advance of pit construction (Feb. 3-5 Design Audit).

* Phase 2a items are those not impacted by analyses of the change in-soil modulus values beneath the main Auxiliary Building.

2-12
J Kane

Phase 2b

No.	Review Concern
1.	Provide instrumentation details and horizontal movement tolerance criteria with basis, for 3 instruments to be installed at top of EPA's and Control Tower (Telephone record March 8, 1982, Par. 4.c and Par. 5).
2.	Submittal of results from analysis that establishes induced stresses at El 659 assuming EPA is supported by first temporary support (Pier W8) and using Existing Soil Springs under EPA and Control Tower and Auxiliary Building (Feb. 3-5 Design Audit)
3.	Commitment by CPC to have installed and operational all of the remaining instruments identified on Drwg C-1493(Q).

II. STRUCTURAL ENGINEERING (Phase 2a)

Strain gauges or equivalent shall be provided at critical locations, including:

a. Elevation 659' slab
b. Control Tower shear wall
c. Slabs and walls near post-tensioning cables at the Control Tower and Electrical Penetration Areas
d. Steel beams shall have strain gauges, and not deflection meters.

Information shall be provided for these gauges regarding:

1. Location
2. Monitoring frequency
3. Limits (initial and distress points)
4. Evaluations of results (method and acceptance criteria)
5. Commitment that instruments shall be in place and operational before beginning Phase 2a.

III. MECHANICAL ENGINEERING BRANCH (Prior to drifting beneath FIVP)

1. Allowable movements shall be based upon total settlements since the main feedwater piping was first installed in 1977.

2. A commitment that the 2" steam generator drain lines shall first be shown not to be limiting for allowable structural movements in the event a decision should be made to connect this piping prior to completion of underpinning.

IV. QUALITY ASSURANCE

Applicant shall notify NRC that all underpinning construction will be Q listed consistent with the NRC Staff's findings during the meeting of March 10, 1982.

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

MAR 12 1982

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

APPLICANT: Consumers Power Company

FACILITY: Midland Plant, Units 1 and 2

SUBJECT: SUMMARY OF MARCH 10, 1982 MEETING CONCERNING QUALITY ASSURANCE TO BE APPLIED TO REMEDIAL FOUNDATION WORK

On March 10, 1982, the NRC Staff met in Bethesda, Maryland with Consumers Power Company and Bechtel Power Corporation to discuss the application of quality assurance to remedial foundation work. Specifically, applicability to work related to underpinning of the electrical penetration areas of the Auxiliary Building and of the Service Water Pump Structure and to construction of the new Borated Water Storage Tank foundation ring was discussed. A list of meeting attendees is attached as Enclosure 1. Enclosure 2 is a compilation of the materials handed out and discussed at this meeting.

SUMMARY

A draft of the Quality Plan for Underpinning Activities was submitted for NRC review by Consumers Power Company letter dated January 7, 1982. During the course of its review, the Staff had requested to be provided with a listing of items and activities to which the plan would not apply (i.e., "non-Q" activities). The meeting was held to allow the Applicant and his Architect-Engineer to discuss in detail the applicability of this plan.

The Applicant informed the Staff that the Quality Plan has recently been finalized as MPQP-1. It was transmitted by Bechtel by CPCo (WRBird) letter dated March 3, 1982 (see Enclosure 2).

The Staff noted that the programmatic aspects of the quality plan submitted January 7 appeared to be in full compliance with Appendix B of 10CFR50 and are acceptable. Issuance of formal acceptance is awaiting the discussion of the extent of the program's applicability and specifically the items which it will not cover. Due to the nature of this work, the Staff's initial consideration is that essentially all construction activities related to the remedial work should fall under this program.

CPCo and Bechtel sought to limit full program applicability to those items which they considered safety-related. This term is defined in the accepted CPCo Quality Assurance Topical Report and in section 1.1.2.2.1 of the FSAR (see Enclosure 2). From a technical design viewpoint, Bechtel proposed the following clarifications as the logical application of these definitions to the remedial work:

1. Only permanent supports/structures need be Q listed.

2. Temporary (i.e., construction) supports need not be Q.

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Exhibit XIV

3. Support of non-Q structures (e.g., turbine building) is inherently non-Q.

4. Procedures for manipulation of a safety structure (e.g., jacking) are Q when the manipulations produce final input loads. For example, jacking from a temporary support is non-Q, not because it is not important but because it is not relied on for the safety of the structure following fuel load when the health and safety of the public could potentially be at risk.

5. A monitoring program to determine the effect on safety-related structures of all work, including temporary (i.e., non-Q) loads will be in place. The monitoring program will be Q.

6. Non safety-related buildings and supports which can affect safety-related structure are non-Q. However, the evaluation of the effect of such structures on safety structures is Q.

7. Given the above points, the conclusion must be drawn that installation of temporary underpinning where it will ultimately become a part of the permanent underpinning (i.e., under the control tower) is Q. Temporary support of the electrical penetration areas, not to be a part of the final support, is non-Q, however the evaluation of its effect on the structure is Q.

CPCo noted that the key point in the above items is that adverse impact on a structure from the temporary work has a potential impact on plant licensability, but not on health and safety. CPCo acknowledged, however, that quality control on some work which would not be defined as Q in accordance with the above is desirable considering the nature and extent of this work. CPCo therefore proposed a new designation of "QA". Items and activities so designated would be treated by CPCo, Bechtel, and their construction contractors exactly as Q items except for reportability to the NRC. A portion of the Auxiliary Building construction sequence drawing designating those piers to be Q and those to be "QA" was discussed (see Enclosure 2).

There are certain activities related to the underpinning work which would fall in neither of these categories. An example discussed at some length was excavation of the drift (tunnel) under the turbine building (non-Q). Although final construction drawings, preparation of which would involve a final classification, are not complete, the Applicant agreed this work would probably fall into neither category. The Staff noted that failure to properly install the associated bracing could have an immediate effect on the Auxiliary Building. The Applicant contended that the monitoring program for the Auxiliary Building, which is accorded Q status, would detect such an effect.

During the discussion, the Applicant expressed concern that a Q-listing automatically required the imposition of numerous difficult requirements which might not relate to the real concern. The Staff disagreed, noting that 10CFR50 Appendix B provides that QA shall be implemented to the extent commensurate with the impact on safety; for example, while it does not matter what implement is used to remove soil when digging an access shaft, the location, size, and depth of the shaft are important.

Following a private caucus, the Staff responded to the applicant's proposals as follows:

The Staff did not accept the concept of the "QA" Classification. The Staff considers that all activities beginning with phase 2 work should be Q listed except on very specific items whwich can be shown on a specific basis to justify non-Q treatment. NRR concurrence in this justification must be obtained prior to conducting any work efforts completely outside the quality plan.

The Region will continue the level of involvement of the recent past. Every drawing and specification does not require Region III concurrence before use, although they must be completed and available prior to commencing the work they cover. In preparing and approving these documents, individual detailed activities which require or do not require specific QA controls shall be specified in accordance with the quality plan and considering the flexibility inherent in 10CFR50 Appendix B.
The Staff rejects the philosophy of reliance on the monitoring program as the sole Q protection for safety structures. The process controls which preclude the attainment of undesirable effects which the monitoring program would detect must be subjected to the full rigor of the MPQAD program.

With respect to the items of design philosophy enumerated above, the Staff disagrees with numbers 1, 2, 3 and 7. The Staff disagrees with the limitation of number 4 to final input loads. The Staff agrees that the monitoring program of number 5 must be Q but rejects the concept of this as the sole Q protection for safety-related structures. The Staff disagrees with the aspects of number 6 which classify non safety-related buildings and supports as non-Q but agrees the evaluation of effects must be Q as well as related construction and design work.

It was agreed at the conclusion of the meeting that the applicant must submit a letter, prior to beginning phase 2 work, which provides the information agreed to in the March 8, 1982 telephone call with Mr. J. D. Kane of the Staff (see Enclosure 2). The NRC will take specific action on this submittal prior to the start of phase 2 work.

Darl Hood

Darl S. Hood, Project Manager
Licensing Branch No. 4
Division of Licensing

Enclosures:
As Stated

cc:
See Next Page

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U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

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Jerry Harbour, Esq.
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Washington, D. C. 20555

Geotechnical Engineers, Inc.
ATTN: Dr. Steve J. Poulos
1017 Main Street
Winchester, Massachusetts 01890

ENCLOSURE 1

LIST OF ATTENDEES

March 10, 1982 NRC Meeting, QA REMEDIAL FOUNDATION WORK

NRC	CPCo	BECHTEL
D. S. Hood	J. A. Mooney	A. J. Boos
E. G. Adensam	R. H. Huston	N. Swanberg
R. B. Landsman	D. M. Budzik	
J. Gilray	W. R. Bird	
R. J. Cook	J. Brunner	
J. D. Kane	R. C. Hirzel	
F. Rinaldi	D. E. Horn	

ISHAM, LINCOLN & BEALE

F. Williams

midland
3/10/82

MEETING SUMMARY DISTRIBUTION

march 12, 1982

Docket File
NRC/PDR
Local PDR
TIC/NSIC/TERA
LB #4 r/f
H. Denton
E. Case
D. Eisenhut
R. Purple
B. J. Youngblood
A. Schwencer
F. Miraglia
J. Miller
G. Lainas
R. Vollmer
J. P. Knight
R. Bosnak
F. Schauer
R. E. Jackson
Attorney, OELD
OIE (3)
ACRS (16)
R. Tedesco

NRC Participants:

D. Hood
E. Adensam
R. Landsman
J. Gilray
R. Cook
J. Kane
F. Rinaldi

bcc: Applicant & Service List

G. Lear
S. Pawlicki
V. Benaroya
Z. Rosztoczy
W. Haass
D. Muller
R. Ballard
W. Regan
R. Mattson
P. Check
O. Parr
F. Rosa
W. Butler
W. Kreger
R. Houston
W. Gammill
L. Rubenstein
T. Speis
W. Johnston
S. Hanauer
C. Berlinger
F. Schroeder
D. Skovholt
M. Ernst
K. Kniel
G. Knighton
A. Thadani
D. Tondi
J. Kramer
D. Vassallo
P. Collins
D. Ziemann
F. Congel
J. Stolz
M. Srinivasan
R. Baer
E. Adensam

Project Manager D. Hood
Licensing Assistant M. Duncan

Handout
3/10/82

General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • (517) 788-0550

March 3, 1982

Mr A J Boos
Bechtel Power Corporation
PO Box 1000
Ann Arbor, MI 48106

MIDLAND PROJECT -
QUALITY PLAN FOR UNDERPINNING ACTIVITIES
FILE: 0.4.9.20.6, 5.17 SERIAL: 16114

Attached is MPQP-1, "Quality Plan for Underpinning Activities," with an effective date of March 2, 1982. It should be recognized that although this plan is just now getting its formal release while awaiting the policy document for authorization for us to utilize quality plans on the Midland Project, that in fact the plan has been in effect since early January when the Project Team members agreed to the contents of the plan. This formal release of Revision 0 is changed from what was reviewed and agreed upon in early January as follows:

1. Words were added to specifically define the MPQAD role in reviewing non-Q documents. These specific words were reviewed with you on February 19, 1982.

2. Reference to EDPI 4.25.1 was revised to include the new procedure EDPI 4.25.2.

3. EDPI's 2.14.8 and 4.1.1 were added to the list of applicable procedures. These were referenced in the body or the attachments to the plan.

4. EDPI 4.62.1 was eliminated from the list of applicable procedures as that specific EDPI has been cancelled.

All elements of this quality plan must be in effect prior to Phase II of the underpinning activities.

W R Bird
Manager of Quality Assurance
Midland Project

WRB/lr

CC: JWCook
RCBauman
JEBrunner
LEDavis
DEHorn
GSKeeley
BWMarguglio
DBMiller
JAMooney
JARutgers
JRSchaub
DMTurnbull
LSutkus

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Effective Date March 2, 1982

Approved Walter R Bird 3/2/82
Manager MPQAD

Approved J A Mooney 3/2/82
Midland Project Office

8204290147

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

GENERAL

All activities for the remedial soils work will be 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 the soils remedial work.

The senior management consisting of J W Cook as Vice President of Projects, Engineering and Construction (Consumers Power Company) and J A Rutgers, Midland Project Manager for Bechtel Power Corporation (CPCo's contractor for the Midland Nuclear Plant), will review and approve major decisions and design concepts regarding remedial soils work. J A Mooney, CPCo Midland Project Office Executive Manager, and A J Boos, Bechtel Assistant Project Manager, will manage the remedial soils work. J F Fisher, Bechtel Construction Remedial Soils Group Supervisor, will coordinate the Bechtel and Subcontractor field activities.

W R Bird (Manager of MPQAD) and D E Horn (Civil Section Head) will manage the remedial work with the overview of B W Marguglio (Director of Environmental and Quality Assurance).

The specific Quality Plan and Q-list activities are defined in attachments to the Technical Specifications for Underpinning (7220-C-194 and 7220-C-195).

Organizations involved with the underpinning are defined in the Functional Matrix, Attachment 1 and as follows:

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

CPCo Project Management - Sets policy, coordinates licensing review, and submittals to the NRC.

CPCo Safety and Licensing - Performs licensing reviews and coordinates FSAR revisions.

CPCo Design Production - Provides client design input and performs reviews of and comments on Bechtel Design Documents.

CPCo Site Management - Monitors remedial activities with respect to commercial type items, construction activities such as equipment care, labor and production.

Bechtel Project Management - Coordinates with client and sets policy for Bechtel organizations.

Bechtel Project Engineering - Establishes design criteria and reviews input from non-Bechtel sources. Originates and controls 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 Construction Remedial Soils Group - Performs the overall on-site management of all Remedial Soils Group remedial underpinning activities including construction coordination between Bechtel, NRC, CPCo and Subcontractor. Provides direction over Subcontractor activities, and shall be the single point of contact between Subcontractor and Bechtel, NRC CPCo and other agencies.

Geotech Services - Provides design and field geotechnical services as requested by Project Engineering.

Resident Geotechnical Engineer - Performs foundation inspection and geotechnical on-site monitoring of related construction activities. Interfaces with the Project Geotechnical Engineer.

Bechtel Quality Control (QC) - Performs first-line inspection verification of site Q-list activities. Reviews safety-related construction procedures.

Midland Project Quality Assurance (MPQAD) - Provides the quality assurance for all remedial work including work

done by Bechtel and Bechtel Subcontractors. Develops quality plans, reviews safety-related design documents and construction procedures. Performs over-inspections and pre-planned audits of Q-list activities as defined in the quality plans.

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 Construction (Remedial Soils Group) on construction methods, design, instrumentation or geotech.

DESIGN CONTROL

Design Control for the remedial underpinning of the Auxiliary Building (Electrical Penetrations and Control Structure) and Feedwater Isolation Valve Pit fill material replacement and Service Water Pump Structure will be provided by Project Engineering. Engineering Department Procedures (EDPs) and Engineering Department Project Instructions (EDPIs) will provide the controls for Engineering activities which are responsive to the Quality Program requirements.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Design criteria will be developed from design 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 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 Quality Control, MPQAD, Project Geotech and Construction.

The MPQAD review applies to design documents designated as either Q-listed (safety related) or non Q-listed. For documents which are not safety related the MPQAD review will be limited to assuring the document in fact does not require safety related activities to protect Q-listed items, systems, or structures. Subsequent revisions to documents concurred to be non Q-listed need not be submitted to MPQAD for review unless such a revision specifically adds a safety related activity.

MPQAD 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 CPCo 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 will prepare, review, approve, issue and control design drawings in accordance with EDP 4.46. Changes to engineering drawings will 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 shall be originated, checked, approved, controlled and documented by Project Engineering in accordance with EDP 4.37. All design calculations submitted by the consultant will be checked, reviewed and approved by Bechtel Project Engineering.

Bechtel Construction Remedial Soils Group will 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 Field Construction to initiate field changes in design documents within the allowable guidelines of Field Procedure FPD-2.000 as provided by Project Engineering. FCNs will be reviewed, evaluated, dispositioned, controlled and administered according to EDPI 4.62.1.

The design interface for the underpinning activities between Project Engineering, project groups, technical support groups and consultants will be

administered as illustrated in Attachment 2, Design Document Interface Flowchart. Geotech design and calculation reviews will be accomplished per EDPI 4.25.2. The Subcontractor will receive design documents from Field Document Control to be utilized for construction.

Inspections will be performed by Bechtel QC to verify that construction is being performed to the latest revisions of the design documents; audits and/or overinspections will be conducted by MPQAD. Field geotechnical activities, including subgrade acceptance, will be accomplished in accordance with EDPI 2.14.8.

PROCUREMENT AND RECEIVING

All procurement of Q-list items and services for the remedial underpinning work will be done by Bechtel employing the technical and quality requirements established in the specifications and drawings. Q-material requisitions will be originated by Bechtel Construction Remedial Soils Group in accordance with FPG-8.000. Bechtel Construction Remedial Soils Group will be responsible for assuring that applicable regulatory requirements, design bases, specifications, procedures and drawings are included and referenced in the procurement documents. The Field Procurement Department will initiate formal purchase orders and will be responsible for ensuring that the procurement package is complete and includes all of the information required by the supplier. MPQAD will review and approve procurement documents in accordance with MPQAD Procedure M-5 to assure that necessary quality program requirements are included.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Upon receipt of Q-material, inspections will be performed by Quality Control in accordance with PSP G-5.1 to verify items comply with the procurement package requirements and quality verifications packages are complete. Quality verification packages will be reviewed for availability, traceability and legibility by Bechtel QC and audited by MPQAD (MPQAD Procedure F-1M). In addition, a technical review will be performed by Bechtel QC for non-shop inspected items.

PREPARATION AND IMPLEMENTATION OF PROCEDURES/INSTRUCTIONS

All Q-list activities performed by Bechtel or the Subcontractor to support construction will be controlled by approved procedures and/or instructions. Written instructions to the Subcontractor will be 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 to be submitted by the Subcontractor prior to the start of fabrication and construction. These procedures will be logged, controlled, and distributed by the Field Document Control Center and will be reviewed by Project Engineering, Bechtel QC, Bechtel Construction Remedial Soils Group, MPQAD and Consultants as defined in Appendix A of the Quality Plan and Q-listed activities for each technical specification. Project Engineering will define the quality attributes of each procedure utilizing the Q-listed activities called out in Section 4.3 of the Quality Plans. The MPQAD review applies to procedures/instructions designated as either Q-listed (safety related) or non Q-listed. For documents which are not safety related

the MPQAD review will be limited to assuring the document in fact does not require safety related activities to protect Q-listed items, systems, or structures. Subsequent revisions to documents concurred to be non Q-listed need not be submitted to MPQAD for review unless such a revision specifically adds a safety related activity.

These procedures, when approved by Bechtel Project Engineering, Bechtel QC and MPQAD, will provide authorization for fabrication/construction to proceed.

INSPECTION, EXAMINATION, TEST AND CALIBRATION

Quality verification, inspection and testing of all Bechtel and Subcontractor Q-list activities will be performed by Bechtel Quality Control, independent of the Subcontractor and the Bechtel Construction Remedial Soils Group. Bechtel QC will prepare inspection plans (in accordance with PSP G-6.1 and G-1.1) utilizing inputs from technical specifications, design drawings and Subcontractor procedures. Project Quality Control Instruction (PQCIs) will be prepared to cover all Bechtel and Subcontractor Q-list activities. Existing PQCIs will be adapted for standard construction activities such as concrete batching, placement and testing, and reinforcing steel installation. Additional PQCIs will be developed as necessary to verify new underpinning activities such as temporary support installation, load transfer and threaded reinforcing connectors. All PQCIs will be subject to MPQAD review according to MPQAD Procedure E-2M. In addition, inspection and test activities will be monitored by MPQAD through the use of overinspection plans based on an independent evaluation of design and procurement documents (MPQAD

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Procedure E-1M). The Subcontractor will be indoctrinated to Bechtel QC and MPQAD procedures and inspection planning to assure that hold and witness inspection points included as an integral part of the Subcontractor's procedures, will be adhered to.

Test will be 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 will be provided by an approved agency which will be pre-qualified by MPQAD. This agency will provide for traceability to National Standards, the unique identification of each instrument or equipment requiring calibration, the establishment of calibration frequencies, and the identification of calibration status. Calibration records will be maintained by the agency and transmitted to Bechtel Construction Remedial Soils Group for review. At the completion of the subcontract, these records will be turned over to Bechtel Quality Control. Performance and effectiveness of the agency will be verified by MPQAD audits and/or overinspections in accordance with MPQAD Procedures F-1M and E-1M.

HANDLING AND STORAGE

All Q-list materials will be 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 will be subject to

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Bechtel QC inspection and verification according to PSP G-5.1 and MPQAD overinspections and/or audits. (MPQAD Procedures E-1M and F-1M).

DOCUMENT CONTROL AND QUALITY RECORDS

Subcontractor documents which are to be submitted for review and comment by Bechtel Project Engineering, Bechtel QC and MPQAD will be controlled by the Field Document Control Center (FDCC) in accordance with FPD 1.000. Prior to the start of work, the Subcontractor will submit construction procedures as required by the specifications, purchase orders and/or drawings to Bechtel Construction Remedial Soils Group. Bechtel Construction Remedial Soils Group and the FDCC will distribute the procedures for review and approval as defined in the Quality Plans for the underpinning activities. Bechtel Project Engineering will be responsible for resolving review comments.

All quality records will be controlled by EDPs 5.16 and 5.24, Bechtel QC Procedure PSP G-7.1 and MPQAD Procedures F-11M and F-12M. These procedures will prescribe the requirement for preparation, control, distribution and transmittal of all Q-related procedures, specifications, drawings and inspection records.

NONCONFORMING ITEMS AND CORRECTIVE ACTION

Nonconformances discovered during construction inspection activities will be documented and controlled by Bechtel QC in accordance with PSP G-3.2 and MPQAD in accordance with 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.

Within the Midland Project Quality Program, the identification of significant and reportable items will be accomplished by Bechtel QC and MPQAD through the review of nonconformance reports, supplier surveillances and quality assurance audits. Corrective action for significant quality problems will be controlled by Bechtel PSP G-3.2 and MPQAD Procedure F-3M.

In the design phase, investigation of cause and action taken to preclude recurrance 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.

AUDITS

Audits will be performed by MPQAD to verify conformance of Q-list activities. 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.

TRAINING AND CERTIFICATION

All inspectors and quality auditors will be trained and certified in accordance with PSP G-8.1 or MPQAD Procedures B-2M and/or B-3M. Subcontractor field supervisory and engineering personnel will be indoctrinated to the Midland Project Quality Program. This will include an introduction to the

quality system, inspection techniques, nonconformance control, NRC activities, field and engineering design changes and site organizations and interfaces. The indoctrination will be completed prior to any work proceeding. The Subcontractor will be required to implement training for the procedures covering the Subcontractors Q-listed activities.

LIST OF APPLICABLE PROCEDURES

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-5	QA Review of Bechtel Field-Originated Procurement Documents

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
FPD-1.000	Field Documentation of Correspondence Control

PROJECT SPECIAL PROVISIONS

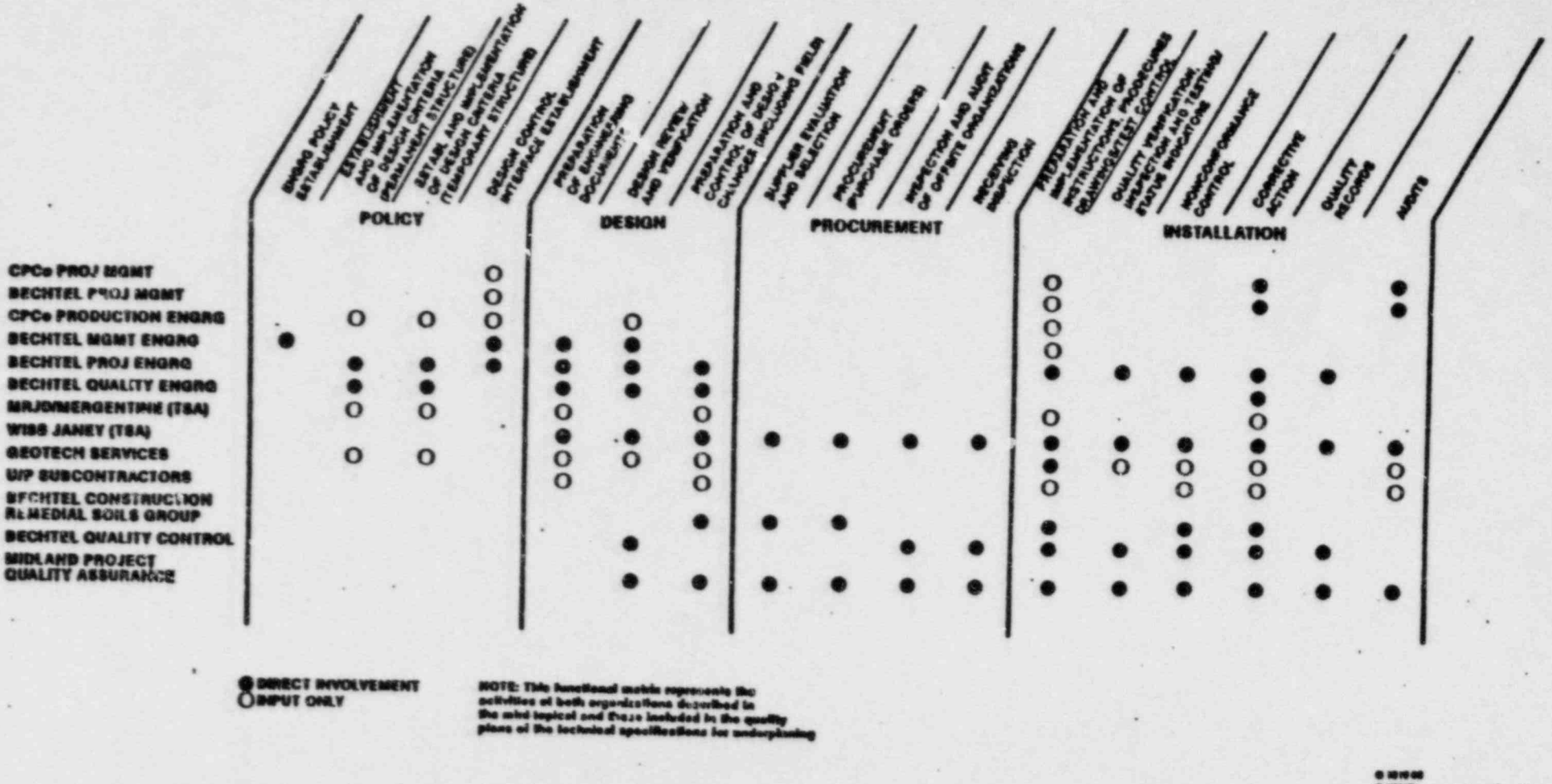
PSP G-1.1	Assignment of Responsibilities, Manual Application and Control
PSP G-3.2	Control of Nonconforming Items
PSP G-5.1	Material Receiving and Storage Control
PSP G-6.1	Inspection Planning
PSP G-7.1	Document, Records and Correspondence Control
PSP G-8.1	Qualification, Evaluation, Examination Training and Certification of Construction Quality Control Personnel

ENGINEERING DEPARTMENT PROJECT INSTRUCTIONS

EDPI - 2.14.8	Resident Geotechnical Engineer for Midland Remedial Underpinning Operation.
EDPI - 4.1.1	Preparation of Design Requirements Verification Checklist.
EDPI - 4.25.2	Interface Control Design Documents for Remedial Soils Underpinning Operation.
EDPI - 4.47.1	Interim Drawing Change Notice for the Midland Project 7220
EDPI - 4.49.1	Specification Change Notification

MPQP-1
REVISION 0
MARCH 2, 1982
ATTACHMENT 1

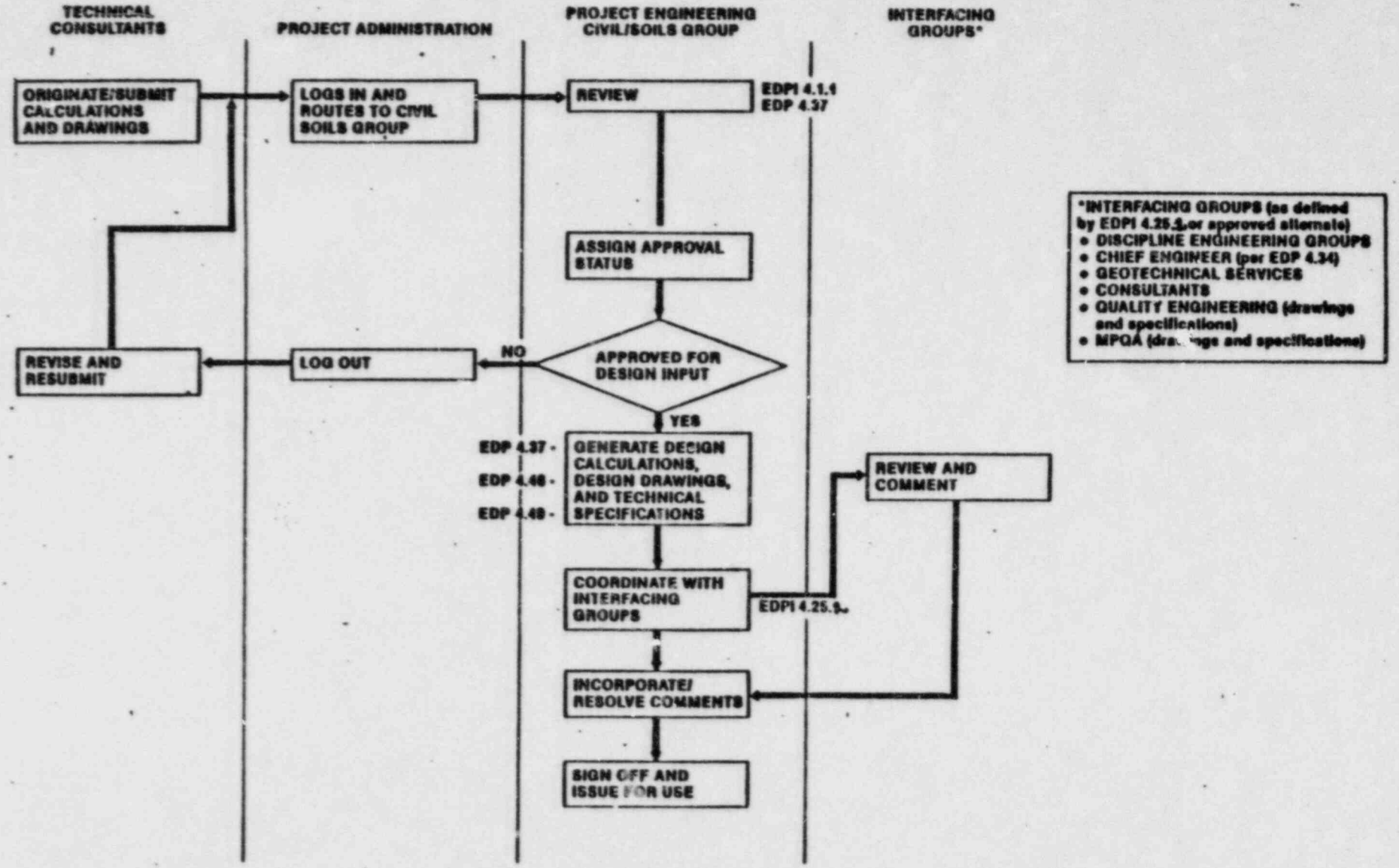
PROJECT FUNCTIONAL MATRIX
FOR UNDERPINNING ACTIVITIES



● DIRECT INVOLVEMENT
○ INPUT ONLY

NOTE: This functional matrix represents the activities of both organizations described in the mini topical and those included in the quality plans of the technical specifications for underpinning

DESIGN DOCUMENT INTERFACE FLOWCHART



Hanford 3/10/82

Safety-Related - The term applied to:

Structures, systems, components, materials, services or Operational Safety Actions or Activities named on the Q-List as necessary to assure:

1. The integrity of the reactor coolant pressure boundary.

2. The capability to shut down the reactor and maintain it in a safe condition.

3. The capability to prevent or mitigate the consequences of an accident which could result in potential off-site exposures to individuals in excess of exposures specified in 10 CFR 100.

4. The operation of the facility within Technical Specifications limits and Nuclear Regulatory Requirements.

Secondary Standard - An item of measuring and test equipment (M&TE) used to calibrate other M&TE. They are periodically calibrated using Reference Standards and reserved for use in the calibration of working plant or field M&TE.

Section - A subdivision of a department, usually made along lines of a technical specialty; eg, Nuclear Licensing, Health Physics, Nuclear Fuel, etc.

Services - Work performed by an organization or department having no deliverable hardware type end item other than the results of construction, modifications, repairs, inspections, audits, reviews, etc.

Source Inspection - Inspection of an item at a Supplier's facility during its manufacture, or at completion of manufacture, to verify implementation of the procurement requirements.

Spare Part - An item available for replacement for an item in use.

Special Nuclear Material (SNM) -

1. Plutonium, Uranium 233; uranium enriched in the Isotope 233 or in the Isotope 235; and any other material which the NRC, pursuant to the provisions of Section 51 of the Atomic Energy Act of 1954 as amended, determines to be special nuclear material, but does not include source material; or

2. Any material artificially enriched by any of the foregoing, but does not include source material.

Special Process - Those metallurgical, chemical, or other processes where assurance of the process activity is dependent on the use of qualified procedures, personnel, or equipment; and where assurance of quality cannot be by direct inspection of the in-process activity or final product. These include, but are not limited to, welding, heat-treating, NDE and environmental testing of the work process.

regulations, guidelines, or other factors separate and distinct from the components of the system itself. The system is considered as a unit, with boundaries as defined by Regulatory Guide 1.70 and must meet specific requirements. The design bases describe all essential characteristics of the system with sufficient clarity so that an experienced engineer, using these design bases and material referenced in the design bases, can understand the functions of the system with respect to the rest of the plant. Items implicit to contemporary design (e.g., use of the English system of weights and measures or the exercise of good engineering practice) are not specified.

1.1.2.2.1 Safety Design Bases

Safety design bases directly establish or increase nuclear safety. Safety design bases provide for or assure the following:

a. The integrity of the reactor coolant pressure boundary

b. The capability to shut down the reactor and maintain it in a safe shutdown condition

c. The capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the guideline exposures of 10 CFR 100

d. The accomplishment of specific structure, system, or component requirements which are important to safety

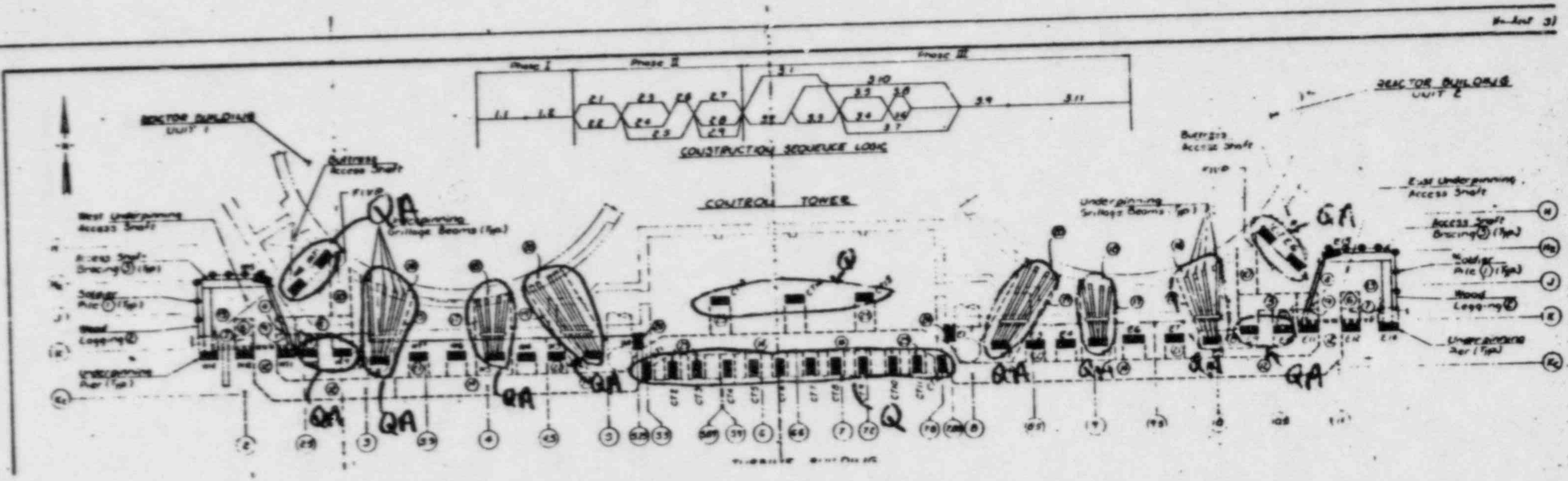
The control room operator action is considered as one of the fundamental means of achieving these criteria.

Safety-related structures, systems, and components important to safety are the portions of systems which are indispensable to nuclear safety. Items which are associated with safety-related equipment but which do not perform a nuclear safety function are not safety-related.

Redundancy requirements and system performance conditions are considered a feature of the equipment's capability to shut down the reactor safely or to prevent or mitigate accidents.

1.1.2.2.2 Power Generation Design Bases

Power generation design bases are those design bases which are not related to nuclear plant safety. They need not relate directly to the generation of power; however, they relate at least indirectly to power generation in the sense that all station requirements which are not imposed for safety reasons support the major function of the station as a whole; i.e., the generation of electrical power and process steam. An example of


Phase I
Phase II
Phase III
CONSTRUCTION SEQUENCE LOGIC
REACTOR BUILDING UNIT 1
REACTOR BUILDING UNIT 2
Buttress Access Shaft
CONTROL TOWER
West Underpinning Access Shaft
East Underpinning Access Shaft
Access Shaft Bracing (Typ)
Soldier Pile (Typ)
Wood Lagging
Underpinning Pier (Typ)
Underpinning Grillage Beams (Typ)
QA
Q
TURBINE BUILDING

Handout 3/10/82

RECORD OF TELEPHONE CONVERSATION

DATE: March 8, 1982, 3:30 pm

PROJECT: Midland

RECORDED BY: Joseph D. Kane

CLIENT:

TALKED WITH:	Bechtel	CPC	GEI	NRC
	J. Anderson M. Das Gupta	T. Thruvengadam K. Razdan	S. Poulos	J. Kane

ROUTE TO: INFORMATION

G. Lear
L. Heller
✓D. Hood
F. Rinaldi
S. Poulos
H. Singh
R. Landsman
J. Kane

MAIN SUBJECT OF CALL: ADOPTED SOIL SPRING STIFFNESSES USED IN DESIGN OF AUXILIARY BUILDING UNDERPINNING AND START OF PHASE 2 CONSTRUCTION

ITEMS DISCUSSED:

1. Attachments 1 and 2 to this telephone record provide the design cases and soil spring stiffnesses adopted by Bechtel as soils input in their structural analysis of the Auxiliary Building. The values of stiffness also on Attachment 2 under the column labeled NRC are the results of extensive discussions between NRC Consultants, S. Poulos, GEI, H. Singh, COE and J. Kane, NRC and represent the staff and its Consultants determination of the range of reasonable stiffness values which should be considered in design. The NRC values had been provided to Bechtel via telephone on March 5, 1982 as committed to by the Staff in the meeting of February 26, 1982 in Bethesda.

   The NRC recommended value of 70 KCF for the Main Auxiliary Building versus the Applicant's adopted 30 KCF for Case 2 is important because this difference has the potential to affect settlements which are to be tolerated during underpinning. Allowable settlements using the stiffness of 30 KCF had been provided on February 26, 1982 by M. DasGupta of Bechtel Corp.

2. Following considerable discussion on NRC recommended stiffness values (in both March 5 and March 8 telephone calls), Consumers expressed a willingness to use these values in their structural analysis but indicated the time needed to complete the required computer runs would impact their Phase 2 construction plans. As an alternative, J. Kane suggested that Phase 2 work be subdivided into two parts, the initial one beginning with work which would not affect the EPA and Control Tower area and the second part beginning after the analysis using the NRC recommended stiffness values had been completed by CPC and the results evaluated by the NRC staff. An acceptable line of demarcation between these two portions of Phase 2 work was tentatively identified as column lines 2.5 and 10.5 on the Construction Sequence drawing provided for the underpinning work at the February 3-5 design audit. These lines respectively, are sufficiently west and east of the EPA and Control Tower to conclude that these structures would be unaffected by underpinn operations permitted by this initial portion of Phase 2 work.

3. Consumers agreed to provide a letter to NRC giving details which would permit the Staff to fully understand what work would be performed under this initial portion of Phase 2 work.

4. The following comments were given to Consumers concerning the monitoring plans during underpinning of the Auxiliary Building.

   a. Drawing C-1493(Q), "Monitoring Matrix," should be updated and values provided in the tolerance criteria column for staff concurrence befc any portion of Phase 2 work is started.

   b. Sheet 8 of M. DasGupta's presentation on February 26, 1982 does not agree with previous drawings provided (Drwgs. C-1490 (Q) and C-1491 (Q)). Corrections in proper labeling of the deep seated bench mark locations on Sheet 8 and on Sheet 10 are needed and should be provided to the NRC.

   c. NRC expressed a concern for measurement of horizontal movement betw the EPA and the Turbine Building and between the Control Tower and Turbine Building during underpinning operations and suggested three monitoring devices be installed. One device at the top of each win the EPA's and one at the top of the Control Tower was recommended. Consumers responded that they were now planning to place instrument at those locations in response to questions raised by ASLB but had yet updated the monitoring locations on Drawings C-1490(Q), C-1491(and C-1493(Q). The Staff indicated that criteria on tolerable rela horizontal movement for these instruments should be established and furnished on the Monitoring Matrix drawing along with the basis for these limits.

   d. As previously discussed at the February 26, 1982 meeting in Bethesd the Staff anticipates a submittal by Consumers identifying the acceptance criteria for the strain gages to be placed at El.659 on the Auxiliary Building.

5. Consumers indicated that the six deep seated bench mark instruments located on Sheet 8 of M. DasGupta's presentation will be in operation before beginning Phase 2 work. Installation of the additional instruments at top of the EPA's and Control Tower and the strain gages at El 659 and the results of the structural analysis using NRC recommended stiffness valves are to be completed before the second portion of Phase 2 work is started.

6. J. Kane indicated that subdivision of Phase 2 underpinning work into two portions is subject to the approval of NRC Project Management and Structural Engineering Branch. It was also indicated that other conditions which could affect the start of Phase 2 work may be identified by the Staff. The original intent of this telephone conference call was to discuss soil spring stiffnesses but was not intended to address the start of Phase 2 work.

SOIL SPRING STIFFNESSES

Cases Considered

1. Normal Soil Springs - Springs used to represent subgrade for analysis of structure for FSAR loading conditions. (A subcase of this is the seismic condition).

2. Existing Condition - Springs used to represent subgrade for analysis of existing state of stress in the structure.

3. Long Term Settlement Condition - Springs which represent the behavior of the structure due to secondary consolidation of the structu after lock-off.

The springs for Case 1 are based on set data obtained since 1972 and the load ix added during that time. For the seismic subcase the springs are based on the stif used in the seismic model.

For the second case (existing condition) the springs are computed at the center of each area using elastic half space theory and assur a flexible footing.

For the long term settlement case the springs are computed from the estimated settlement at lock-off and the estimated loads. There are two subcases which were considered: a) Where the und areas settle more than the main auxiliary building; a b) where the main auxiliary building settles more th

Design Conditions	UNIT SPRING STIFFNESSES (KCF)					
	BECHTEL			NRC		
	E.P.A	C.T.	M.A	E.P.A.	C.T.	M.A.
Case 1 Normal Soil Springs	180	180	80	Acceptable to NRC		
Case 2 Existing Condition	17	18	30	Acceptable to NRC		70
Case 3(a) Long Term Settlement	410	350	1,160	180	240	580
Case 3(b) Long Term Settlement	160	350	230	Acceptable to NRC		

E.P.A. - Electrical Penetration Area
C.T. - Control Tower
M.A. - Main Auxiliary Building

Attachment 2

Hamilton 3/14/82

ENCLOSURE 2
QUALITY PLAN AND
Q-LISTED ACTIVITIES FOR
SPECIFICATION C-194

QUALITY PLAN AND Q-LISTED ACTIVITIES

1.0 PURPOSE AND SCOPE

The purpose of this QA Plan is to provide the means by which to gain adequate confidence that the Service Water Pump Structure underpinning system is constructed according to design documents. This Plan describes the minimum procedural interfacing between the sub-contractor, contractor, consultant(s) and the Midland Project Quality Assurance Department. (MPQAD)

2.0 SUBMITTAL, REVIEW AND APPROVAL FOR Q-LISTED PROCEDURES

2.1 The procedures listed in Exhibit A will be submitted as a minimum by the subcontractor as specified in the contract documents.

2.2 The procedures will be routed for review, comment and approval according to the flow diagram in Exhibit B.

2.3 The groups responsible for review, comment and approval of procedures will be as specified in Exhibit A.

3.0 CALIBRATION OF SUBCONTRACTOR FURNISHED EQUIPMENT

3.1 All subcontractor-furnished jacks, gages, and construction equipment requiring calibration will be calibrated by an agency approved and audited by MPQAD.

4.0 QUALITY ACTIVITIES

4.1 Section 4.3 provides the Q-List. All Q-Listed hardware and installation will be performed in accordance with the Midland

Project Quality Assurance Program, and will be inspected by the Contractor's Quality Control organization and overinspected by the MPQAD. All other Q-Listed activities will also be performed in accordance with the Program and will be controlled by the Contractor's QC organization and the MPQAD.

4.2 Within thirty days prior to the scheduled start of but not limited to the following activities, meetings will be held between responsible personnel of Bechtel Construction Remedial Soils Group, MPQAD, Contractor QC and the Subcontractor. The adequacy and availability of technical criteria; Quality Control inspection plans; Subcontractor's procedures; schedule of Construction activites; the sequence and clarity of Q-List activities will be discussed.

1. Start excavation below 620'.

2. Start of final load transfer and lockoff.

4.3 For any work relating to the service water pump structure underpinning, the following activities will be Q-Listed. This is intended to be a complete Q-List for all activites unique to underpinning other than design activities. Not all of these activities, however, will be within the Subcontractor's scope of work.

1. Document submittal, interface and control.

2. Procuring Q-Listed items and materials.

3. Storage, handling and control of Q-Listed materials.

4. Furnishing and installation of lagging and bracing under "Q" structures.

5. Excavation limits, control and sequence under "Q" structures.

6. Crack mapping and evaluation.

7. Calibration, maintenance, control and installation of gages and settlement monitoring instrumentation.

8. Monitoring of building movement instrumentation and pier pressure gages.

9. Fines monitoring of dewatering wells in "Q" areas.

10. Location and protection "Q" utilities.

11. Geotechnical aceptance of subgrade.

12. Fabrication and installation of reinforcing steel.

13. Certification of personnel performing splices.

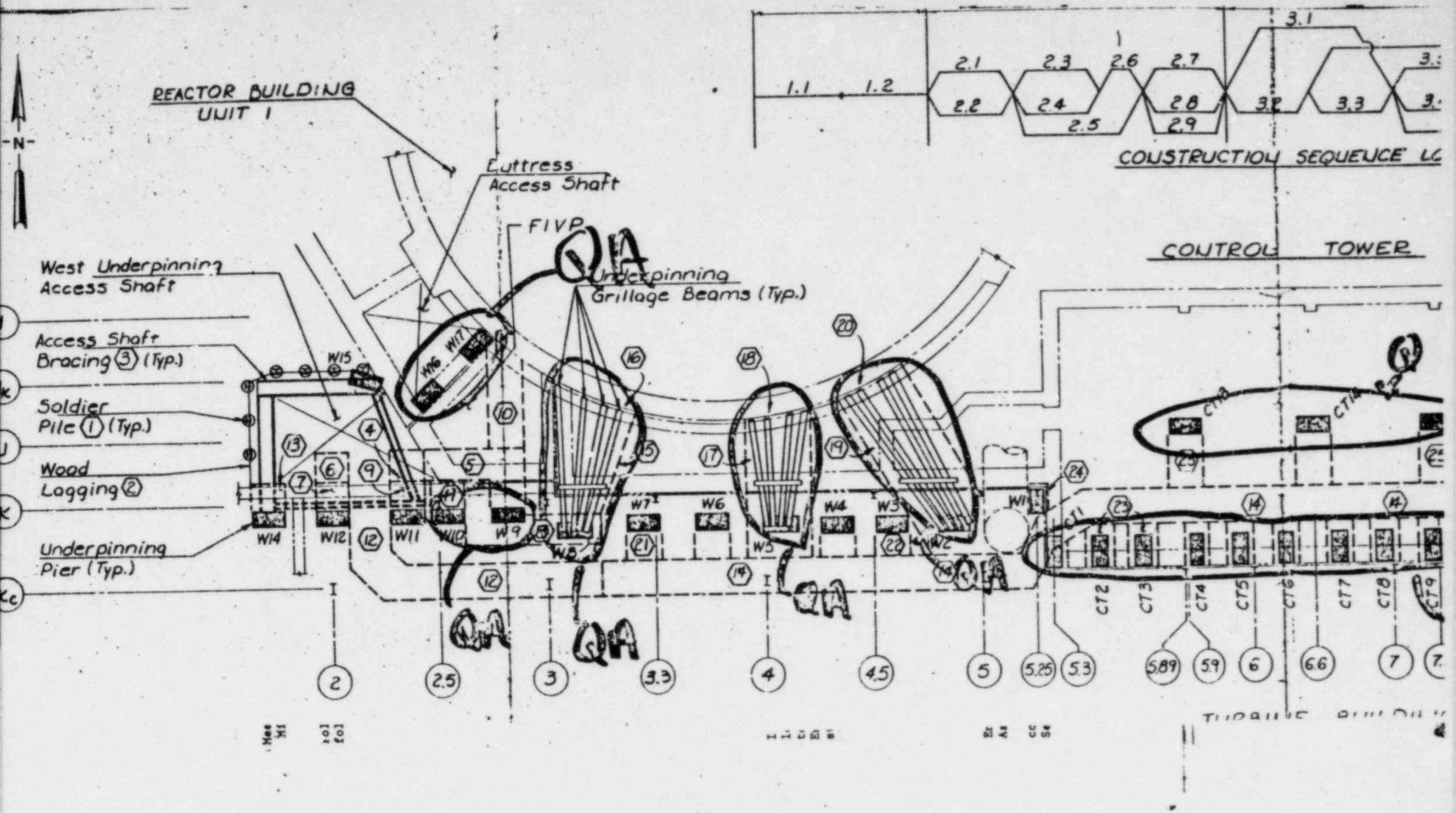
14. Threading of reinforcing steel and installation of mechanical splices.

15. Drilling in 'Q" structures for the installation of anchor bolts, rock anchors and dewatering wells.

16. Installation and inspection of anchor bolts and rock anchors.

17. Compressible material configuration and installation.

18. Testing of reinforcing steel and mechanical splices.


REACTOR BUILDING
UNIT 1
Buttress
Access Shaft
FIVP
West Underpinning
Access Shaft
Access Shaft
Bracing (3) (Typ.)
Soldier
Pile (1) (Typ.)
Wood
Lagging (2)
Underpinning
Pier (Typ.)
Underpinning
Grillage Beams (Typ.)
QA
CONTROL TOWER
CONSTRUCTION SEQUENCE LO
1.1
1.2
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
2.9
3.1
3.2
3.3
W1
W2
W3
W4
W5
W6
W7
W9
W10
W11
W12
W14
W15
W16
W17
CT1
CT2
CT3
CT4
CT5
CT6
CT7
CT8
CT9
2
2.5
3
3.3
4
4.5
5
5.25
5.3
5.89
5.9
6
6.6
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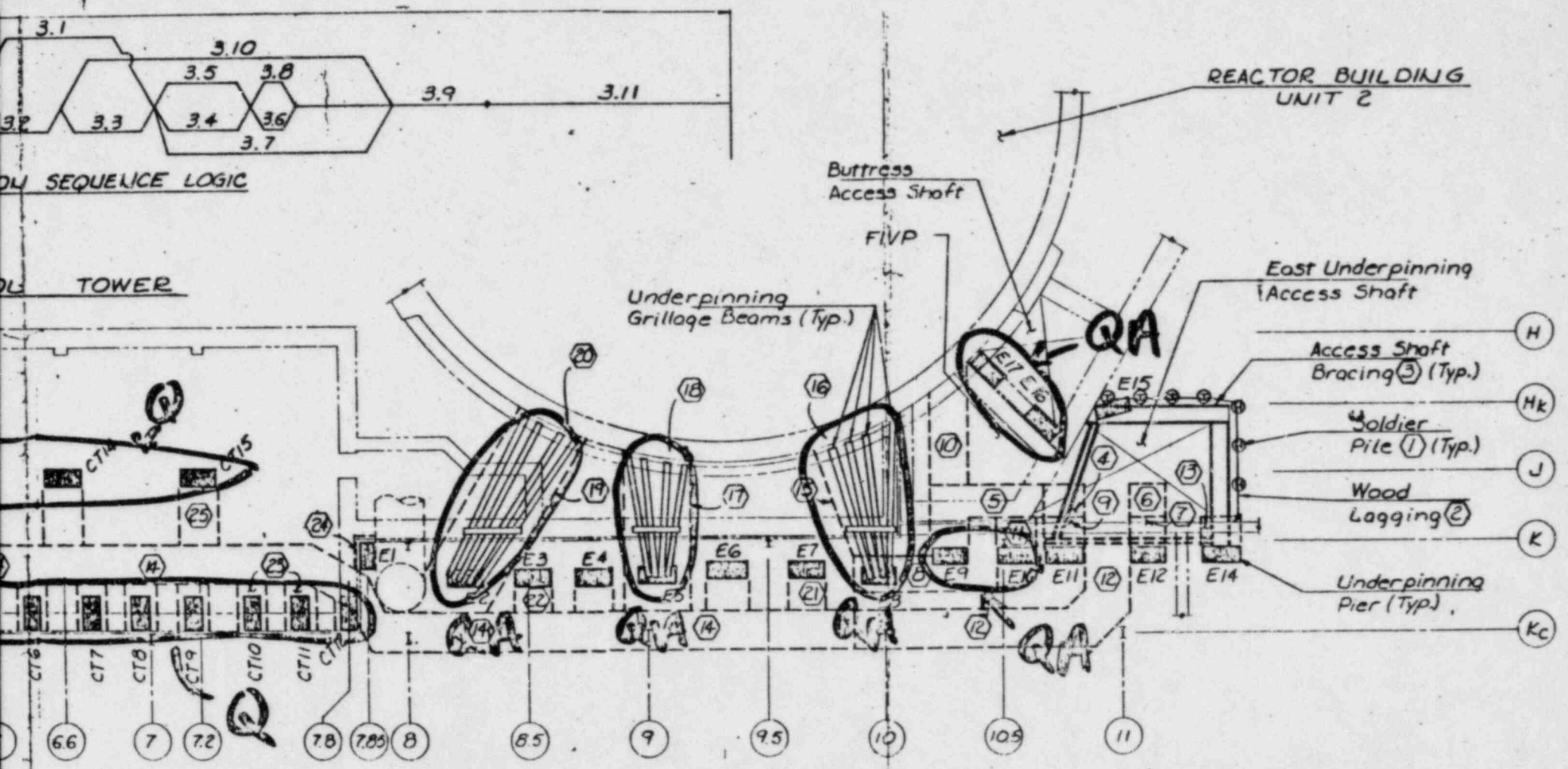

3.1
3.10
3.5
3.8
3.9
3.11
3.2
3.3
3.4
3.6
3.7
SEQUELICE LOGIC
TOWER
REACTOR BUILDING
UNIT 2
Buttress
Access Shaft
FIVP
Underpinning
Grillage Beams (Typ.)
East Underpinning
Access Shaft
QA
Access Shaft
Bracing (3) (Typ.)
Soldier
Pile (1) (Typ.)
Wood
Lagging (2)
Underpinning
Pier (Typ.)
H
Hk
J
K
Kc
E1
E2
E3
E4
E5
E6
E7
E8
E9
E10
E11
E12
E14
E15
E16
E17
CT6
CT7
CT8
CT9
CT10
CT11
CT12
CT14
CT15
6.6
7
7.2
7.8
7.85
8
8.5
9
9.5
10
10.5
11

19. Installation, inspection and testing of structural concrete, lean concrete, grout and drypack.

20. Repair of concrete in "Q" structures.

21. Calibrating, maintaining, installing and controlling of hydraulic jacks and pressure gages.

22. Load transfer activites.

23. Backfilling and acceptance testing for access shafts and tunnels in "Q" areas.

Procedures To Be Submitted By The Subcontractor	Organization Responsible For Procedure Review & Approval					
	Proj Eng	Resident Geotech	Bechtel Construction RSG	Bechtel Quality Control	MPQAD	Technical Consultant
Procedure for general underpinning - This procedure shall include the overall concept of the work involved, including the interface of all the operations listed below.	X	0	0	X	X	0
Procedure for load transfer.	X	0	0	X	X	0
Procedure for placement of lean concrete backfill in shafts and tunnel.	X		0	X	X	
Procedure for installation of (including mixing) and pressure grouting.	X		0	X	X	
Procedure for placement of pier concrete.	X		0	X	X	
Procedure for acquiring and maintaining calibration of jacks and gages.	X		0	X	X	
Procedure for mechanical splicing of reinforcement.	X		0	X	X	
Procedure for threading of reinforcing steel.	X		0	X	X	
Procedure for installation of anchor bolts and rock anchors.	X		0	X	X	
Procedure for installation of compressible material.	X		0	X	X	
Procedure for placing reinforcement including bending steel reinforcement (hot and cold).	X		0	X	X	
Procedure for core drilling.	X		0	X	X	

LEGEND

REVIEW & APPROVAL - X

REVIEW & COMMENT - 0 as applicable

ENCLOSURE 2
EXHIBIT A
PAGE 1 OF 2

Procedures To Be Submitted By The Subcontractor	Organization Responsible For Procedure Review & Approval						
	Proj Eng	Resident Geotech	Bechtel Construction RSG	Bechtel Quality Control	MPQAD	Technical Consultant	
Procedure for concrete repairs.	X		O	X	X		
Procedure for excavation "Q" structures and the installation of lagging.	X	O	O	X	X		
Procedure for protection of underground utilities	X		O	X	X		
Procedure for preparing, submitting, and revising Q procedures.	X		O	X	X		
Procedure for handling, storing, and controlling Contractor-furnished materials.	X		O	X	X		
Procedure for design document control.	X		O	O	X		
Procedures for interface and coordination between the Subcontractor and the Contractor for activities covered by the QA Program.	X	O	O	O	X		
Procedure for certifying Subcontractor Personnel specifically for AWS welding and mechanical splices.	X		O	X	X		
Procedure for Training Program of Subcontractor Personnel for the Q-Procedures covering the Subcontractors scope of work	X		O	X	X		

LEGEND

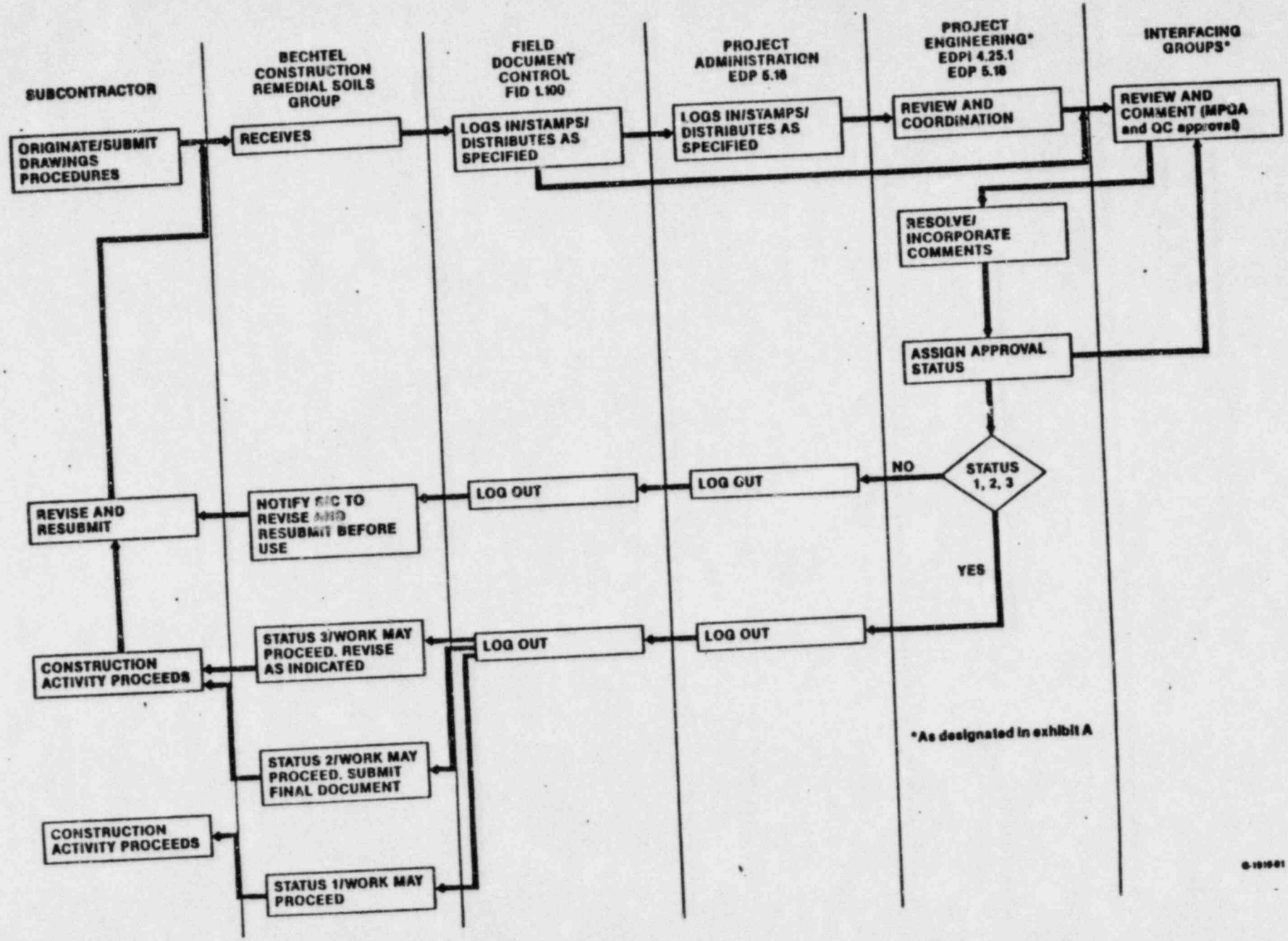
REVIEW & APPROVAL - X

REVIEW & COMMENT - O as applicalbe

ENCLOSURE 2
EXHIBIT A
PAGE 2 OF 2

ENCLOSURE 2
EXHIBIT B

PROCEDURE REVIEW/APPROVAL FLOWCHART



ENCLOSURE 3
QUALITY PLAN AND
Q-LISTED ACTIVITES FOR
SPECIFICATION C-195

QUALITY PLAN AND Q-LISTED ACTIVITIES

1.0 PURPOSE AND SCOPE

The purpose of this QA Plan is to provide the means by which to gain adequate confident that the Auxiliary Building (Electrical Penetration and control structure) underpinning system and Feedwater Isolation Valve Pit fill material replacement is constructed according to design documents. This Plan describes the minimum procedural interfacing between the sub-contractor, contractor, consultant(s) and the Midland Project Quality Assurance Department. (MPQAD)

2.0 SUBMITTAL, REVIEW AND APPROVAL FOR Q-LISTED PROCEDURES

2.1 The procedures listed in Exhibit A will be submitted as a minimum, by the subcontractor as specified in the contract documents.

2.2 The procedures will be routed for review, comment and approval according to the flow diagram in Exhibit B.

2.3 The groups responsible for review, comment and approval of procedures will be as specified in Exhibit A.

3.0 CALIBRATION OF SUBCONTRACTOR FURNISHED EQUIPMENT

3.1 All subcontractor-furnished jacks, gages, and construction equipment requiring calibration will be calibrated by an agency approved and audited by MPQAD.

4.0 QUALITY ACTIVITIES

4.1 Section 4.3 provides the Q-List. All Q-Listed hardware and installation will be performed in accordance with the Midland Project Quality Assurance Program, and will be inspected by the Contractor's Quality Control organization and overinspected by the MPQAD. All other Q-Listed activities will also be performed in accordance with the Program and will be controlled by the Contractor's QC organization and the MPQAD.

4.2 Within thirty days prior to the scheduled start of but not limited to the following activities, meetings will be held between responsible personnel of Bechtel Construction Remedial Soils Group, MPQAD, Contractor QC and the Subcontractor. The adequacy and availability of technical criteria; Quality Control inspection plans; Subcontractor's procedures; schedule of construction activities; the sequence and clarity of Q-List activities will be discussed.

1. Start construction of temporary underpinning.

2. Start construction of permanent underpinning wall.

3. Start of final load transfer and lockoff.

4.3 For any work relating to the auxiliary building underpinning, the following activities will be Q-Listed. This is intended to be a complete Q-List for all activites unique to underpinning other than design activities. Not all of these activities, however, will be within the Subcontractor's scope of work.

ENCLOSURE 3
QUALITY PLAN AND
Q-LISTED ACTIVITES FOR
SPECIFICATION C-195

1. Document submittal, interface and control.

2. Procuring Q-Listed items and materials.

3. Storage, handling and control of Q-Listed materials.

4. Furnishing and installation of lagging and bracing under "Q" structures.

5. Excavation limits, control and sequence under "Q" structures.

6. Crack mapping and evaluation.

7. Calibration, maintenance, control and installation of gages and settlement monitoring instrumentation.

8. Monitoring of building movement instrumentation and pier pressure gages.

9. Fines monitoring of dewatering wells in "Q" areas.

10. Location and protection "Q" utilities.

11. Geotechnical acceptance of subgrade.

12. Fabrication of steel grillage for temporary supports for "Q" structures.

13. Fabrications and installation of temporary supports for "Q" structures.

14. Welding of temporary and permanent supports for "Q" structures.

15. Fabrication and installation of reinforcing steel.

16. Certification of personnel performing splices.

17. Threading of reinforcing steel and installation of mechanical splices.

18. Drilling in "Q" structures for the installation of anchor bolts, rock anchors and dewatering wells.

19. Installation and inspection of anchor bolts and rock anchors.

20. Compressible material configuration and installation.

21. Testing of reinforcing steel and mechanical splices.

22. Installation, inspection and testing of structural concrete, lean concrete, grout and drypack.

23. Repair of concrete in "Q" structures.

24. Calibrating, maintaining, installing and controlling of hydraulic jacks and pressure gages.

25. Load transfer activities.

26. Backfilling and acceptance testing for access shafts and tunnels in "Q" areas.

Procedures To Be Submitted By The Subcontractor	Organization Responsible For Procedure Review & Approval					
	Proj Eng	Resident Geotech	Bechtel Construction RSG	Bechtel Quality Control	MPQAD	Technical Consultant
Procedure for general underpinning - This procedure shall include the overall concept of the work involved, including the interface of all the operations listed below.	X	0	0	X	X	0
Procedure for load transfer.	X	0	0	X	X	0
Procedure for placement of lean concrete backfill in shafts and tunnel.	X		0	X	X	
Procedure for installation of (including mixing) and pressure grouting.	X		0	X	X	
Procedure for placement of pier concrete.	X		0	X	X	
Procedure for acquiring and maintaining calibration of jacks and gages.	X		0	X	X	
Procedure for mechanical splicing of reinforcement-	X		0	X	X	
Procedure for threading of reinforcing steel.	X		0	X	X	
Procedure for installation of anchor bolts and rock anchors.	X		0	X	X	
Procedure for installation of compressible material.	X		0	X	X	
Procedure for placing reinforcement including bending steel reinforcement (hot and cold).	X		0	X	X	
Procedure for core drilling.	X		0	X	X	

LEGEND

REVIEW & APPROVAL - X

REVIEW & COMMENT - 0 as applicable

ENCLOSURE 3
EXHIBIT A
Page 1 OF 2

Procedures To Be Submitted By The Subcontractor	Organization Responsible For Procedure Review & Approval						
	Proj Eng	Resident Geotech	Bechtel Construction RSG	Bechtel Quality Control	MPQAD	Technical Consultant	
Procedure for concrete repairs.	X		0	X	X		
Procedure for excavation "Q" structures and the installation of lagging.	X	0	0	X	X		
Procedure for protection of underground utilities	X		0	X	X		
Procedure for preparing, submitting, and revising Q procedures.	X		0	X	X		
Procedure for handling, storing, and controlling Contractor-furnished materials.	X		0	X	X		
Procedure for design document control.	X		0	0	X		
Procedures for interface and coordination between the Subcontractor and the Contractor for activities covered by the QA Program.	X	0	0	0	X		
Procedure for construction of temporary supports including grillage.	X		0	X	X	0	
Procedure for welding.	X		0	X	X		
Procedure for ceritifying subcontractor personnel specifically for AWS welding and mechanical splices.	X		0	X	X		
Procedure for Training Program of subcontractor personnel for the Q-Procedures covering the subcontractor scope of work.	X		0	X	X		

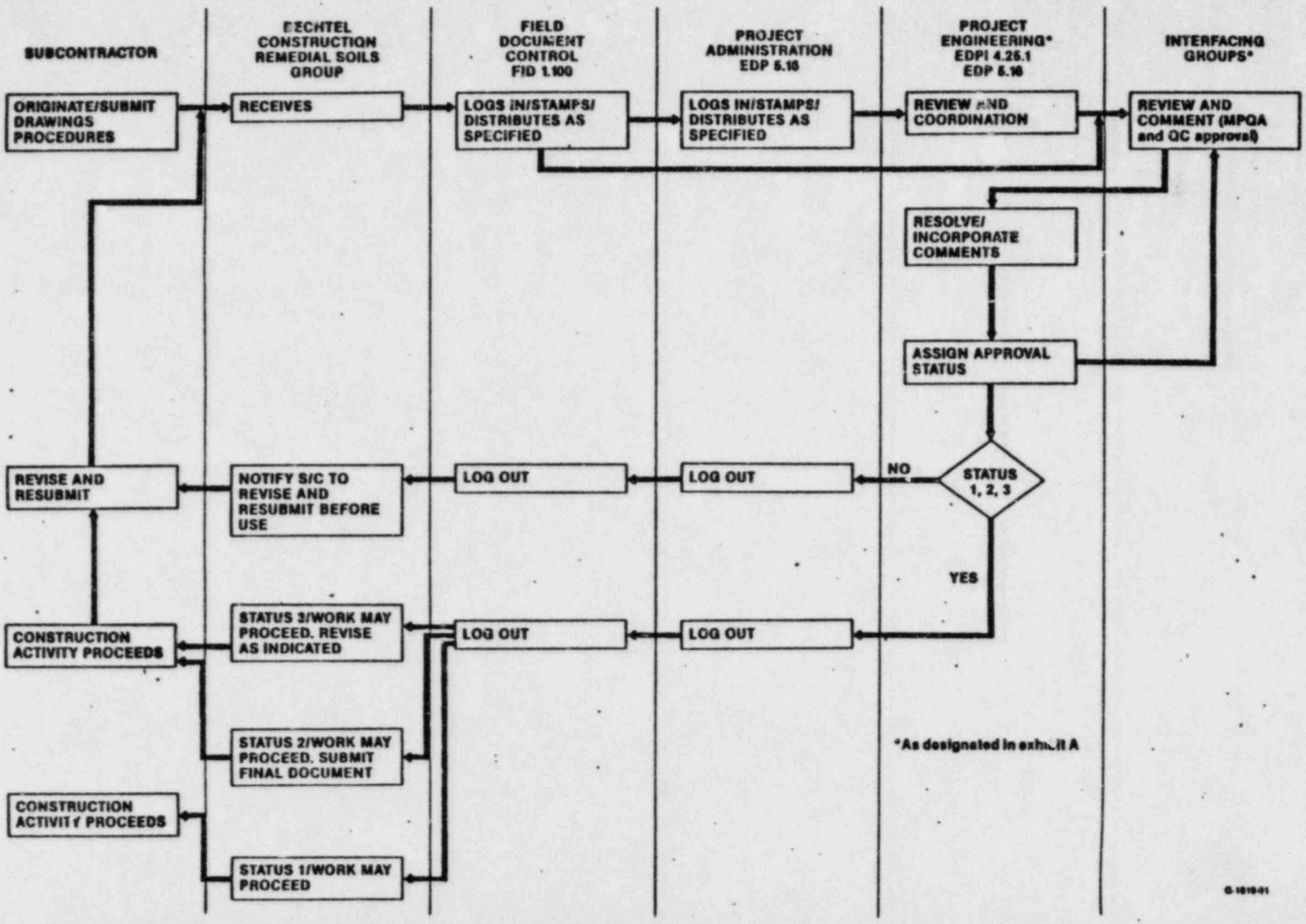
LEGEND

REVIEW & APPROVAL - X

REVIEW & COMMENT - 0 as applicable

ENCLOSURE 3
EXHIBIT B

PROCEDURE REVIEW/APPROVAL FLOWCHART



MAR 12 1982

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

APPLICANT: Consumers Power Company

FACILITY: Midland Plant, Units 1 and 2

SUBJECT: SUMMARY OF MARCH 10, 1982 MEETING CONCERNING QUALITY ASSURANCE TO BE APPLIED TO REMEDIAL FOUNDATION WORK

On March 10, 1982, the NRC Staff met in Bethesda, Maryland with Consumers Pow Company and Bechtel Power Corporation to discuss the application of quality assurance to remedial foundation work. Specifically, applicability to work related to underpinning of the electrical penetration areas of the Auxiliary Building and of the Service Water Pump Structure and to construction of the n Borated Water Storage Tank foundation ring was discussed. A list of meeting attendees is attached as Enclosure 1. Enclosure 2 is a compilation of the materials handed out and discussed at this meeting.

SUMMARY

A draft of the Quality Plan for Underpinning Activities was submitted for NR(review by Consumers Power Company letter dated January 7, 1982. During the course of its review, the Staff had requested to be provided with a listing (items and activities to which the plan would not apply (i.e., "non-Q" activities). The meeting was held to allow the Applicant and his Architect-Engineer to discuss in detail the applicability of this plan.

The Applicant informed the Staff that the Quality Plan has recently been fin lized as MPQP-1. It was transmitted by Bechtel by CPCo (WRBird) letter date March 3, 1982 (see Enclosure 2).

The Staff noted that the programmatic aspects of the quality plan submitted January 7 appeared to be in full compliance with Appendix B of 10CFR50 and a acceptable. Issuance of formal acceptance is awaiting the discussion of the extent of the program's applicability and specifically the items which it wi not cover. Due to the nature of this work, the Staff's initial consideratic that essentially all construction activities related to the remedial work sl fall under this program.

CPCo and Bechtel sought to limit full program applicability to those items (they considered safety-related. This term is defined in the accepted CPCo Quality Assurance Topical Report and in section 1.1.2.2.1 of the FSAR (see Enclosure 2). From a technical design viewpoint, Bechtel proposed the foll clarifications as the logical application of these definitions to the remed work:

1. Only permanent supports/structures need be Q listed.

2. Temporary (i.e., construction) supports need not be Q.

8204290107

3. Support of non-Q structures (e.g., turbine building) is inherently non-Q.

4. Procedures for manipulation of a safety structure (e.g., jacking) are Q when the manipulations produce final input loads. For example, jacking from a temporary support is non-Q, not because it is not important but because it is not relied on for the safety of the structure following fuel load when the health and safety of the public could potentially be at risk.

5. A monitoring program to determine the effect on safety-related structures of all work, including temporary (i.e., non-Q) loads will be in place. The monitoring program will be Q.

6. Non safety-related buildings and supports which can affect safety-related structure are non-Q. However, the evaluation of the effect of such structures on safety structures is Q.

7. Given the above points, the conclusion must be drawn that installation of temporary underpinning where it will ultimately become a part of the permanent underpinning (i.e., under the control tower) is Q. Temporary support of the electrical penetration areas, not to be a part of the final support, is non-Q, however the evaluation of its effect on the structure is Q.

CPCo noted that the key point in the above items is that adverse impact on a structure from the temporary work has a potential impact on plant licensability, but not on health and safety. CPCo acknowledged, however, that quality control on some work which would not be defined as Q in accordance with the above is desirable considering the nature and extent of this work. CPCo therefore proposed a new designation of "QA". Items and activities so designated would be treated by CPCo, Bechtel, and their construction contractors exactly as Q items except for reportability to the NRC. A portion of the Auxiliary Building construction sequence drawing designating those piers to be Q and those to be "QA" was discussed (see Enclosure 2).

There are certain activities related to the underpinning work which would fall in neither of these categories. An example discussed at some length was excavation of the drift (tunnel) under the turbine building (non-Q). Although final construction drawings, preparation of which would involve a final classification, are not complete, the Applicant agreed this work would probably fall into neither category. The Staff noted that failure to properly install the associated bracing could have an immediate effect on the Auxiliary Building. The Applicant contended that the monitoring program for the Auxiliary Building, which is accorded Q status, would detect such an effect.

During the discussion, the Applicant expressed concern that a Q-listing automatically required the imposition of numerous difficult requirements which might not relate to the real concern. The Staff disagreed, noting that 10CFR50 Appendix B provides that QA shall be implemented to the extent commensurate with the impact on safety; for example, while it does not matter what implement is used to remove soil when digging an access shaft, the location, size, and depth of the shaft are important.

Following a private caucus, the Staff responded to the applicant's proposals as follows:

The Staff did not accept the concept or the "QA" Classification. The Staff considers that all activities beginning with phase 2 work should be Q listed except on very specific items whwich can be shown on a specific basis to justify non-Q treatment. NRR concurrence in this justification must be obtained prior to conducting any work efforts completely outside the quality plan.

The Region will continue the level of involvement of the recent past. Every drawing and specification does not require Region III concurrence before use, although they must be completed and available prior to commencing the work they cover. In preparing and approving these documents, individual detailed activities which require or do not require specific QA controls shall be specified in accordance with the quality plan and considering the flexibility inherent in 10CFR50 Appendix B.
The Staff rejects the philosophy of reliance on the monitoring program as the sole Q protection for safety structures. The process controls which preclude the attainment of undesirable effects which the monitoring program would detect must be subjected to the full rigor of the MPQAD program.

With respect to the items of design philosophy enumerated above, the Staff disagrees with numbers 1, 2, 3 and 7. The Staff disagrees with the limitation of number 4 to final input loads. The Staff agrees that the monitoring program of number 5 must be Q but rejects the concept of this as the sole Q protection for safety-related structures. The Staff disagrees with the aspects of number 6 which classify non safety-related buildings and supports as non-Q but agrees the evaluation of effects must be Q as well as related construction and design work.

It was agreed at the conclusion of the meeting that the applicant must submit a letter, prior to beginning phase 2 work, which provides the information agreed to in the March 8, 1982 telephone call with Mr. J. D. Kane of the Staff (see Enclosure 2). The NRC will take specific action on this submittal prior to the start of phase 2 work.

DARL HOOD

Darl S. Hood, Project Manager
Licensing Branch No. 4
Division of Licensing

Enclosures:
As Stated

cc:
See Next Page

OFFICE	DL:LB#4	LA:DL:LB#4	DL:LB#4				
SURNAME	DHood:eb PH	MDuncan	EAdensam DCS				
DATE	3/12/82	3/12/82	3/12/82				

Bethesda, Md.
(LOCATION)

4/14/82
(DATE)

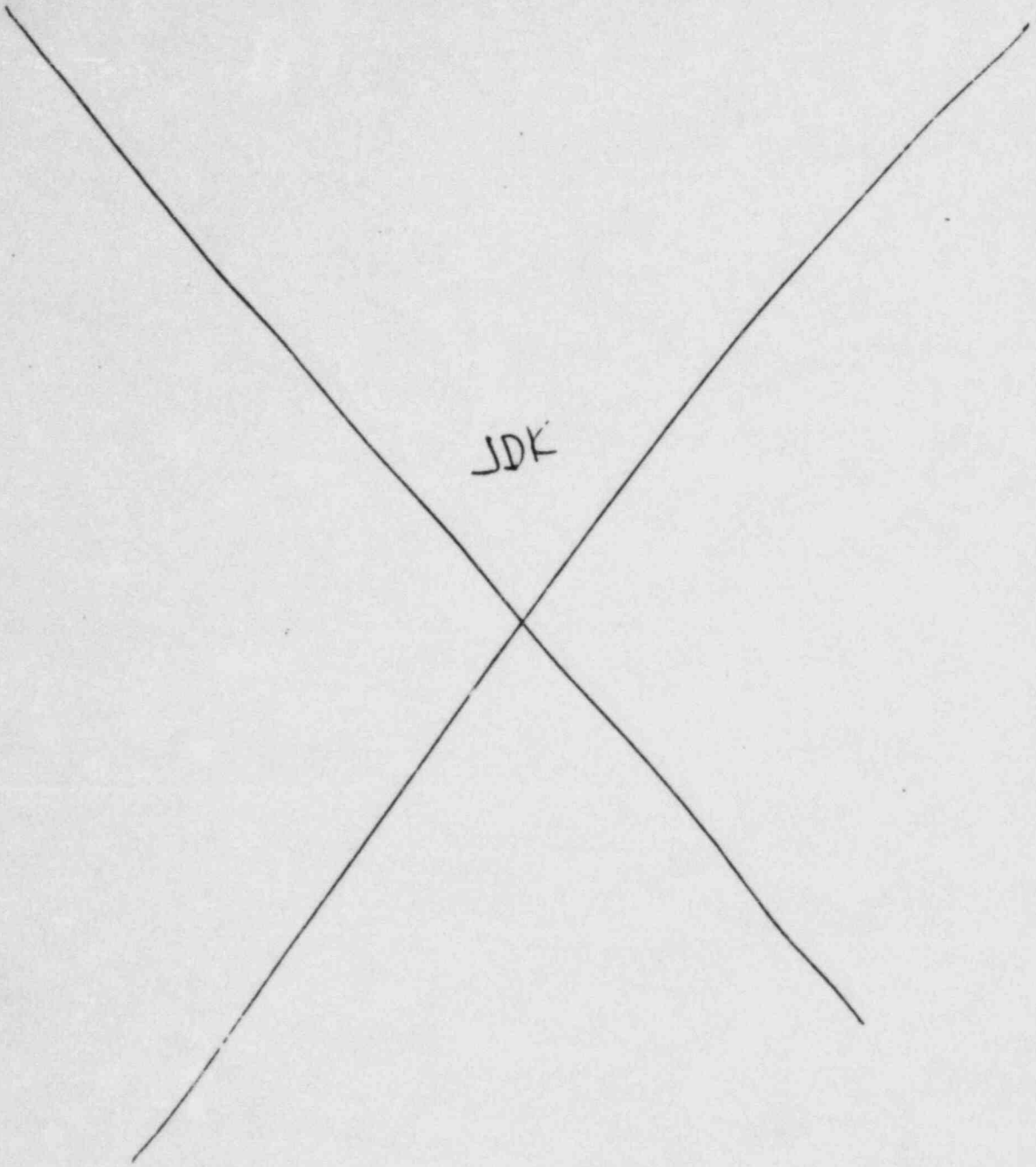
I, Joseph D. Kane, hereby make the following statement to Charles H. Weil, who has identified himself to me as an Investigator of the United States Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

I have been involved with the Midland project since November 1977. My position is Principal Geotechnical Engineer involved with the safety review in the field of geotechnical engineering.

I did attend the March 10, 1982 meeting with Consumers on resolving the underpinning operations that require Q-listing. During the course of the March 10 meeting I do recall a statement by Mr. A. Boos that indicated that monitoring instrumentation had been installed. This statement was given by Mr. Boos as a side comment to the main discussion which was focused on Q-listing of important underpinning operations. In my opinion the statement by Mr. Boos was given as a status of instrumentation installation in a very general sense and was not intended to specifically identify the instrumentation which had already been installed. —

JDK

EXHIBIT XV



JDK

I have read the foregoing statement consisting of 2 pages. I have made any necessary corrections, and I have initialed those corrections. This statement is the truth to the best of my knowledge and belief. I declare under the penalty of perjury that the foregoing is true and correct. Executed on 4/14/82 (Date) at 10:30 a.m. (Time)

Joseph L. Kane
(Signature)

Bethesda, Room P-218
(Address)

Subscribed and sworn to before me this 14TH day of APRIL, 1982 at BETHESDA, MD.

CHARLES H. WEIL

CHARLES H. WEIL, INVESTIGATOR
NRC REGION III, GLEN ELLYN, IL

Midland, MI
(LOCATION)

June 11, 1982
(DATE)

I, Walter Ross Bird, hereby make the following statement to Charles H Weil, who has identified himself to me as an Investigator of the United States Nuclear Regulatory Commission. I make this statement freely with no threats or promises of reward having been made to me.

I am the Manager of the Midland Project Quality Assurance Department. I had discussions with Mr Charles H Weil, an NRC Investigator, on June 8 and June 9, 1982 concerning the status of the installation of the structural monitoring instrumentation for the remedial soils work. Mr Jim Brunner was present during both discussions. This statement summarizes those discussions.

At the time of the March 10, 1982 meeting in Bethesda, I had no actual knowledge of the status of completion of the monitoring instrumentation. It was about one week after that meeting that I learned what the actual progress of the installation was. Prior to this, including the March 10 meeting, I had not participated in any discussion as to the actual extent of the installation with either Midland Project Personnel or NRC Personnel. I had no reason to discuss this subject as it was not relevant in that the subject instrumentation was to come under the Quality Program at the time of system calibration and checkout to verify it was in place and functional. The subjequent operation of the equipment for data gathering was also to be included under the coverage of the Quality Assurance Program. I had no idea that the NRC regarded the status of completion as a major concern.

I had a perception that the status was further along than actually turned out to be the case. This was not based on any conversation with NRC or Midland Project Personnel nor was it based on any specific statement I heard in the March 10, 1982 meeting. As stated to Mr Weil on June 9, my perception was based on the knowledge that Phase II work was scheduled to begin on March 18 (my recollection of the date) and the Project had been working toward resolution of all open items with the staff to support that date.

EXHIBIT XVI

JUN 16

I knew that the instrumentation had to be in place prior to the actual tunneling under the auxillary building, and that starting the drift under the building was one of the initial Phase II steps. Thus without any specific knowledge of the instrumentation status other than that it had been started sometime earlier, it was my assumption that it would have been significantly along to support the Project schedule.

I have read the foregoing statement consisting of 2 pages. I have made any necessary corrections, and I have initialed those corrections. This statement is the truth to the best of my knowledge and belief. I declare under the penalty of perjury that the foregoing is true and correct. Executed on June 11, 1982 (Date) at 8:22 AM. (Time)

Walter R Bird
(Signature)

Consumers Power Company
1945 Parnall Road
(Address)
Jackson, MI 49201

Subscribed and sworn to before me this 11 day of June, 19 82 at Midland Mich.

Velma D Eastman - Notary

My Commission Expires 3-26-83

R. Landsman

RECORD OF TELEPHONE CONVERSATION

DATE: January 11, 1983 @ 2:00 PM PROJECT: Midland
RECORDED BY: Joseph D. Kane

TALKED WITH:

CPC	Bechtel	GEI	NRC
J. Mooney	M. DasGupta	S. Poulos	R. Landsman
J. Schaub	W. Paris		J. Kane
T. Thiruvengadam	R. Wheeler		
K. Razdan	G. Murray		
R. Ramanujam	B. Cwikl		
	J. Darby		
	B. Adler		
	M. Lewis		
	B. Crouse		

PRINCIPAL STAFF			
RA		OI	
D/RA		ENF	
A/RA		SP&I	1/13
DP&RP		PAO	
DEP&OS		SLO	
DE&TP			
ML			
OL		FILE	1/12

ROUTE TO:

J. Knight	H. Singh, COE
G. Lear	S. Poulos, GEI
L. Heller	R. Landsman, Region III
D. Hood	J. Kane

MAIN SUBJECT OF CALL: To discuss background settlement readings - Auxiliary Building Underpinning

ITEMS DISCUSSED:

This call had been arranged at the request of NRC to discuss the background (underpinning had not yet started) settlement records provided to NRC for the period from 8/23/82 to 10/14/82. The records provided were for DSB-AN1, DSB-1E, DSB-2E, DSB-AS4 and DMD-3E and the ambient air temperatures for the same time frame. Region III had requested that HGEB review the background data and provide comments on the apparent upward movement of the EPA which is indicated by the settlement monitoring program.

1. CPC was asked to briefly describe the procedure that was followed to establish the uncorrected and corrected settlement curves which were provided for the deep-seated benchmarks (DSB). The uncorrected curves are based on the recorded LVDT readings. The occasional small triangles plotted on the curves are points established from the back-up dial gages. The corrected curves adjust the uncorrected curves for temperature changes measured at the deep-seated benchmarks (DSB) since the time of initial

JAN 18 1983

installation. Temperature changes are measured at each DSB location at depths of 3 ft, 15 ft and 50 ft through thermocouples which were placed during installation. Minimal changes in temperature are being observed below the upper thermocouple. CPC is to provide the temperature readings with depth to support their position that temperature corrections at DSB-AN1, DSB-AN2 DSB-1E and DSB-1W are not required in the future. The plot of ambient air temperatures which was provided was not used in correcting for temperature variations.

2. During this call the following information was provided by CPC on Δ_1 values (See Drawing C-1493(Q) and prior reports for definition of differential settlement, Δ_1).

Building Monitoring Location	Uncorrected Settlement (in mils as of 1/11/83)	Corrected Settlement (in mils as of 1/11/83)
DSB-AN1 (North Main Auxil.)	68	118
DSB-AS4 (South Main Auxil.)	46	63
DSB-2E (East EPA)	35	43
DSB-3E (Control Tower)	22	44
DSB-2W (West EPA)	27	39

Computed values of Δ_1 that were given include:

DSB-2E: Δ_1 = -18 mils

DSB-3E: Δ_1 = -17 mils

DSB-2W: Δ_1 = -15 mils

DSB-3W: Δ_1 = -10 mils

These values are based on uncorrected readings for DSB-AN1 and corrected readings for the other locations. The minus signs reflects a magnitude of settlement at the EPA and Control Towers less than the Main Auxiliary Building.

3. Additional information provided by CPC included:

Building Monitoring Location	Actual Settlement (corrected) (in mils as of 1/3/83)
DSB-2W	29
DSB-3W	38
DSB-3E	39
DSB-2E	30

Estimated bearing pressures: EPA = 4.5 ksf, Control Tower = 5.2 ksf and Auxil. Bldg. = 9.5 ksf

4. Possible explanations for the larger amount of settlement occurring at the north end of the Main Auxiliary Building were discussed and included:

   a. The heavier loaded Auxiliary Building which rests on glacial till may be picking up additional load from the EPA and Control Tower through cantilever action because the more compressible till beneath the EPA and Control Tower is providing little foundation support.

   b. The EPA is affected more by changes in temperature than the other structures which causes an upward expansion of the EPA. This is reflected as less settlement than the other structures.

   c. The dewatering for underpinning is causing an uneven immediate settlement over a relatively large area in the thick glacial till layer.

5. The NRC Staff and its consultant made the following recommendations for plotting of the settlement data in order to sort out the many variables affecting the settlement readings.

   a. Plot the uncorrected and corrected readings for each monitor location along one line (North Auxil. Bldg. through to Control Tower) at the noon time interval. (On 1/12/83 this was later agreed to be at the midnight interval). Two settlement history plots on standard 11" by 17" graph paper should be developed for each monitoring location. One plot would have both horizontal and vertical (suggested 1 inch = 20 or 40 mils) arithmetic scales and the other plot would graph time in days (1, 10, 100, 1000) on semi-log paper. The temperatures used to correct the data should be plotted on the same graph at the same time interval (Temperature plot needed only on settlement graph plotted to arithmetic scales).

6. CPC indicated the requested settlement plots would be furnished to NRC in about one week's time. This was noted to be acceptable and will permit staff review prior to any site visit for reviewing underpinning progress (now planned for time when pier load test of W11 is being conducted).

7. The staff and its consultant believe the relatively small settlement values and the trends of that data which have been recorded to date are a result of temperature changes. It is felt that if sufficient background data were available, where comparable temperature and seasonal conditions were repeated, that the effects of sustained temperature changes would be clearer. It is also felt that the apparent upward movement of the EPA with respect to the other structures will be quickly reversed as underpinning operations progress beneath its foundation slab. The present trend indicated by the settlement readings is favorable with respect to the settlement acceptance criteria which has been established to control underpinning operations.

8. At the request of R. Ramanujam, CPC, several other items were discussed and included:

   a. CPC plans to explore for buried utilities in advance of drilling the SWPS dewatering wells and soldier piles by using a jet-wash type boring (3-1/2" diameter water pipe) which would be inspected by the Resident Geotechnical Engineer. R. Landsman and J. Kane, NRC, agreed that this type of boring would be acceptable for attempting to locate utilities when performed in foundation soils which would eventually be removed either in underpinning operations or in replacement of service water piping.

      There is a concern when using this type of drilling that the jetting and washing action, if not properly controlled, could cause development of voids and loosening of cohesionless foundation soils. The NRC staff expressed preference for other types of exploratory drilling (e.g., augering) in areas where future foundation stability was required. W. Paris of CPC indicated that this position does give them problems. At the staff's request, CPC is to identify the specific location of proposed borings which will be located in permanent foundation soils required to remain stable. This information will be used to guide the staff in a future response on the use of the jet-wash type boring.

b. R. Landsman indicated that his review of underpinning procedures developed by CPC has identified a problem. The procedures presently indicate that backpacking behind pit excavation lagging is not required when "neat cut" of the pit excavation is made. CPC indicated that the lagging would be essentially in direct contact with the foundation soils when neat cutting was performed. After considerable discussion the major difference became centered on the interpretation of essential and whether the entire length of lagging is required to be in contact, or if short, narrow intermittent voids were acceptable behind lagging. All parties did agree that backpacking should be required, even if neat cutting procedures were used, if sufficient voids behind lagging did exist. It was acknowledged that reasonable judgements will have to be made during construction when faced with widely differing conditions of voids that may run from several inches to several feet in length behind the lagging. It is hoped that the early planned site visit will permit the typical void conditions to be viewed where a consensus of agreement can be reached.

9. An additional call from J. Kane to R. Landsman and K. Razdan on 1/12/83 requested that settlement be plotted vertically downward in the conventional engineering manner on the settlement history plots which CPC has agreed to provide. In addition CPC agreed to provide the background readings for the extensometers and strain monitoring devices.

Landsman

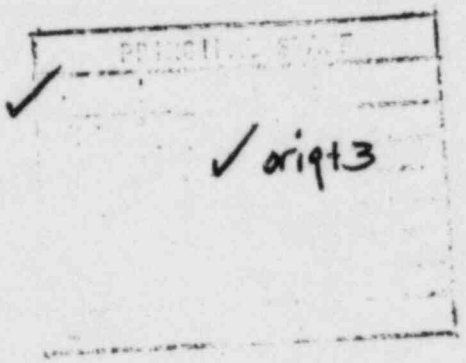
55

Consumers Power Company

James W Cook
Vice President - Projects, Engineering and Construction

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

January 10, 1983



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

MIDLAND NUCLEAR COGENERATION PLANT
MIDLAND DOCKET NOS 50-329, 50-330
CONSTRUCTION COMPLETION PROGRAM
FILE 0655 SERIAL 20428

REFERENCE LETTER TO J W COOK, DATED DECEMBER 30, 1982, FROM NRC REGION III REGARDING CONSTRUCTION COMPLETION PROGRAM

On December 2, 1982, Consumers Power Company met with Mr Warnick and other members of your staff to discuss the general concept of our proposed Construction Completion Program. The enclosure to this letter documents in detail the Construction Completion Program, as requested at the meeting and in your follow up letter (Reference).

Since our meeting, the program has undergone considerable development and evolution. Details have been supplied and more specific objectives and implementing methods have been established. Further details are still being developed. While the Company expects the Program, as presently constituted, to be a workable and sufficient framework for future action, revisions may be necessary as future needs and experience dictate.

The Construction Completion Program is a positive step in the overall advancement of Project goals. It represents the best efforts of Project management, support and quality assurance personnel. We believe it will produce an improvement in Project installation and inspection status, systems construction and QA implementation. The quality verification effort should provide increased confidence of the NRC that the plant has been properly built. Other aspects of the Program, including the measure to improve ongoing inspections and scheduling interfaces, should contribute to that result. This Program, together with recent Consumers Power Company commitments regarding quality assurance and remedial soils work, can establish a basis for improved relations between the Company and the NRC Region group assigned to inspect Midland. The Construction Completion Program demonstrates the Company's responsiveness to both NRC concerns and the particular needs of this Project. It is our expectation that the Program, created out of a desire to enhance the

JAN 11 1983

orderliness and quality of construction, will achieve its intended purpose and lead to the successful "completion of construction" of the Midland Plant in accordance with regulatory requirements.

We hope that this submittal fulfills your request for written information regarding the Construction Completion Program. Consumers Power Company is prepared to support the public meeting proposed for January 26, 1983 in Midland, Michigan.

James W. Cook

JWC/DMB/cl

CC Atomic Safety and Licensing Appeal Board
CBechhoefer
FPCowan, ASLB
JHarbour, ASLB
DSHood, NRC
MMCherry
RWHernan, NRC
RJCook, Midland Resident Inspector
FSKelley
HRDenton, NRC
WHMarshall
WDPaton, NRC
WDShafer, NRC
RFWarnick, NRC
BStamiris
MSinclair
LLBishop

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

Letter Serial 20428 Dated January 10, 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 its Construction Completion Program.

CONSUMERS POWER COMPANY

By J W Cook
J W Cook, Vice President
Projects, Engineering and Construction

Sworn and subscribed before me this 10th day of January, 1983

Patricia A Supper
Notary Public
Bay County, Michigan

My Commission Expires 3-4-86

oc0183-0308a100

Construction Completion Program
Executive Summary

The Construction Completion Program has been formulated to provide guidance in the planning and management of the design and quality activities necessary for completion of the construction of the Midland Nuclear Cogeneration Plant. Construction completion is defined in this Plan as carrying all systems to the point they are turned over to Consumers Power Company for component checkout and preoperational testing. The Construction Completion Program does not include the Remedial Soils Program which is treated in separate interactions between Consumers Power Company and the Nuclear Regulatory Commission.

Background

The Construction Completion Program was developed in response to a number of management concerns that have been identified during the period preceding the initiation of the Program. The Midland Project had been proceeding at a high level of activity as it approached completion. The final transition from area construction to system completion, using punch lists, has been difficult for most nuclear projects. The Midland Project has not escaped these difficulties which have been compounded due to the congested space and the continuing numerous design changes, both generally attributable to the age of the Project. These factors lead to the need for improved definition of work status, increased emphasis on overall Project objectives as well as continued focus of construction and inspection resources on completion of systems for short-term milestones and increased effort to complete engineering ahead of field installation.

The Midland Project has been criticized by the NRC regional office as not having met their expectations for implementation of the Project's Quality Assurance Program. The result has been that the Project management has too often, during the past few months, been in a reactive rather than proactive posture with regard to quality assurance matters.

In recognition of these conditions, management has concluded that a change in approach was needed to effectively complete the Project while maintaining high quality standards.

Objectives

The development of the Program has considered the Project's current status and recent history and attempts to address the underlying or root causes of the problems currently being experienced. In order to develop the Program the following overall objectives were established under three general headings. The Program must:

Improve Project Information Status By:

- Preparing an accurate list of to-go work against a defined baseline.

- Bringing inspections up-to-date and verifying that past quality issues have been or are being brought to resolution.

- Maintaining a current status of work and quality inspections as the Project proceeds.

Improve Implementation of the QA Program By:

- Expanding and consolidating Consumers Power Company control of the quality function.

- Improving the primary inspection process.

- Providing a uniform understanding of the quality requirements among all parties.

Assure Efficient and Orderly Conduct of the Project By:

- Establishing an organizational structure consistent with the remaining work.

- Providing sufficient numbers of qualified personnel to carry out the program.

- Maintaining flexibility to modify the Plan as experience dictates.

Description

The Construction Completion Program entails a number of major changes in the conduct of the final stages of the construction process and can be described in summary as a two-phase process.

First, after certain necessary preparations, the safety-related systems and areas of the plant will be systematically reviewed. This first phase will be carried out on an area-by-area basis, but will be accomplished mainly by teams organized with systems responsibility and a separate effort to verify the completed work. The product from this phase of the program will be a clear status of remaining installation work and a current inspection status which provides quality verification of the existing work. The teams organized to carry out this first phase will continue to function in the second phase as the responsible organizational units to the complete the work.

In order to achieve its complete set of objectives, the Program contains a number of activities and elements that support and are linked to the two major phases described above. The major components of the Plan, which are discussed in more detail in the balance of this report, can be described as follows:

- A significant reduction in the construction activity in the safety-related portion of the plant, material removal and a general cleanup will be carried out in preparation for installation and inspection status assessment and quality verification activities.

- A review will be made of equipment status to assure that the proper lay-up precautions have been implemented to protect the equipment until the installation work is completed.

- The integration of the Bechtel QC function into the Midland Project Quality Assurance Department (MPQAD) under Consumers Power Company management will be completed.

- The Consumers Power Company is carrying out recertification program of Bechtel QC inspectors, and a review of the inspection procedures to be utilized.

- The system completion teams will be organized, staffed and trained according to procedures developed to define the team's work process.

- The systems completion teams will 1) accomplish installation and inspection status assessment, 2) perform systems construction completion and construction quality performance and 3) determine that all requirements have been met prior to functional turnover for test and operation.

- Quality verification of completed work will be carried out in parallel with installation and inspection status activities of the system completion teams.

- A series of management reviews will be carried out to carefully monitor the conduct of the Program and to revise the plan as appropriate.

- Review and resolution will proceed on outstanding issues related either to QA program or QA program implementation as raised by the NRC or third party overviews of the Project.

- Third party reviews will be undertaken to monitor Project performance and to carry out the NRC's requirements for independent design verification.

Schedule Status

The Program was initiated on December 2, 1982 by limiting certain ongoing safety-related work and starting preparations for the phase-one work of status assessment and quality verification activities. Since the Program also has incorporated a number of commitments made to the NRC during the past few months, activities in support of these commitments such as QC integration into MPQAD and the recertification of QC inspectors, had been initiated prior to December.

Status and schedules for each element of the Plan are enumerated in the text. In general, preparation for the Phase 1 activities are underway and will continue through January. A pilot team to develop the procedures and training requirements will be initiated during January. It is expected that the first

areas to undergo Phase 1 status assessment will be defined and teams mobilized during March.

Quality verification of completed work will start in late January or early February.

The Program provides for the Phase 1 results on a system or partial system to be reviewed and evaluated prior to initiating Phase 2 system completion work on that system or partial system. Management will monitor both process readiness and Phase 1 evaluation results.

The major areas of continuing safety-related work are NSSS construction as performed by B&W Construction Co, HVAC work under the Zack subcontract, the Remedial Soils Program and post-turnover punch list work released to Bechtel construction by Consumers Power Company. The Zack work is currently limited until a recently identified question on welder certification is resolved.

During the implementation of the Program in 1983, the NRC Resident Inspectors can use the Plan to monitor safety-related construction activities at the site. Since a substantial portion of the Plan directly relates to commitments made to NRC management, Consumers Power Company intends to schedule periodic reviews of Program status and progress with the NRC.

TABLE OF CONTENTS

1.0 INTRODUCTION

The Construction Completion Program has been formulated to provide guidance in the planning and quality activities necessary for completion of the construction of the Midland Nuclear Cogeneration Plant. Construction completion is defined in this Plan as carrying all systems to the point they are turned over to Consumers Power Company for component checkout and preoperational testing. The Construction Completion Program does not include the Remedial Soils Program which is treated in separate interactions between Consumers Power Company and the Nuclear Regulatory Commission. The Construction Completion Program will be referred to as the Program in this document which contains the Plan for Program development and implementation.

Background

The Construction Completion Program is being developed in response to a number of management concerns that have been identified during the period preceding the initiation of the Program. The Midland Project had been proceeding at a high level of activity as it approached completion. The final transition from area construction to system completion, using punch lists, has been difficult for most nuclear projects. The Midland Project has not escaped these difficulties which have been compounded due to the congested space and the continuing numerous design changes, both generally attributable to the age of the Project. These factors lead to the need for improved definition of work status, increased emphasis on overall Project objectives as well as continued focus of construction and inspection resources on completion of systems for short-term milestones and increased effort to complete engineering ahead of field installation.

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In recognition of these conditions, Consumers Power Company has concluded that a change in approach is needed to effectively complete the Project while maintaining high quality standards.

Objectives

The development of the Program has considered the Project's current status and recent history and attempts to address the underlying or root causes of the problems currently being experienced. In order to develop the Program, the following overall objectives were established under three general headings. The Program must:

Improve Project Information Status By:

- Preparing an accurate list of to-go work against a defined baseline.

- Bringing inspections up-to-date and verifying that past quality issues have been or are being brought to resolution.

- Maintaining a current status of work and quality inspections as the Project proceeds.

Improve Implementation of the QA Program By:

- Expanding and consolidating Consumers Power Company control of the quality function.

- Improving the primary inspection process.

- Providing a uniform understanding of the quality requirements among all parties.

Assure Efficient and Orderly Conduct of the Project By:

- Establishing an organizational structure consistent with the remaining work.

- Providing sufficient numbers of qualified personnel to carry out the Program.

- Maintaining flexibility to modify the Plan as experience dictates.

PLAN CONTENTS

The Program was initiated on December 2, 1982 by limiting on-going work on Q-systems to pre-defined tasks and preparing the major structures housing Q-systems for an installation and inspection status assessment and verification of completed work. The relationship of the major elements of the Plan is shown in Figure 1-1. The sections of the Plan address the following major activity areas:

PREPARATION OF THE PLANT (Section 2.0)

The buildings are being prepared for a status assessment and verification of completed work.

QA/QC ORGANIZATION CHANGES (Section 3.0)

A new QA organization that integrates the QA and QC functions under a Consumers Power Company direct reporting relationship is being established. As a part of this transition, the Bechtel QC inspectors are being recertified to increase confidence in the quality inspection performance.

PROGRAM PLANNING (Section 4.0)

The overall Plan for the Program is being developed in two major phases.

The first phase includes:

- A team organization assigned on the basis of systems is being developed to determine present installation and inspection status. The inspection status assessment includes performing inspections on completed work to bring them up to date. A closely coordinated effort involving the construction contractor and Consumers Power Company (QA/QC, testing and construction) will improve quality performance.

- The quality verification of completed work will be based, in part, on a sampling technique using re-certified inspectors as described in Section 3.0.

The second phase includes:

- Following installation and inspection status assessment the team organization will retain responsibility for systems completion work.

- The QC inspection process of new work will be integrated with the systems completion work to ensure adequate quality performance.

PROGRAM IMPLEMENTATION (Section 5.0)

The first phase implementation of the Program will be initiated with a review of the process, procedures and team assignments that will be used. The plan for verification of completed work will be reviewed separately. The teams will conduct the installation and inspection status assessment; verification of completed and inspected work will proceed, as planned, in coordination with the team effort. Following phase 1 completion of the first work segment, a management review of the plan effectiveness will be made.

In second phase Program implementation, the assigned team will plan and schedule the remaining work needed for completion including QC inspections.

QUALITY PROGRAM REVIEW (Section 6.0)

The adequacy and completeness of the quality program will be reviewed on an ongoing basis, taking into consideration questions raised by NRC inspections and findings by third party reviewers. The results of these reviews will be considered as part of the management review that are a part of the Program implementation (Section 5).

THIRD PARTY REVIEWS (Section 7.0)

Independent assessments of the Midland Project will provide management and NRC with evaluations of Project performance.

SYSTEM LAY-UP (Section 8.0)

The on-going work to protect plant equipment and systems will be augmented as necessary to provide adequate protection during implementation of this Plan.

CONTINUING WORK ACTIVITIES (Section 9.0)

Section 9.3

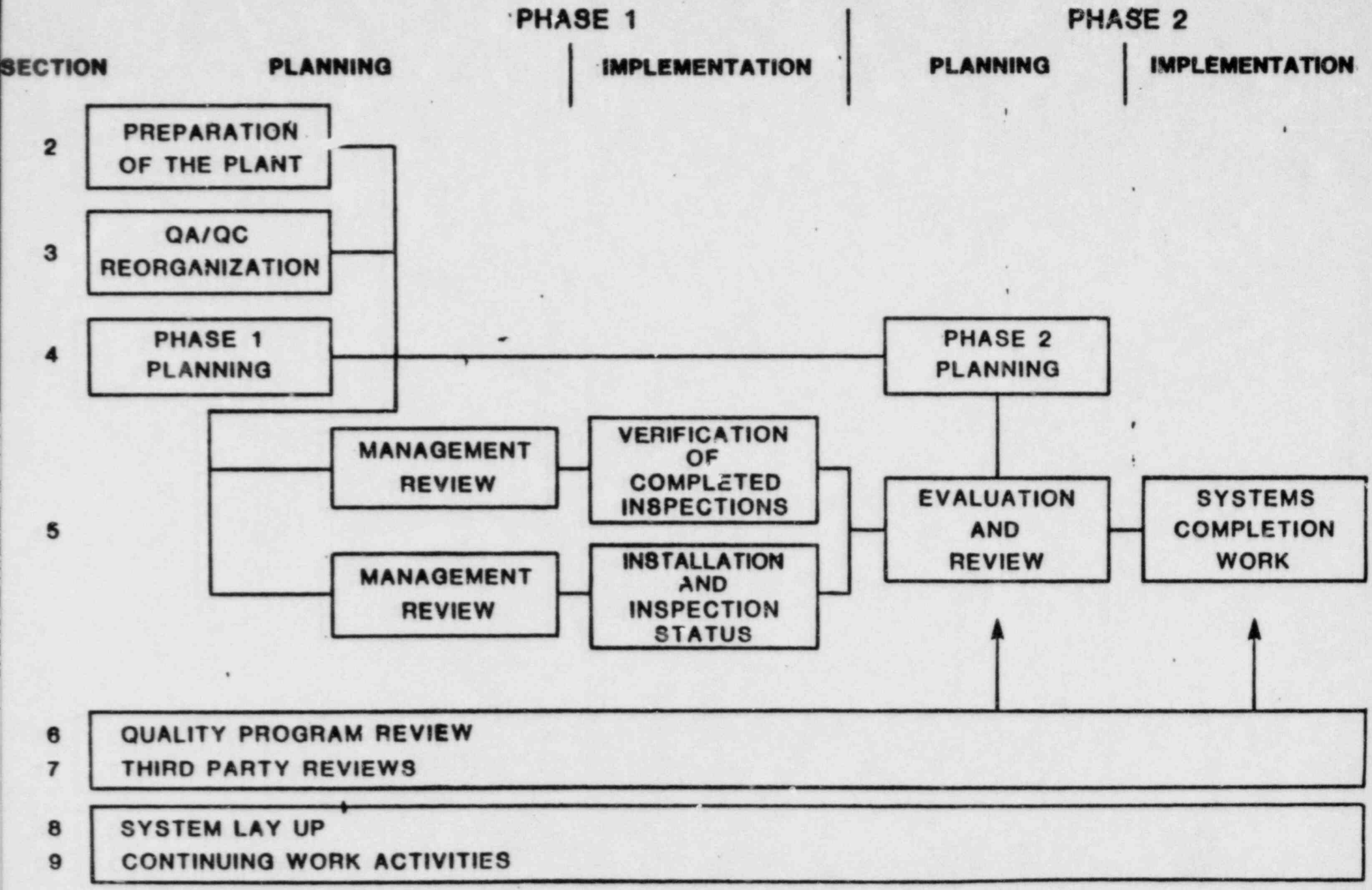
Work on Q-Systems has been limited to specific activities. This limitation permits important work to proceed while allowing building preparation for status assessment and verification activities.

SUMMARY

Each section of this Plan presents detailed objectives, a description of the activity involved, and a schedule for achieving major milestones. The Program, however, is still in an evolutionary state and revisions to the Plan may be necessary as Consumers Power Company gains experience in the implementation of Program elements.

FIGURE 1-1

CONSTRUCTION COMPLETION PROGRAM SCHEMATIC



2.0 PREPARATION OF THE PLANT

2.1 Introduction

The preparation of the Plant will clear the auxiliary, diesel generator and containment buildings and the service water pump structure of materials, construction tools and equipment and temporary construction facilities.

2.2 Objective

To allow improved access to systems and areas for the Program activities.

2.3 Description

The preparation activities minimize obstacles and interferences for the Program activities. This is being accomplished through the following steps.

1. Limitation of Q-work to activities and areas defined in Section 9 resulting in substantial work force reduction.

2. Removal and storage of construction tools and equipment, and temporary construction facilities (scaffolding, etc) from the buildings identified in Section 2.1.

3. Removal, control and storage of uninstalled materials from the buildings identified in Section 2.1.

4. Appropriate housekeeping of all areas following material and equipment removal.

The preparation for each area will be complete before initiating further Program activity. The on-going work described in Section 9 will continue as scheduled during the preparation.

2.4 Schedule Status

The preparation of the Plant began on December 2, 1982. It will be complete by January 31, 1983.

Keppler & Downes 6 - Testimony in Aug before Congress

3.0 QA/QC ORGANIZATION CHANGES

3.1 Introduction

The Consumer Power Company's Midland Project Quality Assurance Department (MPQAD) is being expanded to assume direct control of Bechtel QC activities. The new organization and the plan for the transition are described below. The transferred QC Inspectors will be recertified as part of this transition.

3.2 Objectives

Establish New QA/QC Organization

Establish an integrated organization which includes the transition of Bechtel QC to MPQAD while accomplishing the following objectives:

1. Establish direct Consumers Power Company control over the QC inspection process.

2. Establish the responsibilities and roles of the QA and QC Departments in the integrated organization.

3. Use qualified personnel from existing QA and QC departments and contractors to staff key positions throughout the integrated organization.

Recertify QC Inspectors

Ensure that those Quality Control inspection personnel transferring to MPQAD from Bechtel will be trained and recertified in accordance with MPQAD Procedure B-3M-1.

3.3 Description

Drawing revisions Traceability

Establish New QA/QC Organization

A new organization will be implemented under Consumers Power Company and will be described in appropriate Topical Reports (CPC-1A and BQ-TOP-1) and quality program manuals (Volume II, BQAM and NQAM). Changes to these documents will be submitted to NRC.

Features of the new organization include:

1. Lead QC Supervisors report directly to a QC Superintendent who reports to the MPQAD Executive Manager. Any required support from Bechtel Corporate QC and QA functions (except ASME N-Stamp activities) is provided at the level of the MPQAD Executive Manager.

2. The MPQAD Executive Manager will review the performance of lead personnel in his department.

3. QA will develop and issue Quality Control inspection plans and be responsible for the technical content and requirements of such plans. QC will be responsible to implement these plans.

4. QA will continue to monitor the Quality Control inspection process to insure that program requirements are satisfactorily implemented.

5. MPQAD will continue to use Bechtel's Quality Control Notices Manual (QCNM) and Quality Assurance Manual (BQAM) as approved for use on the Midland Project.

6. ASME requirements imposed upon a contractor as N-Stamp holder will remain with that contractor. MPQAD QA will monitor the implementation of ASME requirements.

An organization chart (Fig 3-1) showing reporting relationships in the new organization is attached.

Recertify QC Inspectors

The training and recertification process for QC inspectors has been revised to include commitments made during the September 29, 1982 public meeting with the NRC. Those inspectors transferred from Bechtel to MPQAD will be trained and examined in accordance with MPQAD Procedure B-3M-1. Upon satisfactory completion of the training and examination requirements, inspection personnel will be certified for the Project Quality Control Instruction(s) (PQCI(s)) they are to implement. Inspection personnel will be certified on a schedule which supports ongoing work and system completion team activities.

3.4 Schedule Status

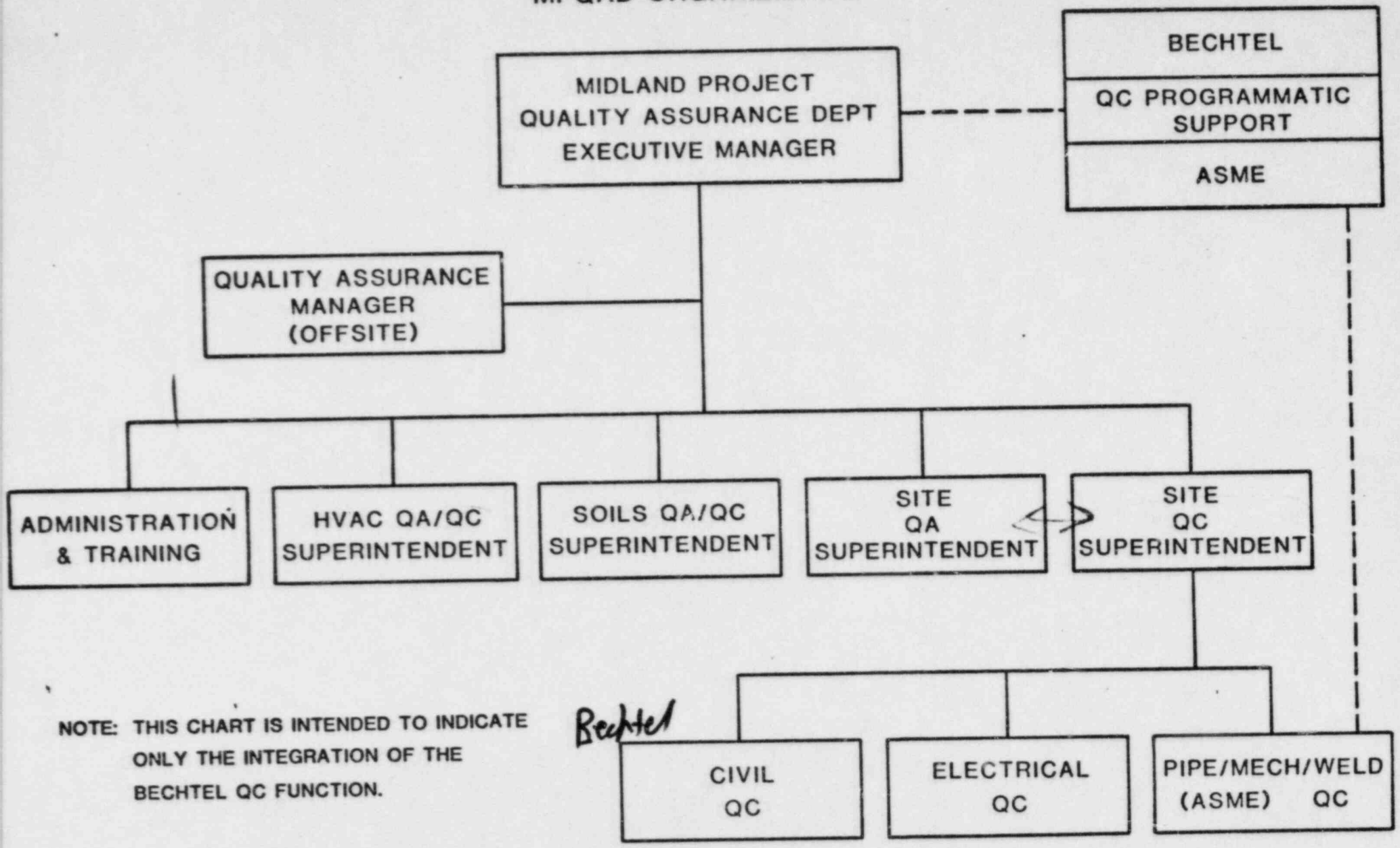
Establish New Organization

Advise NRC of the structure of the integrated organization.	12/15/82
Transfer the Bechtel QC Organization to MPQAD.	1/17/83
Submit changes to Topical Reports and quality program manuals to NRC.	2/17/83

Recertify QC Inspectors

Specify the revised training and examination requirements for certification (B-3M-1).	10/25/82
Complete recertification	4/01/83

FIGURE 3-1
MPQAD ORGANIZATION



NOTE: THIS CHART IS INTENDED TO INDICATE ONLY THE INTEGRATION OF THE BECHTEL QC FUNCTION.

4.0 PROGRAM PLANNING

4.1 Introduction

The detailed planning for the major portion of the Construction Completion Program is described in this section.

Planning in support of Phase 1 consists of the activities to set up a team organization to assess the installation and inspection status of Q-systems within major structures (Section 4.2) and to verify the adequacy of completed inspection effort (Section 4.3).

The Phase 2 planning effort covers the process and procedures that will be used by the team organization for systems completion work (Section 4.4). The procedures to integrate the quality program requirements with continuing systems completion work will be developed (Section 4.5).

4.2 Team Organization (Phase 1)

4.2.1 Introduction

Organize and train teams and prepare procedures for an installation and inspection status assessment.

4.2.2 Objective

1. Establish and implement a team organization ready to inspect and assess systems for installation and inspection status.

2. Develop the organizational processes and procedures necessary to implement the team approach for status assessment.

3. Provide training to ensure required inspection and installation status assessment activities are satisfactorily performed.

4.2.3 Description

1. The team organization structure will vary depending upon the assigned scope of work. The organization will consist of a team supervisor and personnel as appropriate from field engineering, planning, craft supervision, project engineering, MPQAD and Consumers Power Company Site Management Office. The team may be augmented by procurement personnel, subcontract coordinators and turnover coordinators.

   Teams will be assigned a specific scope of work and held accountable for status assessment and overall completion within this scope. The scope includes the requirements

to develop a viable working schedule and insure early identification and resolution of problem areas. Project processes and procedures will be reviewed and modified to incorporate the team organization. The team MPQAD representative is responsible for providing the QA/QC support for the team. He receives scheduling direction from the Team Supervisor and technical direction from MPQAD. For his team's work, he analyzes the quality requirements and plans the QC activities to integrate them with the team effort. He assures the necessary PQCI's and certified inspection personnel are available for performing the inspections. He maintains cognizance of the quality status of the verification activities.

The Washington Nuclear Plant #2 (WNP-2) team organization will be used as a starting point for a Midland specific approach.

A pilot team or teams will be utilized to develop and test processes and procedures during the development stage to assure that Program objectives can be met. This will also provide practical field input to assure that efficient and workable methods are used.

Team members will be physically located together to the extent practicable to improve communication, status assessment, problem identification and problem resolution.

2. Training for inspection and installation status assessment will be provided to team members. It will include responsibilities, reporting functions, indoctrination of project processes and procedures and familiarization with the project quality program to ensure effective implementation.

3. A separate organization of design engineers (presently existing) will coordinate spatial interaction, review and examination with the activities of these teams.

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4.2.4 Schedule Status

. Designate pilot team.	1/21/83
. Complete grouping of systems for assignment to teams.	2/28/83
. Complete assignment of team supervisors and members to designated systems.	3/31/83

4.3 Quality Verification (Phase 1)

4.3.1 Introduction

The verification program is the activity undertaken to determine, using a variety of methods, that the inspections performed on completed work were done correctly.

4.3.2 Objectives

The objectives of the verification program are to:

- Review existing PQCI's and revise as necessary to assure that:
  - a. Attributes important to the safety and reliability of specific components, systems, and structures are identified for verification.
  - b. Accept/reject criteria are clearly identified.
  - c. Appropriate controls, methods, inspection and/or testing equipment are specified.
  - d. Requisite skill levels are required per ANSI N45.2.6 or SNT-TC-1A.
- Develop and implement verification inspection plan for completed work which considers:
  - a. Re-inspection of accessible items.
  - b. Review of documentation for attributes determined to be inaccessible for re-inspection.
  - c. Sampling techniques using national standards.

4.3.3 Description

PQCI's will be revised as necessary to meet the objectives in Section 4.3.2. Verification of the quality of accessible completed contruction, which has been previously inspected will be performed by use of sampling plans based on MIL-S-105D (1963) or other acceptable methods. Attributes determined to be inaccessible for direct re-inspection due to embedment or the status of completed construction or installation (eg, weld preparation of completed welds, reinforcement in placed concrete, installed anchor bolts, etc) will be verified as appropriate, by examination of records.

4.3.4 Schedule Status

- Complete review and revision of PQCI's. (Date to be determined.)
- Establish verification inspection plan for completed work. (Date to be determined.)

4.4 System Completion Planning (Phase 2)

4.4.1 Introduction

Establish the processes for system completion, prepare procedures and expand training to cover systems completion work.

4.4.2 Objective

The objectives of the systems completion planning are as follows:

- Establish processes and interfaces for system completion.
- Prepare procedures defining tasks of each system completion team.
- Train team members by expanding upon training received previously for inspection and status assessment.
- Establish scheduling methods to be used during system completion activities.

4.4.3 Description

The team organization (developed in Section 4.2) and the processes and procedures will be extended to accomplish the systems completion work.

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- Training will be conducted to assure that supervisors understand the team objectives and their role. Emphasis will be placed on completion of all work in accordance with the design requirements, the change control process used when the design must be modified, and changes to the established team processes and procedures.

4.4.4 Schedule Status

- Complete team preparation for systems completion work. (Date to be determined.)

4.5 QA/QC Systems Completion Planning (Phase 2)

4.5.1 Introduction

The QA/QC systems completion activity covers the planning to support of system completion work.

4.5.2 Objectives

Establish in-process inspection program and complete review and modification of PQCIs.

4.5.3 Description

The QC in-process inspection program will be directly coordinated with future installation schedules to insure that inspection points, identified by MPQAD QA in the PQCI's, are integrated with the installation schedule. The identification of applicable PQCI's and required inspection points will be used by system completion teams to insure that QC inspections are adequately scheduled into the process. The system completion team quality representative will be responsible for providing the link between the system completion team and MPQAD to insure that quality requirements are satisfied.

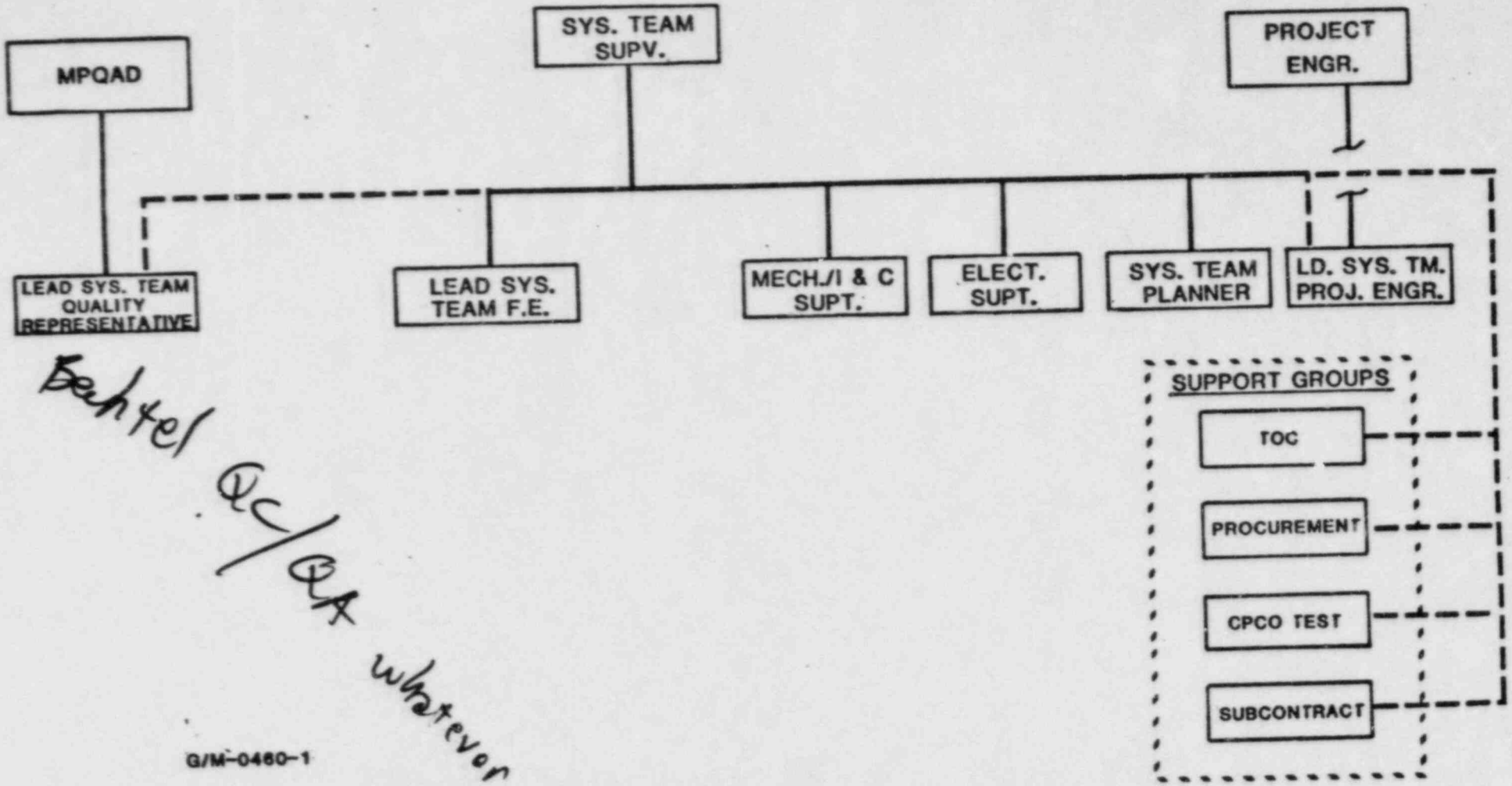
PQCI's will be reviewed, and modified as necessary, to insure that proper attributes are being inspected, that inspection plans are clear and concise, that inspection points are specifically scheduled with installation activities and that inspection results are properly documented. MPQAD QA will be responsible for the PQCI review activity and will obtain assistance, as required, from other project functions, such as Project Engineering and Quality Control. Revised PQCI's will be used to conduct inspection of future installation activities.

4.5.4 Schedule Status

Issue procedure for integrating inspection points into the construction schedule. 2/22/83

FIGURE 4-1

CONCEPTUAL TEAM ORGANIZATION



5.0 PROGRAM IMPLEMENTATION

5.1 Introduction

The implementation of the Phase 1 Construction Completion Program activities will be initiated after a management review of the overall process insures that Project performance and quality objectives have been addressed. The Phase 1 work will then be carried out by the various teams in accordance with the procedures described in the preceding sections. The installation and inspection status assessment of a system or partial system will be followed by a review of results by MPQAD and a second management review before initiating the Phase 2 systems completion work. The Phase 2 work will then be initiated on that system or partial system.

5.2 Objectives

The objectives to be met are:

- Establish the present installation completion and quality status.
- Integrate the construction and quality activities for all remaining work.
- Improve performance in demonstrated conformance to quality goals in all system completion work.

5.3 Description

Management Reviews

Project management will conduct formal review of the plans for implementation activities prior to initiation of team activities for the Phase 1 work. These reviews will ensure that identified project management and quality issues have been adequately addressed by specific actions and that Program objectives are met. The reviews will cover the process for both 1) the verification of completed inspection activity and 2) the installation and inspection status activity.

The installation and inspection status assessment will be performed on a system and/or area basis. Phase 2 is initiated after a formal Project management review of the first status assessment results to evaluate implementation effectiveness. After completion of this review, a work segment will be released for systems completion. Subsequent status assessment results will be reviewed by site management prior to initiation of additional systems completion segments. Reports will be made to Project management at regularly scheduled meetings.

Phase 1 Implementation

The existing installation and inspection status will be established in accordance with the plan presented in Section 4.

Evaluate Phase 1 Results

MPQAD will review the status assessment results to determine if any programmatic or implementation changes must be made. Verification scope will be adjusted, as necessary, based on evaluation results. Also, the evaluation will check for reportability to the NRC (as required by 10 CFR 50.55(e)) and Part 21.

Phase 2 Implementation

This activity starts systems completion for turnover. Work will be scheduled as installation and inspection status assessments are completed and reviewed. Correction of identified problems will be given priority over initiation of new work, as appropriate, and the system completion teams will schedule their work based on these priorities.

NRC Deadlines

5.4 Schedule Status

- Complete Management review and initiate implementation of plan for verification of completed inspections. (Date to be determined.)
- Complete Management review and initiate implementation of plan for status assessment. (Date to be determined.)
- Complete Management review of initial installation and inspection status results and initiate systems completion work. (Date to be determined.)

6.0 QUALITY PROGRAM REVIEW

6.1 Introduction

The adequacy and completeness of the quality program is reviewed as part of the ongoing Project management attention to quality. These reviews consider any questions raised by NRC inspections or findings raised by third party evaluations.

6.2 Objective

Address issues raised by internal audits, NRC inspections and third party assessments. Program changes, if needed, will be evaluated and, as findings are processed, will be factored into the Project work.

6.3 Description

Consumers Power Company believes Midland QA program is sound. From time to time, questions arise on detailed aspects of the program or program implementation. The normal process of addressing these issues ensures that all necessary information is provided to NRC and that internal confidence in the program is maintained.

The recent inspection of the diesel generator building has raised several issues of programmatic concern. These are in the areas of material traceability, design control process, Q-system related requirements, document control and receipt inspection. Project management has directed that MPQAD provide an expeditious evaluation of these issues to be considered as part of the management review prior to initiation of Phase 2. Once the NRC inspection report is received and specified items are identified, these items will be addressed and resolved through the normal process of closing the inspection findings. Any corrective action or program changes will be implemented as appropriate in Project work on a schedule provided in the inspection report response.

The Project will also receive, from time to time, findings from third party assessments (Section 7). These findings or recommendations may also result in program modification or adjustments. Corrective action taken by the Project will be implemented on a schedule stated in the response to these findings.

7.0 THIRD PARTY REVIEWS

7.1 Introduction

This section describes third party evaluations and reviews that have been performed and are planned to assess the effectiveness of design and construction activity implementation. Third party reviews being conducted as part of the Remedial Soils Program are not included in this activity.

7.2 Objectives

To assist in improving Project implementation and assessment of Midland design and construction adequacy, consultants will be utilized in order to:

- Achieve a broad snapshot of current Project practices and performance in relation to a national program.
- Provide continuous monitoring and feedback to Management of Project performance.
- Identify any activities or organizational elements needing improvement.
- Improve confidence (including the NRC's and the public's) in overall Project adequacy.

7.3 Description

The use of consultants to overview Project design and construction activities with particular emphasis on construction is part of the effort to improve the Project's implementation of the quality program. Specifically, the plan overview employs the use of consultants for three separate functions: (1) To carry out a self-initiated evaluation (SIE) of the entire Project under the INPO Phase I program, (2) to utilize a third party overview of ongoing site construction activities to provide monitoring of the degree of implementation success achieved under the new program and (3) to conduct a third party Independent Design Verification (IDV) Program.

1. The INPO self-initiated evaluation was planned as part of an industry commitment to the NRC in response to concerns over nuclear plant construction quality assurance. For the Midland SIE, the evaluation was contracted to be carried out entirely by third party, experienced personnel from the Management Analysis Company.

   The evaluation was performed by a team of 17 consultants familiar with the INPO criteria and evaluation methodology. Over a period of a month they interviewed Project personnel at various locations and observed work in progress. The initial results of their evaluation have been presented to the Company

and a Project response to each finding will be prepared and included as part of the evaluation report to be submitted first to INPO and then to the NRC Region III Administrator, together with the INPO overview.

2. A third-party installation implementation overview is being undertaken using, as a model, the program developed specifically for the underpinning portion of the soils remedial work. The overview will be initiated by retaining an independent firm, having considerable experience and depth of personnel in the nuclear construction field. The consultant's overview team will be located at the Midland Plant site and will observe the work activities being conducted in accordance with this Plan on safety-related systems. The overview will continue for a period of six months, after which the Project's cumulative performance will be evaluated. Based on the overview team's findings, a determination will be made by the Company's top management on what modification, if any, should be made to the consultant's scope of work. Findings identified by the installation overview team will be made available to the NRC in accordance with the procedures established for the conduct of independent verification programs.

3. An Independent Design Verification (IDV) is being conducted by Tera Corporation.

   The IDV is directed at verifying the quality of design and construction for the Midland Plant. The approach selected is a review and evaluation of a detailed "vertical slice" of the Project design and construction. The design and as-built configuration of two selected safety systems will be reviewed to assure their adequacy to function in accordance with their safety design bases and to assure applicable licensing commitments have been properly implemented. The field work done in support of this activity will not take place until after Phase I implementation (Section 5) has been completed on the systems being reviewed.

   The Unit 2 Auxiliary Feedwater System (AFW) plus another system to be selected with NRC concurrence, will be reviewed to fulfill the requirements of the IDV.

7.4 Status/Schedule

1. INPO Construction Project Evaluation

Select consultant and conduct evaluation	Complete
Submit report to INPO	Jan 20, 1983

2. Independent Construction Overview

Define scope	Dec 30, 1982
Select consultant	Jan 31, 1983
Mobilize assessment team	(Date to be determined)
Receive assessment team report	(Date to be determined)

3. IDV

Select 2 Systems .AFW System .Obtain NRC concurrence for second system.	Complete (Date to de determined)
Complete Evaluation	(Date to be determined)

8.0 SYSTEM LAYUP

8.1 Introduction

Perform system lay-up activities to protect plant equipment.

8.2 Objectives

Expand the protection of completed and partially completed plant systems and components until plant start-up, to take into account any special considerations during the status assessment.

8.3 Description

Procedures and instructions are provided in the Testing Program Manual to protect equipment during the on-going installation and test work. These will be extended to cover special considerations associated with the Program implementation. Both the pre- and post-turnover periods are covered. System and component integrity is ensured through existing programs and implementation of control and verification procedures.

In summary, these procedures and instructions require: Test Engineers to complete walkdowns of Q-Systems (in the auxiliary, diesel generator and containment buildings and the service water pump structure), paying particular attention to systems/components that are open to the atmosphere (eg open ended pipes, open tanks, missing spools, disconnected instrument lines, etc). Systems that have been hydrotested but are not currently in controlled layup require action to place the system in layup. Layup will vary from system to system but in general will consist of air blowing to remove moisture and closing the system from the atmosphere.

8.4 Schedule/Status

. Start extended layup activities	1/15/83
. Issue walk down schedules	1/15/83
. Complete the layup preparation walkdown	2/28/83

9.0 CONTINUING WORK ACTIVITIES

9.1 Introduction

This section describes the activities that are proceeding in accordance with previously established commitments during the implementation of the Program.

9.2 Objectives

- Maintain installation and support effort on work that will alleviate work interference in congested portions of the plant and facilitate completion and protection of equipment on systems turned over to Consumers Power Company.

- Meet previous NRC commitments on activities which do not impede the execution of the Program.

- Provide design support for orderly system completion work and resolution of identified issues

- Establish a management control to initiate additional specified work that can proceed outside of the systems completion activities

9.3 Description

Those activities that have demonstrated effectiveness in the Quality Program implementation will continue during implementation of the Construction Program.

These are:

1. NSSS Installation of systems and components being carried out by B&W Construction Company.

2. HVAC Installation work being performed by Zack Company. Welding activities currently on hold will be resumed as the identified problems are resolved.

3. Post system turnover work, which is under the direct control of Consumers Power Company, will be released as appropriate using established work authorization procedures.

4. Hanger and cable re-inspections which will proceed according to separately established commitments to NRC.

5. Remedial Soils work which is proceeding as authorized by NRC.

6. Design engineering which will continue for the Midland Plant as will engineering support of other project activites.

Additional activities related to the systems completion effort, may be initiated, as appropriate, to support orderly completion of the overall Project. Any activities in this category that are initiated prior to release of an area for systems completion work will be reviewed with the NRC Resident Inspector before initiation.

9.4 Status Schedule

These activities are proceeding with schedules that are independent of this Plan.

Issued:

DRAFT

ADMINISTRATIVE GUIDELINE

System Team Charter

G - 2.00

Rev. A

I. SYSTEM TEAM OBJECTIVE

Evaluate and ensure timely completion of all commodities within the scope of assigned systems in accordance with project design documents and schedules.

II. System Team Operation:

A. Phase I - System Installation and Inspection Status

The Phase I portion of System Team Operations coincides with the Phase I portion of the CCP (Construction Completion Plan). Phase I is the necessary software and hardware review prior to the Phase II System Completion activities.

The Phase I operations of the system team include:

- Review of system scoping software
- Development of a plan for inspection and evaluation of installed commodities not turned over to CPCo
- Preparation of a schedule for inspection (including software and hardware inspections)
- Identification of to go installation work with known restraints on the system punchlist
- Issuance of appropriate documents for Phase II work/i.e. WPA's, RIR's, pull packages, drill requests, FCR's, interference notices etc.)
- Review of identified to go work for constructability
- Review for material restraints on to go work
- Review for design restraints on to go work
- Review for quality restraints on to go work
- Review for construction restraints (i.e. sequencing) on go to work

System installation and inspection status activities are ongoing in support of Phase II activities. For example, when new design is received it will undergo the above operations before issuance to Supervision for manloading and scheduling activities.

B. Phase II System Completion

The initial activity in this phase is the development of the system completion schedule, including the identification of to go activities (Field Engineering, installation, and quality inspection) establishment of logic ties and, and identification of restraints. The appropriate System Team members will coordinate, direct, and perform the work in support of the established schedule and monitor their progress with the generation of progress/status reports. This phase also includes the identification of problems for resolution and management reviews. The Team Supervisor supported by Team members and CPCO Testing Representative will conduct system walkdown for acceptance, noting to go work for completion. On completion of the system installation. The team also will prepare and submit a functional turnover package to the Turnover Coordination Group for submittal to CPCo.

III. SYSTEM TEAM DESCRIPTION

A. System Team Organization

The system team has responsibility for all aspects of system completion including but not limited to scoping review, identifying to-go work, completion of installation and functional system turnover.

The organization will consist of a team supervisor and personnel as appropriate to support functions of field engineering, planning, project engineering, and craft supervision augmented by procurement, CPCo test engineers, subcontract coordinators and CPCO Construction Engineering QC etc. (A organization of design engineers (presently existing) will coordinate proximity and II/I review and examination with the activities of these system teams.) System teams will be assigned a specific scope of work and held accountable for inspection verification and overall system completion within this scope. This will include the requirement to develop a viable working schedule and reporting of status to insure early identification and resolution of problem areas. The team will be given the priorities, training, resources and authority necessary to fulfill these responsibilities. Team members shall take operational and project direction of activities from the team supervisor. Team members will coordinate within their team and between other teams at their level of responsibility whenever possible.

To the greatest extent, team members will be physically located together to improve communication, statusing, problem identification and problem resolution.

B. Job Responsibilities and Reporting Relationship

1. CONSTRUCTION SYSTEMS SUPERVISOR

Reports to: Project Field Superintendent for Operation and Functional Direction

Responsible for assembled system planning and coordination of all activities assigned by Project Field Superintendent. Sets priorities among systems based on project management guidance and allocates manpower and construction support to system team supervisors. Monitors labor and support groups' performance. Monitors construction progress against construction plans and recommends and initiates corrective actions. Responsible and accountable for coordination of all construction operations and resources for assigned systems to assure they coincide with overall established project requirements. Assists with coordination between system team supervisors.

2. SYSTEM TEAM SUPERVISOR

Reports to: Construction Systems Supervisor for Operation and functional Direction

Provides direction and assignments to team members. Serves as the primary turnover liason between the System Team and CPCO Constructional Testing Responsibilities. Responsible and accountable for the completion (Phase I & II) and functional turnover of the assigned system(s). Sets priorities among assigned systems and allocates manpower/materials. Schedules the work as required and conducts team schedule review/status meetings accordingly. Responsible for accurate statusing of the system. Coordinates day to day work activities and problem resolution. Interfaces with other teams and support groups. Responsible and accountable for obtaining and finalizing scoping requirements, compiling the discipline/subcontract turnover packages into a complete construction functional turnover package. Coordinating schedules and participates in the final turnover walkdown, documenting constructions final exceptions and resolving turnover package discrepancies. Insures team training is provided commensurate with tasks and responsibilities.

3. CPCO CONSTRUCTION ENGINEER

Coordinates With: System Team Supervisor

Provide a construction management overview of the Midland Project System Completion Teams. Interface with identified Bechtel System Team Supevisor and team members to become knowlegeable of system team scope, schedules and system status. This will include a familiarization by the engineer with "to go" quantities and work methods, productivity and manning levels, quality aspects of QC inspection plans and status of quality inspections, major problem areas and their resolution, and overtime hours projected.

The engineer performs these tasks utilizing normal team communications between members and by communications with the Team Supervisor. The engineer makes observations and recommendations known to the system team supervisor for his consideration and action if necessary.

Disagreements between the engineer and team members should be resolved at the team supervisor level where possible and with the CPCO Project Superintendent where agreement is not reached.

As a part of the team support organization, the engineer assists the team supervisor with inter-group coordination and problem resolution, also assisting with obtaining CPCO "Q" interface work approval per CPCO ground rules.

4. LEAD SYSTEM TEAM FIELD ENGINEER

Reports to: System Team Supervisor for Project Direction
Project Engineers for Functional Direction

Responsible for and supervises all Field Engineers of all disciplines on the Team. Identifies and quantifies remaining work within the system scope via the construction punchlist and system work plan. Verifies that materials and workmanship meet design requirements. Verifies material availability. Assembles the discipline work plans to cover remaining workable items in the system; supports daily construction; verifies constructability of remaining work issued for construction; serves as the engineering interface with the discipline superintendent(s) to resolve construction problems; initiates field change processes and works with the Project Engineering Representative to resolve design problems. Assembles the turnover package. Provides Field Engineering assistance to support the System Team Supervisor.

Responsible for coordinating as required with Field Engineering support groups to ensure that the goals of system evaluation and system completion are met.

Responsible for identifying to the System Team Supervisor the need to reduce or obtain additional Field Engineering personnel necessary to support the system team.

5. SYSTEM TEAM PLANNER

Reports to: System Team Supervisor for Project Direction
Field Cost/Schedule Supervisors for Functional Direction

Responsible for assembling, issuing and monitoring a viable and workable schedule for completion of the assigned system(s) based upon input from the System Team Supervisor, System Field Engineer, System Project Engineer, System Team Superintendent, System QC Representative and other support groups for each assigned system.

Provides system status reports, forecasts and schedule progress (from team input) to the system team supervisor and for inclusion in summary construction schedule documents.

Maintains a design and procurement restraint list for each system assigned to the team. Coordinates with project planning for incorporation of engineering and procurement forecast information on the construction schedules.

Work with the construction staff cost organization for man-hour or unit rate estimates and forecasts.

6. SYSTEM TEAM SUPERINTENDENT

Reports to: System Team Supervisor for Project Direction
Lead Discipline Superintendent for Functinal Direction

Responsible and accountable for the installation of the system commodities for that discipline (i.e., mechanical, electrical, instrumentation and/or civil); assigning and directing crafts based on team priorities; the quality of the installation; scheduling and sequencing of work activities; initiating and approval of WPA's; reporting of completed items; verification of the constructability of remaining work; accurate statusing of system commodities; and craft conduct.

Responsible for coordination with support group superintendents to ensure the goals of the team are met. Examples of such items are:

a. Equipment Maintenance Groups
b. Electrical Raceway Group

c. Hydro Test Group
d. Instrumentation Instrument Air Group
e. Mechanical Equipment Group
f. Heat Tracing

7. SYSTEM TEAM FIELD ENGINEER

Reports to: Lead System Team Field Engineer for Project Direction
Lead Discipline Field Engineer for Functional Direction

Identifies and quantifies remaining work within the system scope. Verifies that installations meet design requirements. Verifies material availability and initiates FMR's as required. Assembles the discipline work plans to cover remaining workable items in the system; supports daily construction; verifies constructability of remaining work issued for construction; serves as the engineering interface with the discipline superintendent(s to resolve construction problems; initiates field change processes and works with the Project Engineering to resolve design problems. Assembles the discipline turnover package. Provides field engineering assistance to support the System Team Supervisor.

Responsible for coordinating as required with the following Field Engineering support groups to ensure that the goals of system evaluation and system completion are met;

a. Equipment Maintenance Groups
b. Electrical Raceway Group
c. Mechanical and Instrumentation Hydro Group
d. Instrumentation Instrument Air Group
e. Mechanical Equipment Group
f. Code Stamping (Section I Piping)
g. Heat Tracing

8. SYSTEM TEAM PROJECT ENGINEER

Reports to: System Team Supervisor for Project Direction,
Project Engineer for Functional Direction

Responsible for assuring all project generated design is technically acceptable, constructable and adheres to requires project procedures. Monitors, provides status, expedities and secures engineering support for the teams assigned system(s). Responsible and accountable for obtaining project approval and total incorporation of all changes. Responsible and accountable for issuance of design changes for the team's assigned system(s). Advises the team of pending design changes/additions for the team's assigned system(s).

9. LEAD SYSTEM TEAM QUALITY REPRESENTATIVE ("Q" SYSTEMS ONLY)

Reports to System Team Supervisor for Project Direction and MPQAD QC for Functional Direction

Responsible for planning, statusing and verifying all quality related inspections and will be cognizant of verification of closed QCIR's. Insures inspections are carried out in accordance with appropriate Project Quality Control Program(s). Responsible to consult with the System Team Supervisor to assure all quality related issues are addressed. The Quality Team member will be responsible to coordinate through the proper Discipline Supervisor the necessary inspection personnel to perform the inspection. The inspectors will come from a pool in each discipline.

10. SYSTEM SUPPORT GROUPS

Coordinate with: System Team Supervisor and System Team Members as appropriate

NOTE: These are identified groups required to support the functions of the system teams but not necessarily active members of the team nor physically located with the team members.

A. Turnover Coordinator

Reviews turnover packages for consistancy and adherence to appropriate procedures. Distributes scoped documents, monitors and assures consistency in the punchlist. Maintains permanent turnover files and submits turnover packages to CPCO.

B. Field Procurement

Provides purchasing, expediting, receipt and warehousing support for material required to accomplish system completion. Will maintain and provide inventory listings of material under Field Procurement Control (does not include that material in the cribs or Gold Room or other material under the issue control/custody of other i.e. weld rod, electrical cable, cable tray and supports, etc.) Will respond to system team planners requests for expediting, material delivery status for material purchased by either Ann Arbor or the field. Will update punchlists with material status.

C. CPCo Test Engineer

The test engineer is a member of the system completion team for his system. He will remain cognizant of team activities

on his assigned systems and will become more involved with direct input to team efforts as turnover approaches. The test engineer is responsible for the system completion process for turnover as presently defined in TPM 10-1, Functional Turnover, however, he will have direct team input. Examples of his responsibilities for team input includes the following:

a. cleanliness walkdowns
b. lay-up conditions (special conditions)
c. equipment preservation
d. system scoping
e. special conditions for turnover
f. punchlist verification
g. yes/no punchlist determination if T/O impacted
h. accessibility/maintainability input for field designed commodit
i. Scoping clarification

D. Subcontracts Field Engineering Representative

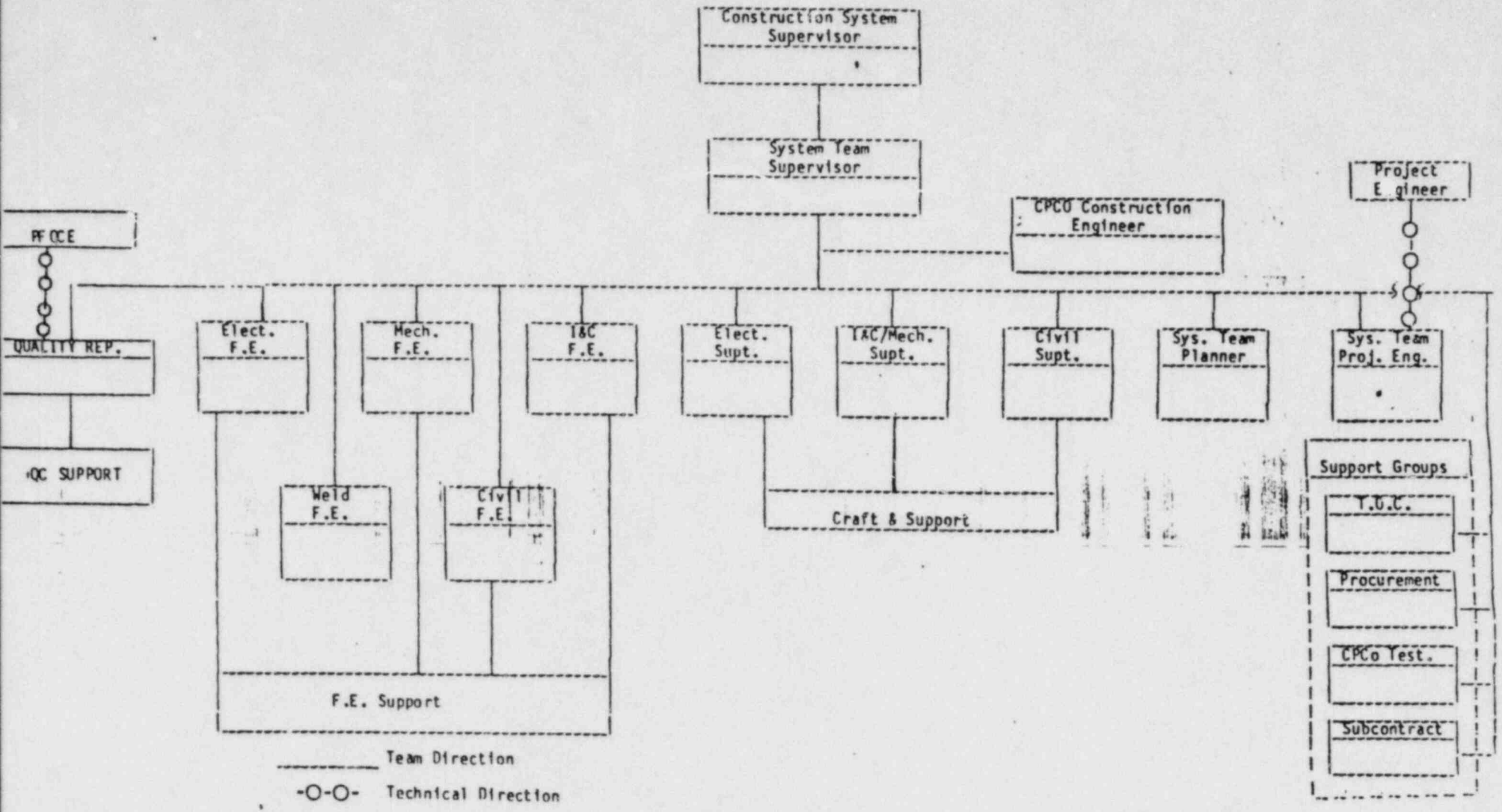
Identifies and quantifies remaining work within the subcontractor's scope. Provides schedule durations for work activities for integration with the system team schedule. Verifies that materials and workmanship meet design requirements. Assembles the discipline work plans to cover remaining workable items in the system; supports daily construction; verifies constructability of remaining work; and coordinates with System Team Project Engineer to resolve engineering problems and expidites approval of vendor submittals. Assembles subcontracts turnover package. Provides system team schedule requirements to the Subcontract Field Engineer and monitors performance.

GLOSSARY OF TERMS

OPERATIONAL DIRECTION	Directions Governing Infrastructure, Including Working Hours, Personnel Conduct, etc, at a Geographic Location
PROJECT DIRECTION	Directions or Instructions Concerning Project Operations, Including Coordination of Day-to-Day Direction of Project Entities Receiving Technical Direction From Others, but not Normally Including Authority to Overrule Prescribed Procedures or Technical Decisions of Such Entities
~~FUNCTIONAL~~	Pertaining to the Duties Assigned to an Autonomous Organizational Entity within Bechtel, Normally Including Administrative and Technical Direction
~~FUNCTIONAL~~ DIRECTION	Administrative and Technical Direction
ADMINISTRATIVE DIRECTION	Responsibility for Hiring, Salary Administration, and Individual Assignments

GLOSSARY OF TERMS
(Cont.)

TECHNICAL DIRECTION	Instructions and Direction Defining the Technical Requirements for an Activity, Including Furnishing Prescribed Procedures, Technical Requirements, Design Approaches, Specifications, and Design Details
QUALITY COORDINATION	Exchange of Project Operation Information Between the Project Manager and Quality Assurance or Between the Field Construction Manager and Quality Control
COORDINATION	Bringing Together and Assuring Communication Between Organizationally Separate Groups, Including Identification of Interface Problems and Reconciling Positions by Arriving at Agreement or Referring to Higher Authority
WRITTEN COMMUNICATION	Letters Between Specific Contact Points In CPCo and Bechtel Signed by an Authorized


Construction System Supervisor
System Team Supervisor
Project E gineer
CPCO Construction Engineer
PF CCE
QUALITY REP.
QC SUPPORT
Elect. F.E.
Mech. F.E.
I&C F.E.
Elect. Supt.
I&C/Mech. Supt.
Civil Supt.
Sys. Team Planner
Sys. Team Proj. Eng.
Support Groups
T.C.C.
Procurement
CPCo Test.
Subcontract
Weld F.E.
Civil F.E.
Craft & Support
F.E. Support
Team Direction
Technical Direction

Meeting on 1-6-83
with CPCo on site
my notes

Docket No. 50-329
Docket No. 50-330

Consumers Power Company
ATTN: Mr. James W. Cook
Vice President
Midland Project
1945 West Parnall Road
Jackson, MI 49201

Gentlemen:

During our inspection of December 20-22, 1982, our inspector was requested to review and authorize 46 prioritized separate work activities in accordance with the NRC/CPCo Work Authorization Procedure of August 12, 1982. During this review of the initial ten items, our inspector concluded that he was being asked: (a) to review drawings and procedures which personnel had not previously looked at before giving to him, let alone reviewed for adequacy; (b) to review revisions of drawings that personnel knew were being revised; (c) to review drawings which apparently were not ready for construction to begin because all the details were not worked out yet; and (d) to approve activities on the premise that the inspector's concerns will be incorporated during the construction of the activity.

These conclusions were based upon reviewing the following activities:

a. SWPS deep-seated benchmarks - Drawing C-2004, Revision 1

(1) The strap spacing for holding the benchmark riser pipes rigid during underpinning was not ~~indicated~~ delineated on the drawing. Subsequently, Bechtel Field Engineering indicated that revision 2 of the drawing was ~~coming~~ being issued ~~out~~ which picked this up.

(2) Four out of the six benchmarks appeared to be loacted in the permanent underpinning wall. Personnel were asked if any thought went into protecting the riser pipes either during installation or while actually digging the underpinning walls. The cognizant field engineer stated, "I have no idea."

(3) The top locations (elevations) of the benchmarks were not clearly delineated on the drawing.

(4) There was no provision on the drawing to ensure that during coring of the bottom SWPS slabs the hole would not blow in, i.e., remove underlying soil from the structure. Personnel indicated that they were planning to install a standpipe before coring all the way through the floor, but no actual details had been worked out to date.

(5) Four of the benchmarks were to be read off the floor of the pumphouse. The inspector was informed that the next revision of the drawing would illustrate all readings ~~on~~ would be read off the walls of the pump structure.

b. SWPS construction dewatering - Drawing C-1320, Revision 1, C-1320-1, Revision 1 and C-1321, Revision 0;

(1) The drawings illustrated two gradations of filter sand to be used in the dewatering well construction. However, they did not indicate which filter sand gradation went into which well.

(2) There was no method specified to install the filter sand in the smaller interior dewatering wells.

(3) Notes on the drawings indicated to install a standpipe before coring all the way through the bottom slab to balance the hydraulic pressure. However, the notes did not indicate that to balance the hydraulic pressure, a column of water inside the standpipe greater than the water level outside the structure must be maintained.

c. SWPS to CWIS hydraulic seal - Drawing C-2038, Revision 0

(1) The drawing indicated that installation is "Q". However, there was a handwritten note on the drawing contrary to this indicating that only the inspection of the work be "Q". The inspector requested to see an official FCN, DCN, FCR, etc. that changes the drawing, not an informal note.

d. FIVP four point jacking - Drawing C-1494, Revision 2

(1) Notes on the drawing indicated not to exceed 1820 kips for each unit, they also indicated that if shims at any location become loose, further jacking shall stop and the the kSE notified. They go on to say that shim tightness shall be checked to determine whether shims come loose or not during jacking. The notes fail to document the main purpose of the proof load test; to determine if the as-built temporary supports can support the entire weight of the FIVP. If liftoff of all four corners does not occur, we have no assurance that we are supporting the entire weight of the FIVP.

In summary, the NRC will not continue to serve as a consultant to CPCo management. Remaining work activities will be reviewed and approved by CPCo management prior to issuance to the NRC for authorization. It is your responsibility to ensure that in the future all information provided to the NRC is complete and reviewed.

R. F. Warnick, Acting Director
Office of Special Cases

Landsman/ls Gardner Shafer Warnick

Consumers Power Company

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

PRINCIPAL STAFF			
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D/TA		[illegible]	
[illegible]		[illegible]	
[illegible]		LAO	
[illegible]		SLO	
[illegible]			
[illegible]			
OL		FILE	

January 3, 1983

Mr. WDShafer, Chief
Midland Nuclear 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-6483
12*32

Attached for your review is Revision 5 to MPQP-1.

In accordance with the NRC/CPCo Work Authorization Procedure, we request your approval of this activitiy.

102351115 - Approval of MPQP-1, Rev. 5

Upon receipt of your authorization, an effectivity date will be assigned and the plan will be released.

D. B. Miller
Site Manager

DBM/GBJ/dmw

Attachment

Response Required: No

8401050102

JAN 10 1983

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 ~~Manager~~ of MPQAD and the Site QA Superintendent Remedial Soils will manage the MPQAD support of underpinning work with the overview of the Director of Environmental and Quality Assurance.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Effective Date Feb. 1, 1983

Approved _____
Manager MPQAD

Approved _____
Bechtel Assistant Project Manager

Approved _____
Midland Project Office

8406120061

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 Remedial Soils will manage the MPQAD support of underpinning work with the overview of the Director of Environmental and Quality Assurance.

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.

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 design documents, reviews construction procedures, performs overinspections and conducts pre-planned audits. Quality Control performs first-line inspection and verification, of items under the Quality Assurance Program, and reviews construction procedures, drawings and specifications for inclusion and establishment of inspection criteria.

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.

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 QC and QAE. The Quality Assurance Engineering review applies to all design documents. (MPQAD Procedure M-11)

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

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. Quality Control will prepare inspection plans (in accordance with PSP G-6.1) 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. All PQCIs are subject to Quality Assurance Engineering review and approval according to MPQAD Procedure E-

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

2M. In addition, inspection and test activities are monitored by Quality 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 QC/QAE 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 Quality Control. Performance and 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.

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 Quality Control in accordance with PSP G-3.2 and Quality Assurance Engineering in accordance with 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. MPQAD will be involved in the specific wording of non-conformance reports to assure an accurate description of the condition. 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.

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 Bechtel PSP G-3.2 and MPQAD Procedure F-3M.

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 Procedure -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

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-5	QA Review of Bechtel Field-Originated Procurement Documents
M-10	MPQAD Review of Subcontractor Procedures and Instructions for Underpinning Related Activities
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

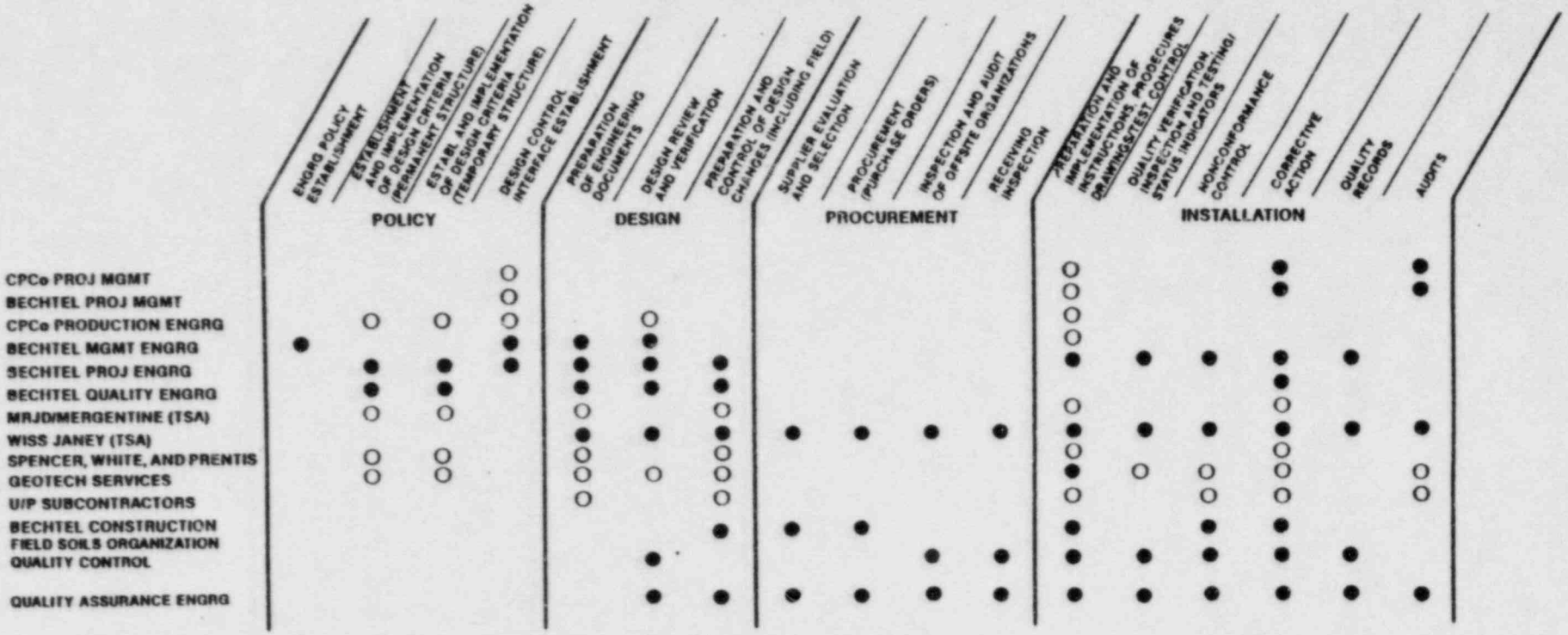
EDPI - 4.1.1	Preparation of Design Requirements Verification Checklist.
PEP - 4.25.2	Interface Control Design Documents for Remedial Soils Underpinning Operation.
PEP - 4.25.3	Interface Control of Design Documents for Remedial Soils and Related Other Work with Consumers Power Company for Midland Job 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

MIKE'S NOTES

January 3, 1983

NOTE TO: Files

FROM: Mike Wilcove MW

SUBJECT: MEETING WITH REGION III, DECEMBER 13 THROUGH DECEMBER 15

Part 1 - Attachment B [Each numbered section corresponds to the numbered section of Attachment B]

1. With respect to CPC's unwillingness to over-inspect Mr. Urbany's work, all of the inspectors feel that CPC acted unreasonably. This is especially so in light of (1) the high number of misroutes which Mr. Urbany should have caught and (2) because middle QA management suggested that there be a complete over-inspection of his work, but upper management rejected the idea. With respect to the over-inspection of all the cables, Region III required it for the following reasons. There were a high number of misroutes and they were too random; by that, it was impossible to determine the root cause of the cables being misrouted. Consumers attempted to characterize them as isolated incidents and apparently also suggested that the QC inspector could determine whether the misroute was major or not. Region III rejected these suggestions flat out. There were too many misroutes for them to be "isolated" and a QC inspector does not have the expertise necessary to determine whether a misroute was major or not. Gardner and Cook have slightly differing views with respect to whether Consumers unwillingness

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at first to do this complete over-inspection was unreasonable. Gardner indicates that he cannot blame Consumers for not wishing to do this and proposing alternatives to the Staff, especially in light of the fact that it was not until September that the Staff finally came out and specifically demanded a 100% over inspection of cables. However, Mr. Gardner feels that the proposals which CPC did submit were unacceptable, as alternatives to over-inspection. Mr. Cook feels that Consumers was unreasonably stubborn in refusing to over-inspect all the cables. It was in September when they finally agreed to do 100% over-inspection of all cables inspected before March 15, 1982.

The criticism which Region III had for the audit reports was (1) the first audit had too small of a sample size and (2) the second audit characterized the misroutes as isolated incidents which, as discussed above, was not acceptable to the Staff.

2. This concerned a statement with respect to the placement of the instrumentation for monitoring movement of the auxiliary building during underpinning. At a meeting on March 10, 1982 the Staff informed Consumers that from that day forward any work undertaken in remedial soils work would be Q. However, the Staff was not going to require Consumers to rip out remedial soils work already done and do it according to Q procedures. Hence, if work was done, it would not have to meet Q procedures. At that meeting the Bechtel project manager said that the instrumentation was already in place. On March 12, 1982, the

same project manager said that the installation of the instrumentation was "essentially underway". On March 17, Region III inspectors (Gardner, Williams, and possibly others) went to the site and there had been virtually no placement of auxiliary building instrumentation - approximately 10 cables were installed. Furthermore, even though a week before, the Staff had said at the March 10 meeting that all remedial soils work has to be Q, QA management never told that to the people down the line. In short, there were no Q procedures.

The procedures for installing instrumentation are as follows. First, the conduits are installed, then the pipes. Cables must be pulled through, then the cables must be terminated. These are essentially five separate work activities. The conduits were mostly in, but apparently only 10 cables or so were pulled.

This paragraph also says that Consumers would call the staff to the site when items were not ready for review. Region III says this just happened in mid-September. This problem is also documented or at least occurred with respect to inspection reports 82-05 and 82-06. The problem is that "Jackson people" (Mooney, Schab) tell Region III that the items are ready for review, when they are not.

3. Eleven shorthand examples were listed by Ron Cook. (1) drilling into duct banks, (2) the March 10th meeting, (3) resumes being proprietary, (4) not being able to get drawings, (5) HVAC, (6) not getting

calculations, (7) the whole soils problems, (8) confirmatory action letters, (9) QC activity, (10) NRC enforcement, (11) pull-over hold tabs, documented in the upcoming inspection report.

Perhaps the best example of this is the fact that the Staff has required Consumers to take over all of the QC responsibility. Bechtel was simply not doing the job right. Another example, as noted in Attachment B, is the coordination-installation form. There is no integrated procedure for the fabrication of brackets, grouting and calibration. This form is needed to determine the sequence of activities done- who had done what, when. This would be useful in determining exactly where a problem arose. Consumers developed a form that apparently that it was acceptable to the Staff. Bechtel decided that they didn't like the form and Consumers got rid of their own form.

Another problem of Bechtel running the job is that frequently when Consumers audits Bechtel, Bechtel argues vigorously that some of Consumers' findings are not valid and Consumers rolls over and plays dead.

4. One instance of this will be noted in the upcoming report, where Q and non-Q materials were mixed-up so it can't be deterimined whether Q material was used where necessary. Another example is the covers on the fuel storage racks. They were blown away by bad weather. Not until Ron Cook told them to put covers on did they do so. This was a non-compliance and happened one year ago. Another example is non-scram

breakers which were apparently supposed to be kept on top of wood it the storage yard but were not. (I'm not quite sure whether I transcribed this correctly). Another example was cable storage problems in January, 1982. If this had been documented, this would have been a non-compliance. With respect to chopping off cables the reel had to be recovered, but was not being done. My notes say something about pipe support. With respect to raceways they should have been on the drums (?).

5. This concerns cable support. The problem is documented in inspection report 81-11. The cable support holds up the cable. There are problems with respect to cable supports in the lay-down yard, the control area and in the service water pump structure building. The cable jackets were damaged.

6. This concerns instrumentation impulse lines. They connect pipes to the transmitter (while going from pressure to voltage to current). The lines were not color coded even though the FSAR requires it. However, it was not in Consumers' specifications. This issue is still unresolved. However, color coding a line is necessary in determining which line broke. This is documented in inspection report 81-11. The problem arose in 1980. There are also LER's showing problems with impulse lines that had been reversed. If the lines had been marked the problem would be avoided.

7. This concerns drop-in anchor bolts. A hole is drilled, the anchor bolt is stuck in, tightened with a wrench, at which point the back of it expands and grabs onto the concrete. This is a non-compliance which occurred back in July or August 1982. It is documented in inspection report 81-05. This reflects a very bad attitude because Consumers insists that QA doesn't start until it's inspected. However, the Staff has repeatedly told Consumers that QA begins with the guy doing the work. With respect to installing instrumentation for the aux building underpinning, Consumers gave the Staff the same line. Also with respect to the DGB, the same problem happened. Consumers says it is not a valid finding because CPC hasn't had a chance to inspect. This reflects the attitude of inspecting quality into the work as opposed to building it right the first time. Bechtel gives the same line to CPC. Apparently Bechtel does not either have an in-process inspection, where Bechtel QC inspects the work as it being built or there is no final inspection where Bechtel QC looks at the work when it is done.

8. This concerns an inspection done by Kevin Ward. There had been an allegation about bad welds. QA middle people, (Curlind, and Davis), came up with a very good approach to dealing with the problem. They gave the approach to Kevin Ward, who liked it. However, when Kevin told QA management about the proposal, upper management attitude was "we are not going to anything about it. That's Bechtel's problem." Kevin feels that the exit interview was extremely hostile because of the strong

arguments that upper management needlessly gave against a very good program.

9. In this case, a Bechtel field engineer kept saying the slope was right even though the Staff told him it was wrong. There was no valid argument to saying that the slope was correct. Furthermore, an FCR, field change request, was issued which would essentially says "let's change the specification" as opposed to an NCR which would have said that the work was not being done according to the specification. NCR's are tracked, but FCR's are not. Furthermore, the resident geo-technical engineer apparently did not inspect the slope.

10. All of these events occured in 1982. The first problem was when Ross wanted to see the resumes of the remedial soils group to see if they were qualified. Bechtel refused to give up the resumes. Finally, Don Miller had to force them give the resumes. These resumes turned out to be totally worthless one-liners. In other words, Bechtel still did not give the resumes even when Consumers finally put pressure on them.

Ross wanted to check to resume of a Consumers QA person who was not qualified. It took about a month to get the resume. Consumers screamed "bloody murder" before they finally handed it over. Ross still feels that this guy is not qualified.

With respect to calculations, Bruce wanted them. Bechtel would not give it to them. Finally, Don Miller had to be called.

I have some notes which refer to stresses on a cabinet (?) which happened two years ago. A problem that stems from this is that Consumers is not willing the force Bechtel to turn over information which Consumers and the Staff have a right to get. Consumers meekly accepts Bechtel saying we're not going to give this information.

11a. We have still not accepted Consumers response to this. The grout mixture consists of two parts which have to be mixed together. Continuous manual control is necessary, which requires that during the grouting certain nobs have to be twisted to make sure the ratio is proper. They did not bother to do this while they were grouting.

11b. This happened in the spring of 1982. It is not documented. This concerns work near the turbine building. The work was so bad that the site manager of Consumers had to stop it. He should not have to do so. It was the QA department's resonsibility to stop bad work, but they would not do so.

11c. This happened between the DGB and the turbine building in "safety related dirt." This occurred in the summer of 1982. Ross asked in passing what a certain rig was going to be used for. It turned out they were going to use a totally unauthorized method to drill a dewatering

well. If Ross had not stopped them, they would have been in violation of the Board order.

11d. Such memos do exist. One of them if very subtle. However, some of the Staff's contacts say that it is really designed to instruct employees to say as little as possible to the NRC, and when it was distributed to employees, Consumers' management verbally said this was the case. There is another memo which is a little bit more to the point. It apparently lists certain people who may or may not talk to the Staff. There was one time where Ross asked for a drawing. Bechtel would not giving the drawing to Consumers. Ross immediately took the matter to Don Miller. As they were going to talk to Miller, Ross asked this Consumers employee who said I can't get the record, "do we keep such records?", the Consumers employee answered, "I can't talk to you" without checking with my boss. The boss said that it was a misundertanding, that what he really meant to say was that the boss had to be in on the conversation so the boss would know what was going on. This occurred during the DGB inspection.

12a. One example was in the spring of 1982 with respect to soil stablization grout which is used to stablize the building if necessary. Consumers argued that it is used commonly, that you can't buy it Q, there is not a Q program for it, etc. The Staff felt that since it would prevent the auxiliary building from falling down, it has to be Q. Consumers did not like what they heard and went to talk to Joe Kane about it. In other

words, they were going behind Ron Cook's back. Another example was digging below the duct bank.

12b. This concerns fitting holes properly for nozzles of the auxiliary feedwater headers. Each one is identified with fitted holes. NRR had not approved the fix. This was around May 14, 1982. Consumers' response was they can do it at other plants, so why not at Midland. However, Consumers were not knowledgeable of other problems, in particular, at San Onofre, with respect to fitting of the nozzle into the hole.

12c,d. This concerns ventilation valves. This really is not that great of an example of bad QA. I suggest that it be dropped with respect to our testimony.

13a,b. These are discussed above except for the SALP report, of which I already have sufficient knowledge.

13c. This goes back to the March 10th meeting where we said that all remedial soils was Q. Around March 24 or 25, they were still arguing that very point. They proposed that there be no QA criteria but they would do a good job. That, however, is not enforceable. There have been other examples where Consumers were unreasonably argumentative as to what is Q. In particular, at the end of August they refused to classify rip-rap (rocks on the dike wall) as Q. This was necessary in light of the fact

that the May 25th letters specifically said that the dikes were Q and when Region III inspectors picked a piece of rip-rap, it broke in their hands. In spite what Consumers says, it would not be that difficult to set-up Q procedures for rip-rap. My notes also mention the C-45 drawing and a fire main.

15. The penetration of the Q electrical duct bank took place by the turbine building. The condenser header line incident took place when the ACRS was on site. This is the case where the driller kept saying "I'm hitting something." But his supervisor kept ignoring him. We are not quite sure where the abandoned sewer line was. With respect to the non-Q electrical duct bank, this took place in the winter of 1982. The problem took place near the access shaft while the access shaft was initially being installed. This happened around February and finally made the Staff decide that all remedial soils work had to be Q. The 72 inch circulating water line was directly east of the service water pump structure. I do not have a date for that in my notes.

14. In this case , after much arguing, Consumers agreed not dig under the auxiliary building until it was determined that the support systems conform to the design audit. They said specifically that they were not willing to do this because it would impact on scheduling. This was in the spring of 1982. Consumers went in and did an inspection and found 20 things wrong. The Region III people cannot remember specifically who said that. Consumers was also argumentative about not committing to

four point jacking. This is used while tunneling underneath to get to the underpinning. It is a temporary support. Again apparently they were unwilling to commit to this because it would impact scheduling.

16. This has to do with welding attributes. In particular this has to do with trend analysis, a problem that has existed since 1978. Consumers dilutes their input into their trend analysis so much that there is an unnatural separation. For example, if two sources are getting bad welding rod from the same place it would not show up in the trend analysis. Around April 1982, the Staff found that with respect to both cables and hangers, CPC was saying because there were so many aspects of a cable or a hanger, the error percentage is really low. In particular with respect to hanger welding, 47% of the hangers were unacceptable but they broke it down to many components so that it was meaningless in a trend analysis. Recently, Region III discovered what was called IPIN (in process inspection notice). The QC inspection would go out and look at an item and find perhaps six discrepancies. The item would be sent back the manufacturer but it was never noted anywhere. Thus, there could be no meaningful trend. Furthermore, if a bad trend was developing Bechtel would cut it off at an early point. In other words, they would cut short the inspection, not document all the problems, thereby making the trend analysis meaningless.

17. This paragraph deals with CPC's attempts to use the Staff as consultants. I questioned Ron Cook whether this is inconsistent with

our claiming they are argumentative. He responded that attempts to use us as consultants until we catch them doing something wrong. At that point, they argue. One example that Ron Cook gave of an attempt to use us a consultant was with respect to how tight conduit clamps should be. They also asked us to approve procedures before they go out to work. They want us to review their QA program. However, once we look at their QA program before they start work, they only concern themselves with the areas which we noted. They then ignore other aspects of their QA program. In other words, they only tighten up those things that we point out. Then they say that we never discussed the other apsects of the QA program. In particular, in the March 10, 1982 meeting Consumers wanted Ross on site all the time to "hold them by the hand". The problem with this is that the Staff is not a consultant but a regulator. It is not our job and it is not our place to review procedures or approve things before they start work. Our job is for them to have a procedure in place to start doing work and then we inspect. It is especially bad when once we do look at procedures before CPC starts work, CPC only concentrates on the aspects that we note and ignore the other aspects of the work.

ATTACHMENT A

1. Pipe Hangers

Pipe hangers are all over the plant and they are safety related. The problem was first identified in an inspection report 81-12 and followed up in 82-07. This was an example where CPC tried to break down the

number of problems to make them look smaller than they really are. The subject of snubbers came up and I asked what one was. They told me it was a shock absorber for the pipe, a subpart of a pipe restraint.

2. This refers to the second paragraph under the "communications" section. This dealt with the RCAL (reverse confirmatory action letter). This was a case where they shut down the work and then wrote us a letter saying they did so. In this case, they claim that Mr. Keppler had said that the subject of this was not safety related. Mr. Keppler claims that there never was such an agreement.

CAPSULE HISTORY OF WHAT THE STAFF HAS APPROVED

"Phase I" of the underpinning consisted of the preparatory work and installing instrumentation. This has basically taken place on the auxiliary building. Virtually nothing has been done on the severe water pump structure. At the auxiliary building, access shafts went down to el 609. Around March 10, 1982, the Staff stopped them from doing that because the right controls were not in place. Phase 2 of the underpinning is essentially the actual digging. That just started the week of December 13. In the spring and summer of 1982, as Consumers was doing some more work before digging, a number of non-compliances were generated-including the drilling into pipes and other instruments under the ground. In August of 1982, we told them to stop working and we instituted the work authorization procedure. After that, we permitted them to do more preliminary work, no Phase 2 work. In the meantime, we had said that we wanted Consumers to take over the QC

supervisory functions. Consumers agreed to do so in the soils area. They then undertook to retest and recertify the QC inspectors. However, when the Staff watched them certify and test the inspectors the Staff felt that Consumers was doing an extremely bad job. Accordingly, at the end of September the Staff made them stop all work, decertify all inspectors and require them to be retrained. At the end of October, we agreed to let them resume recertifying inspectors. This month (December) Consumers has shut down most of their work. Non-safety related work is still going on. Babcock and Wilcox work is going on. Soils remedial work is going on only to the extent that we authorize is according to the work authorization procedure.

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