...EAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

September 22, 1982

MEMORANDUM FOR: Stephen G. Burns, Office of the Executive Legal Director

FROM: A. Bert Davis, Deputy Regional Administrator, Region III

SUBJECT: CONSUMERS POWER COMPANY, MIDLAND NUCLEAR POWER PLANT, POSSIBLE MATERIAL FALSE STATEMENT

During a telephone contact on September 21, 1982, Bill Schultz, Region III Enforcement Coordinator, discussed with you our concerns related to a possible material false statement made by a licensee representative during a meeting on March 10 and a telephone call on March 12, 1982. The statement concerned the installation of underpinning instrumentation at the Midland Nuclear Power Plant and dealt with the state of completion of the instrumentation. An investigation was conducted during the period April 6- June 17, 1982 and resulted in the enclosed investigation reports 50-329/82-13; 50-330/82-13; and 16 exhibits.

We request that you review the enclosures and give us an opinion as to whether we could support the issuance of a civil penalty for a material false statement based solely on the information contained in the enclosure.

A Bert Davis

A. Bert Davis
Deputy Regional Administrator

Enclosures: As stated

cc w/enclosures:
J. Axelrad, IE

cc w/o enclosures:
R. F. Warnick, RIII
R. B. Landsman, RIII
C. H. Weil, OI, RIII

Consumer's proceeds with this work beyond their own stopwork directives) these incidents are termed miscommunications or misunderstandings caused by varying interpretations of agreements.

Two investigations have been launched by Region III on the subject of Consumer's "possible misleading statements" and "possible violations of the Board's April 30, 1982 Order" involving soils remedial work.[25]

At some time we must at least consider the possibility that all these events weren't really misunderstandings at all, but were conscious violations of agreements and calculated risks undertaken because of pressure to push ahead and because of an expectation that nothing would be done about it anyway.

If these possibilities are not even considered, or the results of the Region III or Office of Investigation probes are not considered by this Board before the underpinning excavations are premitted to begin, then they might as well be dismissed altogether. For once again, inaction or failure to intercede would be interpreted by Consumer's as approval of the status quo and the soils remedial work will continue in the same manner as it has thus far proceeded.

The concerns of the Region III staff, Mr. Keppler, and this Board (in their April 30th Order) about Consumer's ability or willingness to carry out proper QA on their own initiative in the soils remedial work must be addressed now as it becomes increasingly apparant from the course of recent events[26] that the "Staff consultation and approval" method of handling soils remedial work which the Board set forth in their April 30th Order, is not succeeding in attaining the proper care and conservatism in the soils remedial work.

The manner in which the soils remedial events[27] took place and whether these events do or do not constitute violations of Consumer's own, the NRC, or Board

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[25] 4/15/82 Spessard memo; 3/20/82 Landsman memo.

[26] see attachment A.

[27] Ibid.

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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 the investigation conducted by Mr. C. H. Weil of this office, during the period April 6 - June 17, 1982, of activities at the Midland Nuclear Power Plant, Units 1 and 2, authorized by NRC Construction Permits No. CPPR-81 and CPPR-82 and to the discussion of our findings with you on June 10, 1982.

The investigation was conducted to determine the facts concerning alleged misleading information provided to the NRC about the status of soils monitoring instrumentation installation. The enclosed copy of our investigation report identifies areas examined, records reviewed, observations made, and personnel interviewed.

The investigation lead us to conclude that there was not a deliberate attempt to mislead the NRC; rather, that the statement made was interpreted differently by parties to the conversation.

does not address fact that cable pulling was started after the 10th after agreement reached

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B. P. 6 - substitute investigation for inspection

As a result of the investigation, it is apparent that you and I have a different opinion of our discussions in mid-March. Although the handling of problems in non-safety-related activities was discussed, no agreement was made. If you wish to discuss the handling of non-safety-related activities further, please contact ~~Charles E.~~ Norelius, Region III Director of Engineering and Technical Programs.

should this be Warnick

This investigation serves to emphasize the importance of unambiguous communications and the significance the NRC attaches to possible misleading or material false statements. We hope your employees understand our position in these matters.

B.P. 8a (substitute investigation for inspection)

We appreciate your cooperation with our investigator. We will gladly discuss any questions you have concerning this inspection.

Sincerely,

James G. Keppler,
Regional Administrator

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.Enclosure: Investigation Report No.

50-329/82-13; 50-330.82-13

Standard Distribution

Weil Warnick Norelius Spessard Davis Keppler

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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 Date

Reviewed by: _____ _____
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~~:

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Neil Gehan

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 nours, 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. Instrumentation system was reviewed and 32 of 159 cables had been pulled. 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.

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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

Investigation 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 Region III 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 250 ft ~~March 19~~ April 6th 20%

Boos explained his statements as informing the Region III 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

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.of completion report to the Region III inspectors.

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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)

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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

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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

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.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 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 boiring samples from under the Diesel Generator Building and concluded the soil beneath the Diesel Generator Building and concluded the soil beneath the Diesel Generator Building had been inadequately compacted.

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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 Sturcture.

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. All facets of this investigation, except those listed in paragraphs 4, 7, 11.4, 11.5 and 11.6, were conducted in the presence of Mr. James E. Brunner, CPCO attorney.

4. Interview of RIII Personnel

4.1 Interview of RIII Civil Engineer

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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.

On March 12, 1982, Landsman, Boos, et al 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 recoreded by BPC. A copy of the transcript of the call is attached (Exhibit I).

NOTE: 'Q' refers to work falling within the Quality Assurance

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program. 'Non-Q'refers to work outside of that program).

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 instrumentaiton installations for the remedial soils monitoring program at the Midland Nuclear P· er 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

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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 that 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. Cookk 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.

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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. We 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

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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<<< 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

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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 and informed Boyd 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

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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, 1932, 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.

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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 consioered to me a temporary installation.

During the third week of February 1982 the installation of the conduits 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:

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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

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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 converence telephone call to Region III.

The March 10th meeting was to clarify the areas of the underpinning work

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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

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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 points he was trying to make during the telephone call were: 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 inspectin that work had begun.

From weekly status of 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)

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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 escluded, 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-

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realted 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 caucussed 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.

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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 tc 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

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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

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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:

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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 did not have any effect upon the safe shut-down and maintaining safe shut-down of the reactor. The tunnel beneath the Turbine Building was considered to be non-nuclear-safety related. The tunnel underneath the Turbine Building 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 th 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,

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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 a "Q listed" because any effect of the cable or conduit upon data collect (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 was subject to Hood's statement of March 10<<<
tion 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"

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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

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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 dea,t 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 instrumentaiton 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

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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

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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.

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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.

Budznik 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 spend 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=~~

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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 clairfy 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 disagreet 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.

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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 standpoing 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. Instrumentaiton 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.

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9.5 Interview of Remedial Soild 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

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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 assurnace plan, but would be excluded from NRC review.

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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 pro - gram would begin with Phase 2. The NRC agreed that work underway was "grandfathered out of the program."

Williams recalled during the general discuss of instrumenta- tion 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:

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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"

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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 instalation. 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.

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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:

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The March 12, 1982 telephone call started without him. After reveiweing 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 Marfh 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.

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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. VanderJagt was shown

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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 CT 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, and 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:

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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 presnet 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 installatio.

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 desination, "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~~

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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

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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 Adminsitrator, 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-

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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.

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Keppler 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 telephne calles 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 poisition 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

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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.

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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

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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,

Weil-Garland

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 one & 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

Dupe of previous document

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 lagging~~ ~~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 ~~thay~~ 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~~ lagging 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~~ lagging 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~~ low 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.

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 groups 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.

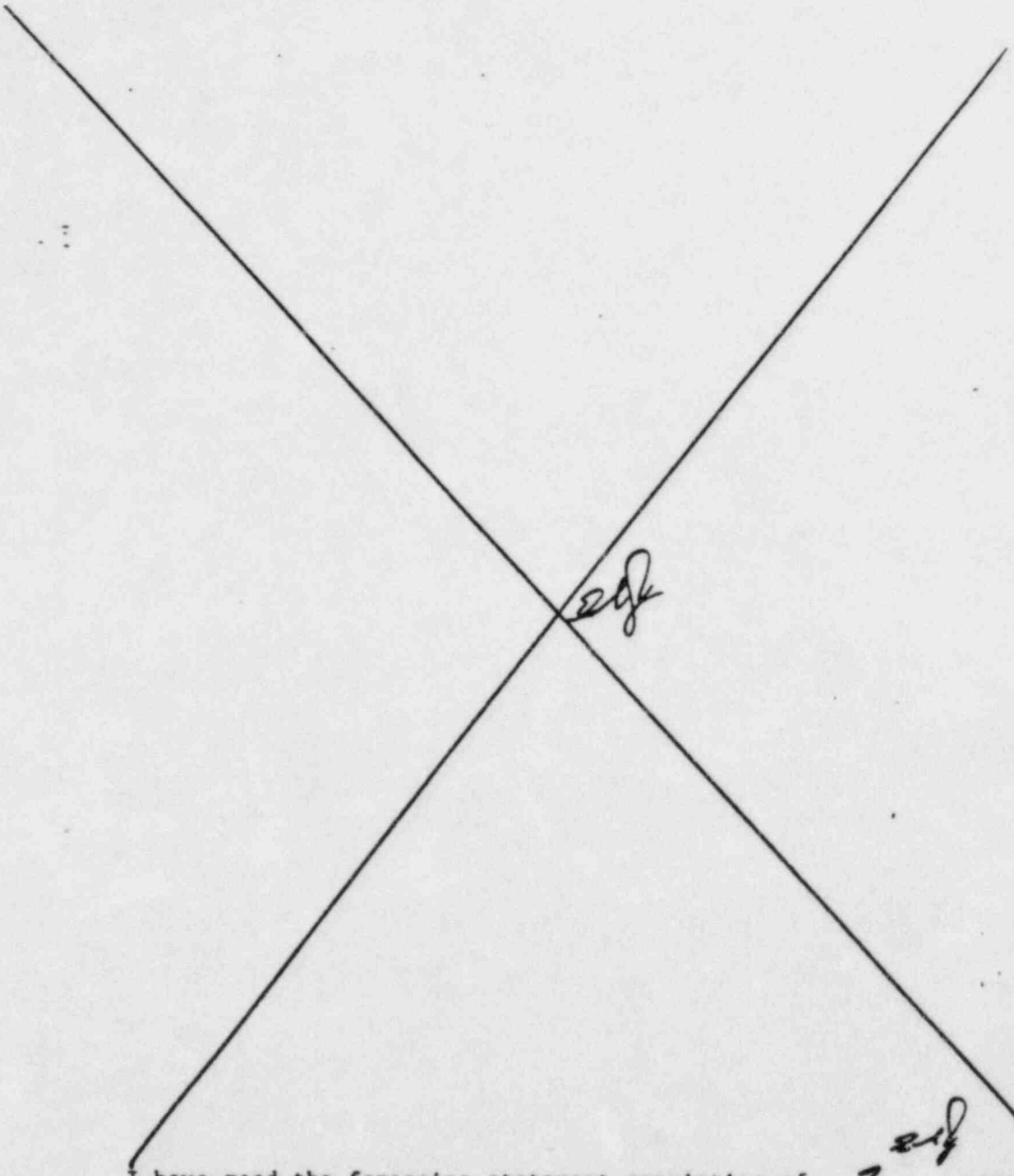
We did tour the Data Acquisition Room on top of the Auxiliary Building with the following:

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.

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, 19 82 at MIDLAND, MI.

CHARLES H. WEIL, INVESTIGATOR
W-MAC AREA III, GLEN ELLYN, IL

Witness:
James E Brennan

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

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EXHIBIT XIII

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Geotechnical Engineers, Inc.
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1017 Main Street
Winchester, Massachusetts 01890

ENCLOSURE

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 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).
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 in 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.

Exhibit XIV

(54)

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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

MIDLAND

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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 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

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

March 12, 1982

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

Hanford
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

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

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 PLAN FOR UNDERPINNING ACTIVITIES

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

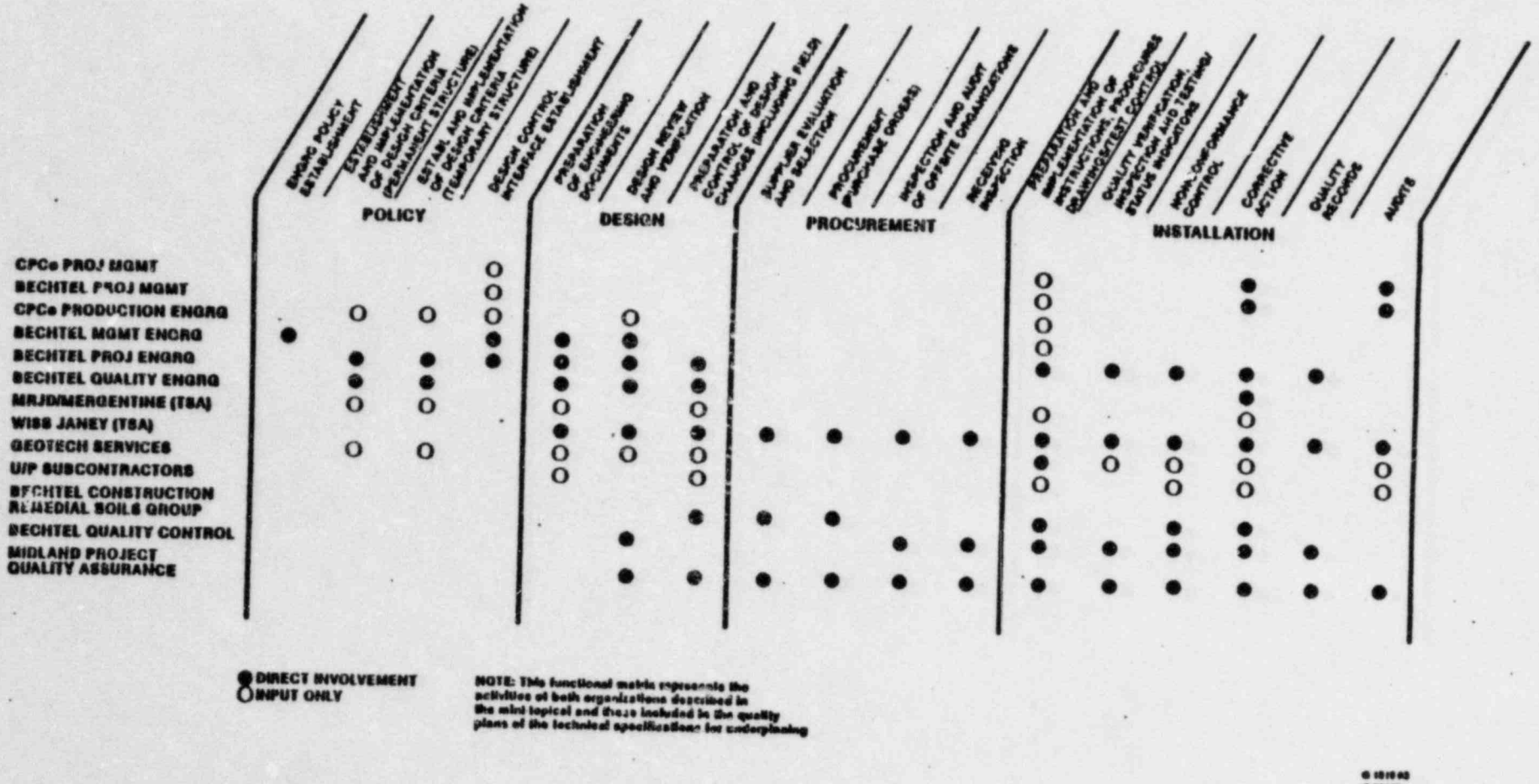
PSP G-1.1	Assignment of Responsibilities, Manual Application and Control
PSP G-3.2	Control of Nonconforming Items
PSP G-5.1	Material Receiving and Storage Control
PSP G-6.1	Inspection Planning
PSP G-7.1	Document, Records and Correspondence Control
PSP G-8.1	Qualification, Evaluation, Examination Training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



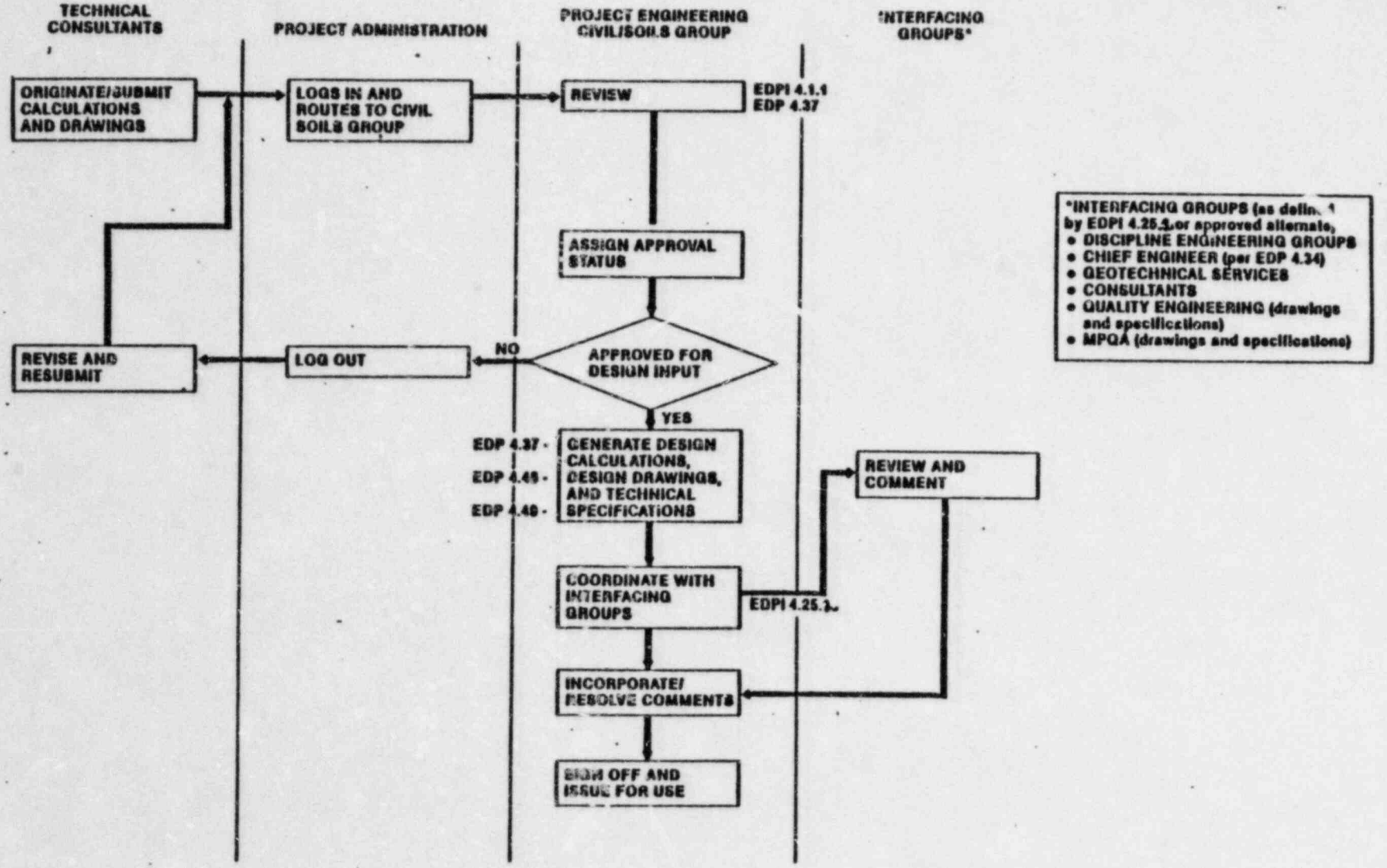
● DIRECT INVOLVEMENT
○ INPUT ONLY

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

MPQP-1
REVISION 0
MARCH 2, 1982

ATTACHMENT 2

DESIGN DOCUMENT INTERFACE FLOWCHART



Handout 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

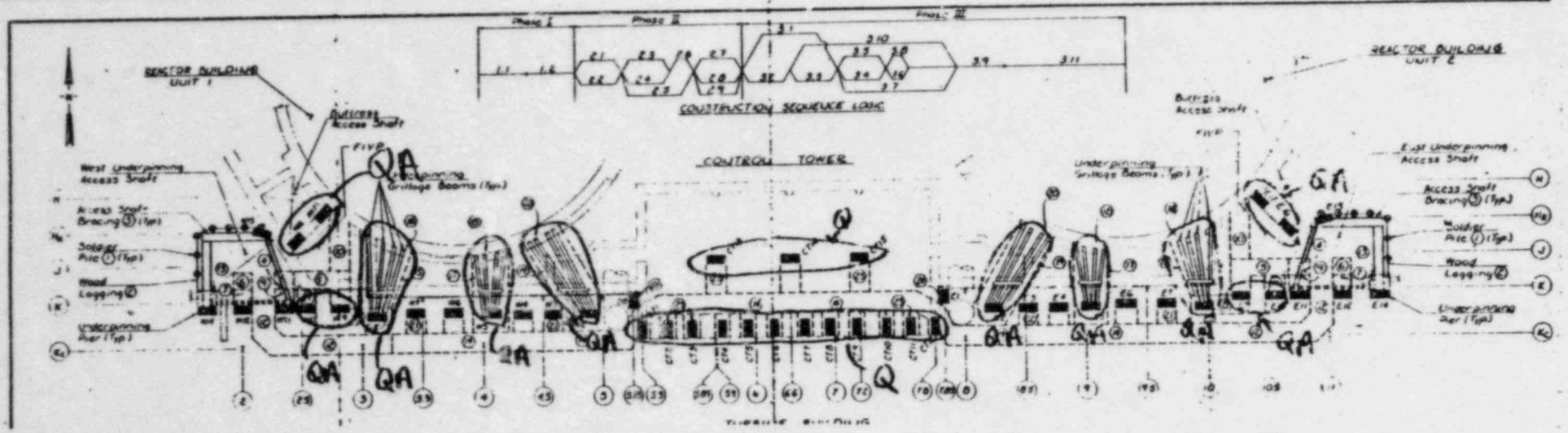
The control room operator action is considered as one of the fundamental means of achieving these criteria.

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


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

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 underpinnir 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 befor 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 betwee the EPA and the Turbine Building and between the Control Tower and th Turbine Building during underpinning operations and suggested three monitoring devices be installed. One device at the top of each wing the EPA's and one at the top of the Control Tower was recommended. Consumers responded that they were now planning to place instruments at those locations in response to questions raised by ASLB but had no yet updated the monitoring locations on Drawings C-1490(Q), C-1491(Q and C-1493(Q). The Staff indicated that criteria on tolerable relat 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 Bethesda 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 structur after lock-off.

The springs for Case 1 are based on sett data obtained since 1977 and the load: ine added during that time. For the seismic subcase the springs are based on the stiff 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 assum a flexible footing.

For the long term settlement case the springs are computed from the estimated settlement afte lock-off and the stimated loads. There are two subcases which were considered: 3a) where the under areas settle more than the main auxiliary building; an 3b) where the main auxiliary building settles more tha

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

Hanbert 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. Toreading 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.

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

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	
rocedure 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 certifying 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 Subcontractors scope of work	X		0	X	X		

LEGEND

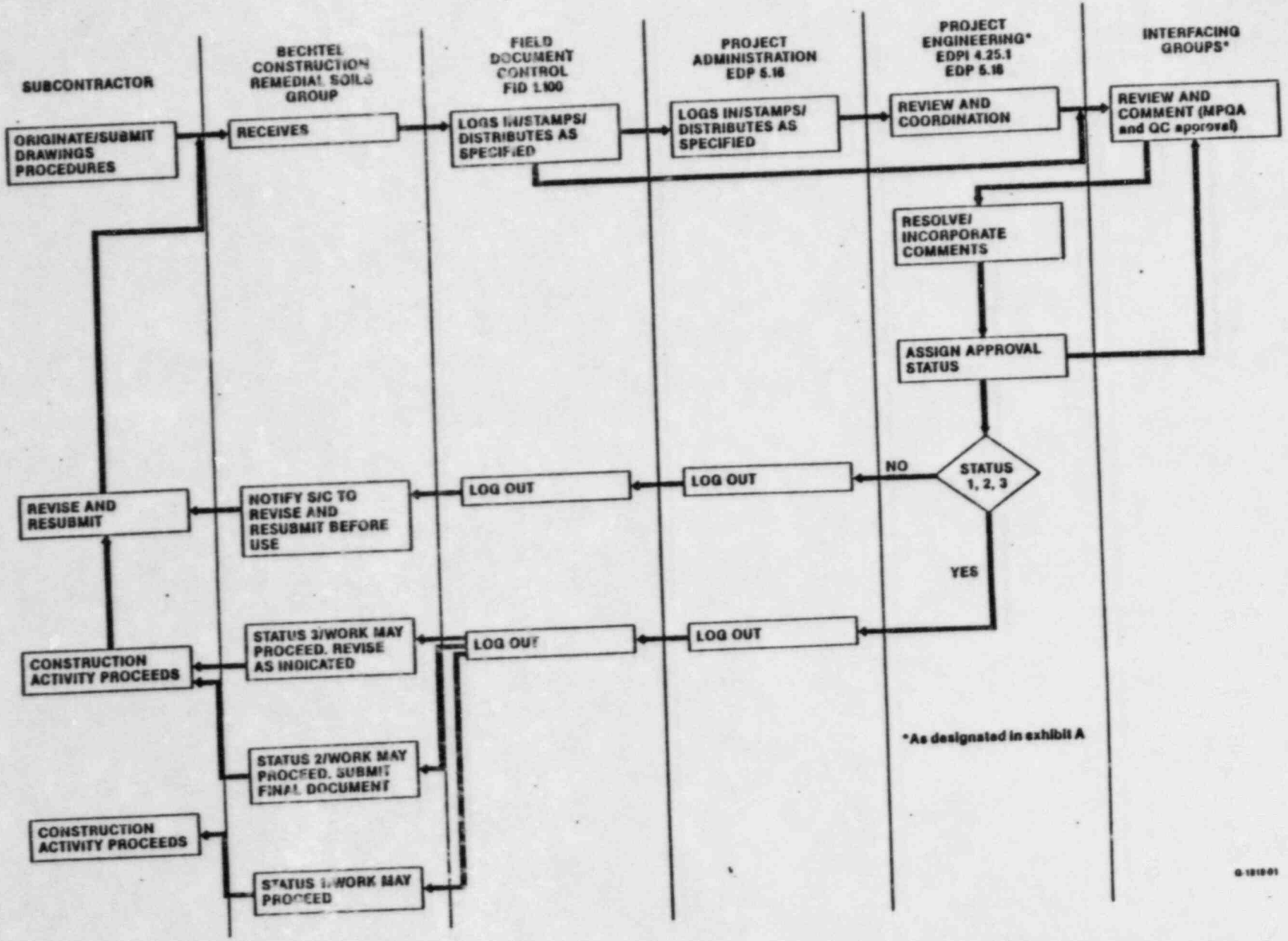
REVIEW & APPROVAL - X

REVIEW & COMMENT - 0 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.

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

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

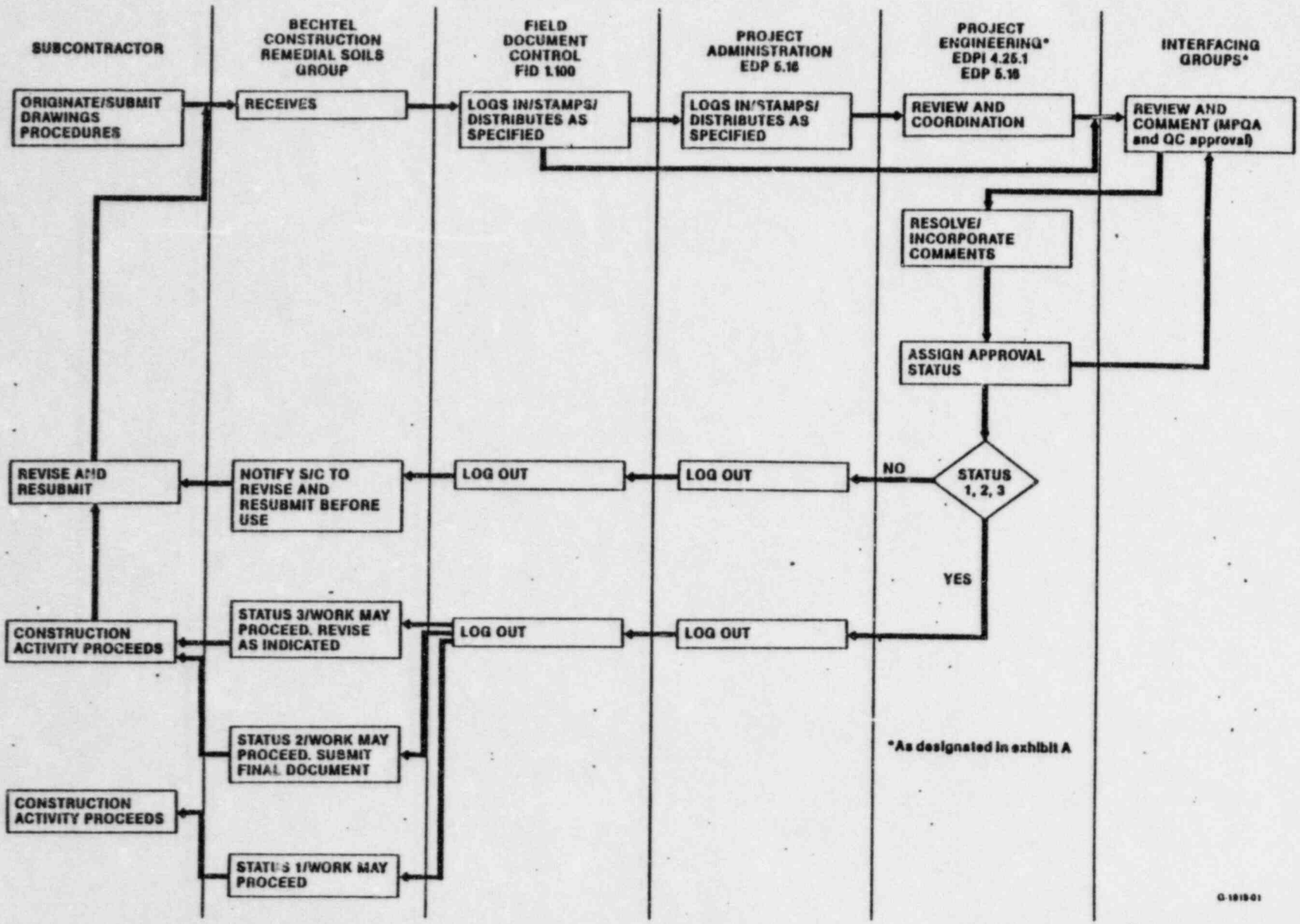
REVIEW & COMMENT - 0
as applicable

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		LEGEND
Procedure for ceritifying subcontractor personnel specifically for AWS welding and mechanical splices.	X		0	X	X		REVIEW & APPROVAL - X
Procedure for Training Program of subcontractor personnel for the Q-Procedures covering the subcontractor scope of work.	X		0	X	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 Powe 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 ne 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 fina lized 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 ar acceptable. Issuance of formal acceptance is awaiting the discussion of the extent of the program's applicability and specifically the items which it wil not cover. Due to the nature of this work, the Staff's initial consideration that essentially all construction activities related to the remedial work shc fall under this program.

CPCo and Bechtel sought to limit full program applicability to those items wh 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 follo clarifications as the logical application of these definitions to the remedi work:

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

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

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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 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

OFFICE	DL:LB#4	LA:DL:LB#4	DL:LB#4				
SURNAME	DHood:eb DH	MDuncan	EAdensam EA				
DATE	3/12/82	3/12/82	3/12/82				