

August 10, 1982

Note to: Elinor G. Adensam

From: William D. Paton

Subject: Quality Assurance Issues to be Addressed at an Evidentiary Session
in the Midland Proceeding

Attached to this note is the July 7, 1982 Memorandum and Order (hereafter "July Order") by the Midland licensing board in which they comment on issues they wish to have addressed at the forthcoming evidentiary session on quality assurance and quality control matters. Those issues are:

1. As discussed on page 3 of the July Order, Staff testimony should discuss "in detail" the basis for the Staff's position set forth in our June 29, 1982 letter in which we expressed our conclusion that it was necessary to supplement the testimony previously submitted with respect to quality assurance. The Board suggests that not only Mr. Keppler be available but also any QC inspectors who might have more detailed knowledge of significant matters dealt with by Mr. Keppler to the extent that their presence might assist in creating an adequate record. We will have to consult with Mr. Keppler to determine precisely what he had in mind when he concluded that it was necessary to supplement his previous testimony, but it appears at this point that one of the major factors was the apparent discrepancies in the facts set forth in our recent SALP report and Consumers' response to that report.
2. Qualifications of QC inspectors. (July Order, p.4)
3. Questions asked by the Board concerning the adequacy of the QA program for underpinning activities. (July Order p.4)
4. "Certain matters" discussed in the Licensing Board's April 30, 1982 Memorandum and Order (hereafter April Order). (I also attached a copy of the April Order).
 - A. The coverage of the QA program for soils related activities.


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- B. The matter referred to by the Licensing Board beginning at page 16 of its April Order concerning a 42 inch diameter hole that was drilled to a depth of 40 feet within the "Q" fill area apparently without proper authority without the development of or adherence to written procedures without the participation of the onsite geotechnical engineer and without adequate QA/QC surveillance.
- C. The matter referred to at page 17 of the Board's April Order concerning loose sands.
- D. Staff inspection reports 82-05 (Detp) and 82-06 (Detp).
- E. NCR #M01-9-2-051 (April 21, 1982), Bechtel Non-Conformance Reports Nos. 4199 (including Stop Work Order FSW-22) and 4245.
- F. The suggestion in the interim ACRS report of June 8, 1982 that there be a broader assessment of Midland's design adequacy and construction quality.
- G. The results of the Staff evaluation of Drawing 7220-C-45 (See Memorandum and Order of May 7, 1982).

The above subjects were addressed by the Licensing Board in its April 30, and July 7, 1982 Orders. There are other QA matters that will have to be addressed at the evidentiary hearing. One is fairly extensive testimony concerning the impact of the subject matter of the "management meeting" that is to take place with CPC sometime within the next 3 weeks. If Mr. Keppler believes that the outcome of that meeting remedies CPC's QA problems, he will have to explain that to the Board.

We may also have to address the subject of recent affidavits provided NRC by GAP and other documents provided Region III concerning ZACK (provided by T.Howard).

Region III confirmed yesterday that they expect to be able to prepare their QA testimony by October 31, 1982.


William D. Paton
Midland Counsel

Enclosures:
July Order
April Order

cc w/enclosures:
Robert F. Warnick (Reg. III)
Ross B. Landsman (Reg. III)
Darl Hood

~~SECRET~~

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see history
pp 9-10

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
Charles Bechhoefer, Chairman
Dr. Frederick P. Cowan
Ralph S. Decker

P3 - our
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away

In the Matter of
CONSUMERS POWER COMPANY
(Midland Plant, Units 1 and 2)

Docket Nos. 50-329 OM
50-330 OM

Docket Nos. 50-329 OL
50-330 OL

April 30, 1982

MEMORANDUM AND ORDER
(Imposing Certain Interim Conditions
Pending Issuance of Partial Initial Decision)

Pending before this Licensing Board are consolidated proceedings arising out of the NRC Staff's December 6, 1979 Order Modifying Construction Permits No. CPPR-81 and No. CPPR-82 (OM proceeding), and the application by Consumers Power Co. for operating licenses for Midland Nuclear Power Plant, Units 1 and 2 (OL proceeding).^{1/} The facility, currently under construction, consists of two pressurized water reactors located in Midland, Michigan.

The Modification Order was generated as a result of the excessive settlement which occurred with respect to the facility's diesel generator

^{1/} The proceedings were consolidated at the request of Consumers Power Co., the Applicant in the OL proceeding and the Licensee in the OM proceeding (hereinafter referred to as "Consumers"). See Prehearing Conference Order, dated October 24, 1980 (unpublished).

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building and other plant structures. Hearings which have been held to date concern the soils settlement issues raised by the Modification Order, as well as related contentions of intervenors in each of the proceedings. (The majority of the soils settlement contentions have been sponsored by Ms. Barbara Stamiris, an intervenor in the OM proceeding.) As reflected in our Memorandum^{2/} of October 2, 1981, we have determined to issue separate partial initial decisions dealing with various aspects of the soils issues. The first, now under preparation, deals with quality assurance/quality control (QA/QC) and management attitude issues, as delineated in the October 2, 1981 Memorandum. With limited exceptions, the record on these matters was closed on February 19, 1982, following some thirty-five days of hearings.^{3/} The second will deal with proposed remedial actions to correct the soils settlement problems. Hearings on these matters are not yet completed, partially as a result of the as-yet developing positions of all parties on these questions.

With respect to the QA/QC and management attitude issues, proposed findings of fact and conclusions of law, and supplemental proposed findings and conclusions covering matters as to which the record was reopened, have been received from all interested parties, and Consumers has just recently filed its replies to each of the proposed and supplemental proposed findings and conclusions of the other parties. During the course of our

^{2/} Memorandum (Concerning Telephone Conference Call of September 25, 1981 and Applicant's Motion for Partial Decision), dated October 2, 1981 (unpublished).

^{3/} Certain aspects of these issues will remain open until our second partial initial decision.

review of these various filings, as well as of the entire record, we have determined that certain conditions governing further construction, as set forth in Section VI of this Memorandum and Order, should be put into effect immediately, pending the completion of our review and the issuance within approximately two or three months of our first Partial Initial

Decision.^{4/} Our reasons follow.

I. Background

Under construction permits such as are in effect for the Midland plants, a permittee may normally engage in construction activities in accordance with the principal architectural and engineering criteria and environmental commitments set forth in the application for the facility and the construction-permit hearing record, without seeking prior approval of the NRC Staff. The permittee undertakes such activities at its own risk; they are subject to Commission approval before an operating license may be granted. See 10 C.F.R. §50.57; Cf. Northern Indiana Public Service Co. (Bailly Generating Station, Nuclear-1), CLI-79-11, 10 NRC 733 (1979), reversed on other grounds, sub nom. People of the State of Illinois v. NRC

^{4/} This procedure has been previously utilized by the Appeal Board with respect to these very same reactors. ALAB-106, 6 AEC 182 (1973).

We note that, in a telephone conference call on April 28, 1982, the Staff indicated that it might reconsider certain earlier testimony expressing reasonable assurance that Consumers' QA program will be appropriately implemented with respect to future soils construction activities (Keppler, prepared testimony, p. 9, fol. Tr. 1864). It requested that we cancel certain near-term hearings which we had scheduled, and we did so. Memorandum and Order (Cancelling Evidentiary Hearings and Conference of Counsel or Representatives), dated April 28, 1980 (unpublished). As a result, our first Partial Initial Decision could be delayed beyond the time frame we are now projecting.

(D.C. Cir. No. 80-1163, July 1, 1981). The December 6, 1979 Modification Order would have modified this regime by prohibiting certain construction activities with respect to safety-related structures and systems affected by the soils settlement problems which have been aired in the ongoing consolidated proceeding. The prohibited activities could not be undertaken absent (1) submission of an amendment to the application seeking approval of remedial actions, and (2) issuance of an amendment to the construction permits authorizing the remedial actions.^{5/} The Modification Order further provided that a hearing could be requested by Consumers or other interested person and, if it were, the Order would go into effect only as a result of an order made following the hearing.^{6/}

The construction activities which the Modification Order would have prohibited consist of the following:^{7/}

- (a) any placing, compacting, or excavating soil materials under or around safety related structures and systems;
- (b) physical implementation of remedial action for correction of soil-related problems under and around these structures and systems, including but not limited to:
 - (i) dewatering systems
 - (ii) underpinning of service water building

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ORDER

^{5/} Modification Order, Part IV. The Modification Order has been admitted into evidence as Stamiris Exh. 3, Attachment 15 (Tr. 2479).

^{6/} Modification Order, Part V.

^{7/} Modification Order, Part IV.

- (iii) removal and replacement of fill beneath the feedwater isolation valve pit area
 - (iv) placing caissons at the ends of the auxiliary building electrical penetration areas
 - (v) compaction and loading activities;
- (c) construction work in soil materials under or around safety-related structures and systems such as field installation of conduits and pipings.

Had the hearings in the OM proceeding not been requested, Consumers could not have undertaken any of the foregoing activities without submitting an amendment to its application and obtaining construction- permit amendments authorizing such activities. Since the hearing was requested, the normal construction permit authority remains in effect, and no construction permit amendment (or other NRC authorization) needs to be sought in order for Consumers to engage in the activities in question.

Both the Modification Order (Part V) and the Commission's Notice of Hearing of March 14, 1980 (45 Fed. Reg. 18214, March 20, 1980) stated that this Board is to consider and decide the following issues:

- (1) Whether the facts (concerning quality deficiencies) set forth in Part II of the Order are correct; and
- (2) Whether that Order should be sustained.

II. Facts Underlying Modification Order

One of the bases for the Modification Order was the allegation that there had been a breakdown in quality assurance related to soils. Another

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basis was that Consumers had not provided the information which the Staff and its consultants required to permit a thorough safety review of proposed remedial actions.^{8/} As a result of these deficiencies, the Staff concluded that it did not have reasonable assurance that the safety-related portions of the Midland facilities would be so constructed that they could be operated without undue risk to public health and safety.

With regard to the first basis, Consumers and the Staff entered into a stipulation on June 5, 1981, in which Consumers conceded that prior to December 6, 1979 there were quality assurance deficiencies related to soil construction activities. Consumers agreed not to contest the Staff's conclusion that these deficiencies constituted a breakdown in quality assurance with respect to soils placement at Midland, and it acknowledged that the deficiencies constituted an adequate basis for issuance of the Order.^{9/} With regard to the second basis for the Order, the Staff and Consumers entered into two additional stipulations in which Consumers agreed not to contest that, as of December 6, 1979, the NRC Staff had insufficient information to evaluate the proposed remedial actions for the auxiliary building, for the borated water storage tanks and underground piping.^{10/}

^{8/} We are here making no findings and reaching no conclusions with respect to a third basis for the Order, an alleged material false statement. Hearings on that subject are not yet completed although we have heard testimony on the management-attitude aspects of the alleged statement.

^{9/} Applicant/Staff Joint Exh. 1, following Tr. 1175, admitted at Tr. 1188.

^{10/} Applicant/Staff Joint Exhs. 2 and 3, dated December 1, 1981 and February 9, 1982, respectively (Tr. 5447, 7164).

As a result of these stipulations, we are able at an early stage of our review to conclude, with respect to the first hearing issue, that the facts set forth in Part II of the Modification Order (to the extent they relate to soils QA deficiencies and the adequacy on December 6, 1979 of the Staff's information to review remedial actions) are correct and constituted an adequate basis for issuance of the Order. Consumers, the NRC Staff, and intervenor Barbara Stamiris each submitted proposed findings to this effect.^{11/}

III. Facts Giving Rise to Interim Requirements

We have not yet completed our review of the second hearing issue--i.e., whether and, if so, to what extent, the Modification Order should be sustained. Consumers has described this issue as "whether the safety issues [giving rise to the facts set forth in Part II of the Modification Order] have been resolved so that the quality assurance program with respect to soils is now being properly implemented and there is reasonable assurance such implementation will continue through the construction process."^{12/} Ms. Stamiris has described it somewhat similarly, as "whether as a result of revisions, improved implementation, and other factors, this Board has reasonable assurance that the QA and QC programs will be appropriately implemented with respect to future soils construction and remedial activities".^{13/} However, they reach different answers to this question.

^{11/} Consumers Proposed Findings ¶ 35; Staff Proposed Findings, ¶¶ 236-237; Stamiris Proposed Findings, ¶ 10.

^{12/} Consumers Proposed Findings, ¶ 37 [sic; should be 36].

^{13/} Stamiris Proposed Findings, ¶ 10.

Consumers asserts that, as a result of organizational and procedural changes which it has put into effect since the issuance of the Modification Order, its QA program is now being properly implemented. It urges us to find reasonable assurance that the future soils construction activities including the remedial actions taken as a result of inadequate soils placement will be accomplished in accordance with QA principles of public health and safety.^{14/} On the other hand, although Ms. Stamiris concedes that Consumers' organizational changes represent a "positive response",^{15/} she nonetheless concludes that the implementation of QA at Midland is inadequate^{16/} and that the same kind of problems and weaknesses currently exist as had lead to problems in the past.^{17/} She would have us put the Modification Order into effect and shut down soils-related construction immediately.^{18/} The NRC Staff also gave its reasonable assurance that the QA program would be properly

^{14/} Consumers Proposed Findings, ¶¶ 81-83.

^{15/} Stamiris Proposed Findings, ¶ 222.

^{16/} Stamiris Proposed Findings, ¶ 221.

^{17/} Stamiris Proposed Findings, ¶ 225.

^{18/} Stamiris Proposed Findings, ¶ 254; Part III.C.

implemented,^{19/} although at least one of its witnesses expressed some reservations (Tr. 2441-42 (Gallagher)).^{20/}

We do not at this point in our review express any opinion with respect to those positions--except to note that none of them is baseless and all have evidentiary support. The resolution of this broad issue will, as we have seen, affect the degree to which and the manner in which soils-related construction activities (and particularly remedial actions) will be permitted to continue.^{21/}

As background for our approach to this question, we deem it important to note that the QA/QC deficiencies which are addressed by the Modification Order are not the first instances where Consumers has experienced difficulty in properly implementing its QA/QC program. The Appeal Board pinpointed one such instance in ALAB-106 (fn. 4, supra), and it imposed conditions designed to alleviate the deficiencies which it found to exist. Later, questions were raised concerning the QA/QC organization being utilized for this facility. ALAB-132, 6 AEC 431 (1973); ALAB-147, 6 AEC 636 (1973); ALAB-152, 6 AEC 816 (1973). Subsequently, the Staff issued a show-cause order which

HISTORY

^{19/} NRC Staff Proposed Findings, ¶ 375.

^{20/} Mr. Gallagher stated that he supported Mr. Keppler's conclusions concerning implementation of the QA program "entirely" but added that he "would like to see some other things to be included" (Tr. 2455). See also fn. 4, supra, ¶ 2.

^{21/} As we have pointed out (pp. 4-5, supra), the most stringent condition we could impose on those activities under the Modification Order would be to prohibit such activities pending submission of an amendment to the applications and issuance of construction-permit amendments authorizing remedial action. All or any portion of that condition could be put into effect. Cf. Public Service Co. of Indiana (Marble Hill Nuclear Generating Station, Units 1 and 2), CLI-80-10, 11 NRC 438 (1980); Wisconsin Electric Power Co. (Point Beach, Unit 1), CLI-80-38, 12 NRC 547 (1980).

was founded on other QA/QC deficiencies, and additional corrective actions were mandated. ALAB-283, 2 NRC 11 (1975), clarified, ALAB-315, 3 NRC 101 (1976). During that show-cause proceeding, the Appeal Board remarked that "non-compliance with the Commission's quality assurance regulations is * * * a problem which has plagued the construction of this facility." ALAB-270, 1 NRC 473, 476 (1975).^{22/}

With this history before us, early in this proceeding we expressed concern about the adequacy of and the potential safety impact of ongoing construction activities (Tr. 754-55). On the opening day of the hearing, the Staff responded to our inquiry by presenting testimony regarding soils-related construction of the type that would be going on during the period of time before we could issue a decision governing construction encompassed by the Modification Order.^{23/} From that testimony, it appeared to us that Consumers was at that time consulting with and seeking approval of the Staff before engaging in any of the construction activities there under consideration--i.e., installation of 20 permanent back-up interceptor wells in the area near the Service Water Structure and the Circulating Water Intake Structure, and surcharging of the two valve pits

^{22/} See also Board Exhs. 1A and 1B (Tr. 1875), which contain a summary of problems experienced at Midland since the start of construction.

^{23/} Testimony and Supplemental Testimony of Darl S. Hood, both following Tr. 1097.

which are adjacent to each of the Borated Water Storage Tanks.^{24/} Although all of the outstanding questions raised by the Staff concerning those proposed remedial activities had not then been resolved, the Staff expressed its "reasonable assurance" that the activities would be performed in an acceptable manner.^{25/} We interpret that reasonable assurance conclusion as premised upon Consumers' affording the Staff the opportunity to review the proposed resolution of the unresolved questions.^{26/}

In addition, Consumers advised us that, in February, 1980, it had voluntarily committed not to proceed with further remedial actions without Staff review and concurrence.^{27/} (Insofar as the record reflects, this commitment appears to have been an oral one, not reduced to writing prior to its incorporation into testimony in this proceeding.) That Consumers will provide the Staff with sufficient information to permit a thorough safety review is inherent in this commitment.

We find no indication in the record that Consumers has failed to honor this commitment. For its part, the Staff agreed that it would accept information through meetings and presentations rather than an amendment to

^{24/} Hood, prepared testimony, p. 2. Those were the only two soils-related activities then under way or planned to be undertaken by Consumers in the near term (Tr. 1112).

^{25/} Hood, supplemental testimony, p. 3. Subsequently, on December 10, 1980, the Staff approved the installation of 5 additional temporary dewatering wells. Staff Exh. 13 (Tr. 6901).

^{26/} Hood, prepared testimony, p. 3; supp. test., pp. 2,3; Tr. 1113-14, 1119.

^{27/} Testimony of Gilbert S. Keeley, fol. Tr. 1163, p. 13.

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the application. Beyond the two matters about which the Staff initially testified, the Staff has utilized this arrangement to approve such activities as construction of access shafts and a freezeway in preparation for underpinning the auxiliary building and feedwater isolation valve pits,^{28/} and any drilling activities near seismic Category I underground utilities and structures (Tr. 5485-86). During the hearing, Consumers agreed that the commitment would be extended to the matter of crack evaluation, a question which Consumers judged to be less important than does the Staff (Tr. 5735-38). As far as we are aware, certain additional remedial actions to which the commitment is being applied are currently under review or in progress.

From the present stage of our review, it appears that Consumers' voluntary agreement has resulted in adequate Staff surveillance of the proposed remedial actions covered thereby, prior to Consumers' commencement of the remedial actions. Consumers itself has acknowledged the usefulness to it of its consultation with the Staff prior to the initiation of remedial activities (Tr. 5660-61). At this time, we are making no changes to the procedures utilized under this arrangement.

It is important to note, however, that Consumers' commitment does not extend to all the activities which Part IV of the Modification Order would have prohibited (Tr. 1202-1212, 1390). The scope of the oral commitment is not clearly defined. While it appears essentially to cover those major

^{28/} Letter dated November 24, 1981, from Darl Hood (NRC) to James W. Cook (CPC) (Staff Exh. 5, Tr. 5467).

remedial actions within the scope of Section 1(b), but not activities falling within Sections 1(a) and 1(c), of Part IV of the December 1979 Order (Tr. 1420-1422), there is some ambiguity whether certain activities may fall within Section 1(b) or one of the other categories.

Although we have no objection to the Staff/Consumers working relationship for those portions of the remedial work to which the commitment applies, several matters of record cause us to be dissatisfied with the limited scope of activities covered. More specifically, as a result of the matters described in this section of this Memorandum and Order, augmented by the related information appearing in Part IV, we are of the view that certain activities outside the scope of Consumers' commitment but within the coverage of the prohibition in the Modification Order should be subject to prior Staff review and approval.

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① piping

The first of these matters which gives us concern is that of underground piping. Consumers proceeded with work associated with underground piping which carries cooling water essential to safety without seeking or receiving formal Staff concurrence (Tr. 7784, 7788a). This work would clearly have been prohibited under Part IV, Section 1(c) of the Modification Order, and it could also be interpreted as falling within Section 1(a) (Tr. 7788c). The record is confusing as to whether the Staff regarded Consumers' commitment as in fact covering that type of remedial action (Tr. 7781-7783, 7788a-7790, 7894-7901).^{29/} The Staff expressed

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^{29/} We disagree with Consumers' response to Ms. Stamiris' Proposed Findings and Conclusions, ¶ 8, pp. 6-7.

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the opinion that underground piping should be covered by the commitment (Tr. 7788c, 7789, 7899). Underground piping was of concern to the Staff prior to its issuance of the Modification Order.^{30/} One reason we believe it essential that safety-related activities such as the rebedding of piping should have prior full Staff review and concurrence is that once such work is performed and the piping then recovered with earth, it is no longer accessible for inspection for such concerns as have been identified during the course of this hearing--e.g., corrosion (Tr. 7683-86, 7827-35), deformation (Tr. 7913-14), quality of foundation soils (Tr. 7911), pipe welds (Tr. 7652-56), and condition of pipe wrapping materials (Tr. 7860, 7914-15). Therefore, adequate QA/QC surveillance is fundamental to assuring safety. The Staff has expressed its desire, in fact, to review such matters ~~as~~ as compaction criteria and procedures prior to the work taking place, and to be able to inspect the work while being performed (Tr. 7899). Moreover, the Staff has stated that it had ~~insufficient~~ soil-profile information to evaluate distortion in pipes buried in soils which have settled.^{31/}

The second reason for our requiring further Staff review and approval prior to the start of soils-related construction differs from the first in that it does not stem from a single type of construction activity. Rather, it pervades the entire spectrum of soils-related construction activities. As a result of Board questioning, we have some doubt whether, in the absence

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^{30/} I.E. Rept. 79-06, dated April 4, 1979 (Stamiris Exh. 3, Att. 8, at p. 5).

^{31/} Kane, prepared testimony, fol. Tr. 7752, p. 3.

of Staff review and approval, Consumers would carry out certain remedial soils activities using appropriate QA procedures and principles. Its witnesses presenting the remedial plans for the auxiliary building were unsure of the manner in which QA principles would be applied to that operation (Tr. 5530-32). With respect to the engineering of the remedial actions, Consumers was able to describe the QA procedures it had already followed (Tr. 5718-20), but it also indicated that it did not consider the engineering a problem area and was therefore not applying any specialized procedures to those activities (Tr. 5622)--despite the fact that it had to formulate and rework its plans four different times before it obtained a system acceptable to the Staff (Tr. 5647-58). Consumers does not appear to have obtained Staff approval with respect to the engineering QA procedures which it had followed (Tr. 5750). Furthermore, Consumers seems to have a tendency to treat as many structures as possible as non Q-listed (and, hence, as not subject to QA controls) (Tr. 5626, 5671-72).

For these reasons, we are not completely satisfied as to the extent to which QA plans and controls are to be applied by Consumers to underpinning activities. In particular, we are concerned about areas adjacent to, but not necessarily directly under, safety-class structures. These activities include boring of large diameter, closely spaced holes for soldier piles which would penetrate low shear-strength soil layers at elevations below the foundations of adjacent safety-class structures (Tr. 5674-79; 5765-71), and essentially all underpinning activities beneath the turbine building the failure or tilting of which might influence the safety or future seismic

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resistance of the adjacent safety-class structures (Tr. 6083-85; 7125-27). These potential QA/QC gaps lead us to believe that, at least in the near future, the commencement of safety-related activities of this type should be subject to the Staff's approval--particularly as to whether specific activities are to be covered or not covered by an appropriate QA plan.^{32/}

IV. Related Matters Substantiating
The Need for Interim Conditions

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Certain matters which have been the subject of notifications by various parties to the Board tend to accentuate what we regard as the need for the interim conditions we are imposing. These matters have not yet been the subject of evidentiary hearings, and we express no final view as to their accuracy or import. Nonetheless, we regard these matters as closely relevant to the facts on which we have taken evidence and pertinent to our determination that interim conditions should be imposed.

As one example of this type, representing an activity we believe should be covered by the commitment, the Board has been informed by way of a Consumers' Non-Conformance Report that a 42-inch diameter hole was drilled to a depth of 40 feet within the "Q" fill area, apparently without proper authority; without the development of, or adherence to, written procedures;



^{32/} We understand that Consumers later indicated that monitoring instruments would be placed before commencing underpinning activities to measure horizontal movements between the turbine building and adjacent structures "in response to questions raised by the Atomic Safety and Licensing Board". Memorandum dated March 11, 1982 from Darl Hood, Summary of March 8, 1982 Telephone Conversation Regarding Soil Spring Stiffnesses for Auxiliary Building Underpinning and Phase II Construction.

without the participation of the On-Site Geotechnical Engineer; and without adequate QA/QC surveillance, if any.^{33/} We hasten to point out that we have not yet heard evidence on this report and express no view as to its accuracy. It appears, however, to describe the type of activity which is encompassed by the prohibition in Part IV, Section 1(a) of the Modification Order. Moreover, if the NCR is accurate, the activity would constitute a prime example of the kind of work which we believe should be subject to prior Staff review and concurrence.

Additionally, we have also recently been notified of loose sands located in the plant fill north of the Service Water Structure and Circulating Water Intake Structure. This loose sand reportedly underlies about 500 feet of seismic Category I pipe. We understand that Consumers has decided to remove and replace this material to avoid potential liquefaction problems.^{34/} Once again, we express no view as to the validity of this information. But considering the vagueness as to the limits of Consumers' commitment and the apparent potential effect on public safety of these construction activities should the plant later be allowed to operate, we deem it necessary at this time to eliminate any uncertainty and

^{33/} NCR # M01-4-2-008 Rev.T, dated February 25, 1982, transmitted to the Board and parties by letter dated March 12, 1982, from James E. Brunner, CPC. The Board requested that it be provided with audit reports of this type (Tr. 5975-76).

^{34/} Memorandum from Darl Hood, Notification of Loose Sands Beneath Service Water Piping, March 16, 1982. See also letter from James W. Cook to Harold R. Denton, Additional Information Concerning Safety Grade Buried Piping, March 16, 1982.

to require that any remedial actions intended to rectify this matter receive full Staff review and concurrence before being undertaken.

Finally, the Board notes that the Staff has disagreed with Consumers^{35/} over the extent of QA coverage and control of the underpinning activities beneath the safety-class and adjacent non-safety class buildings. The disagreement apparently has been resolved by Consumers' agreeing that essentially all underpinning activities would be subject to Q-controls, except for certain already completed activities and certain agreed-upon non-critical activities.^{36/}

Although the Board recognizes that these disagreements may reflect genuine differences of interpretation of requirements in Appendix B to 10 C.F.R. 50, we deem it important to public safety that, pending the completion of our QA review, the Staff's more conservative interpretation should apply to remedial work activities, some of which are, or shortly will be, in progress. Accordingly we have made the elements of that agreement part of this Interim Order. Again, while we express no views as to the validity of those matters brought to our attention outside the actual hearings, they represent the kinds of issues that were alleged in the December 6, 1979 Modification

^{35/} Memorandum dated March 12, 1982, from Darl Hood, subject: Summary of March 10, 1982 Meeting Concerning Quality Assurance To Be Applied To Remedial Foundation Work.

^{36/} Letter, James W. Cook (CPC) to J. G. Keppler (NRC), dated April 5, 1982, subject: Quality Assurance for Remedial Foundation Work.

Order, and that were the subject of ongoing efforts by the Staff and Consumers to resolve them.

V. Description of Interim Requirements

As a result of the various safety problems which we have described in Section III, above, the potential and related problems described in Section IV, above, and the imminence of the commencement of additional safety-related work activities on remedial measures for the soils settlement problems which we have been considering, we find it necessary to act now to remove ambiguities in Consumers' commitment to obtain prior Staff approval for remedial measures. Pending the completion of our review of the record and issuance of a partial initial decision, we are requiring that the construction permits be amended to prohibit (in the absence of Staff approval) the same activities as would have been prohibited by Section IV of the Modification Order. (We are updating the requirement to take account of certain developments which have occurred since December 6, 1979.) This requirement would not apply to any of the activities as to which the NRC has already given its approval. Nor does it dictate the manner in which the Staff may exercise its review--i.e., whether piecemeal (individual construction steps) or as an integrated package. In addition, for the reasons we have outlined, we are requiring that certain of these activities

~~only certain~~

be governed by a QA plan.^{38/} We have pointed out that some of the material which we have considered in this order has not yet been the subject of a completed evidentiary hearing; indeed, the scope of our QA requirement is premised in part upon an apparent agreement between Consumers and the Staff contained in material of this sort. Letter of James C. Cook, fn. 36, supra. We expect Consumers and the NRC Staff to present testimony on these open items at a later evidentiary session.

We stress that in our forthcoming Partial Initial Decision we will reexamine the terms and conditions which we are here imposing on an interim basis. At that time, we may reaffirm, expand or remove them. Until such time, however, we find that the Modification Order should be made effective to the extent which we have described. We stress that we are not at this time requiring the submission or approval of any amendments to the applications for construction permits (as provided by the Modification Order). In our opinion, the Staff consultation and approval which we are requiring will achieve the substantive results we believe necessary without adding certain procedural requirements of an application for a construction permit amendment which, in the present context, do not appear to be necessary to attain the safety goals which we believe should be achieved.

38/ To require a QA plan for safety-related remedial soils construction activities is consistent with the requirements of 10 C.F.R. §50.34(a)(7). We note that the large-scale underpinning and other remedial activities which are being undertaken are sufficiently distinct from the activities contemplated during the construction-permit review as to warrant a supplementation of the applicable QA program.

VI. Order

Based on the foregoing, it is, this 30th day of April, 1982

ORDERED

That the Director of Nuclear Reactor Regulation, in accordance with 10 C.F.R. §2.764(b), is authorized to amend Construction Permits CPPR-81 and CPPR-82 as follows:

(1) Construction Permits CPPR-81 and CPPR-82 shall be amended to require that the permit holder obtain explicit prior approval from the NRC Staff (to the extent such approval has not already been obtained) before proceeding with the following soils-related activities, and that these activities, with the exception of those already approved by the NRC, and those that the Staff agrees are not critical, shall be controlled by a Staff-approved Quality Assurance Plan:

need not be in writing

[scribble]

[scribble]

★

spec. C-45 drawing

- (a) any placing, compacting, excavating, or drilling soil materials around safety-related structures and systems;
- (b) physical implementation of remedial action for correction of soil-related problems under and around safety-related structures and systems, including but not limited to:
 - (i) dewatering systems
 - (ii) underpinning of service water building
 - (iii) removal and replacement of fill beneath the feedwater isolation valve pit areas, auxiliary building electrical penetration areas and control tower, and beneath the turbine building

added to Mod. Order



- (iv) placing of underpinning supports beneath any of the structures listed in (iii) above *new*
- (v) compaction and loading activities;
- (c) construction work in soil materials under or around safety-related structures and systems such as field installation, or rebedding, of conduits and piping.
- (2) Paragraph (1) above shall not apply to remedial actions approved by the NRC Staff prior to the effective date of this Order, nor to any exploring, sampling, or testing of soil samples associated with determining actual soil properties on site which has the approval of the Director of Region III, Office of Inspection and Enforcement. These testing activities, however, shall be controlled by a Staff-approved Quality Assurance plan which includes procedures for controlling excavation or drilling activities more than 6-feet deep in "Q" areas.

In accordance with 10 C.F.R. §§ 2.760, 2.762, 2.764(a), 2.785 and 2.786, this Memorandum and Order shall be effective immediately upon issuance and shall constitute the final action of the Commission on the matters considered herein forty-five (45) days after issuance, subject to any review pursuant to the above-cited Rules of Practice. Exceptions to this Memorandum and Order may be filed by any party within ten (10) days after its service. A brief in support of the exceptions shall be filed within thirty (30) days thereafter (forty (40) days in the case of the NRC Staff). Within thirty (30) days of the filing and service of the brief of

the appellant (forty (40) days in the case of the NRC Staff), any other party may file a brief in support of, or in opposition to, the exceptions.

THE ATOMIC SAFETY AND
LICENSING BOARD

Charles Bechhoefer
Charles Bechhoefer, Chairman
ADMINISTRATIVE JUDGE

Frederick P. Cowan ^{CB}
Dr. Frederick P. Cowan, Member
ADMINISTRATIVE JUDGE

Ralph S. Decker
Ralph S. Decker, Member
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland

this 30th day of April, 1982.

Judge Jerry Harbour, who has served as a technical interrogator and an alternate Board member during portions of the hearings concerning management attitude and quality assurance matters, and who has replaced Judge Decker for the forthcoming segments of the consolidated OL-OM proceeding (with the exception of the first Partial Initial Decision and orders, such as this one, which are integral to that Decision), supports the rulings and reasoning included in this Memorandum and Order.



James W Cook
 Vice President - Projects, Engineering
 and Construction

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

August 9, 1982

Mr Harold R Denton, Director
 Office of Nuclear Reactor Regulation
 Division of Licensing
 US Nuclear Regulatory Commission
 Washington, DC 20555

PRINCIPAL STAFF			
RA		CI	
D/RA		ENR	
A/RA		SP	
OPERB		PAO	
OPERB		SLO	
STP			
ML			
DL		FILE	

MIDLAND NUCLEAR COGENERATION PLANT
 MIDLAND DOCKET 50-329, 50-330
 FEEDWATER ISOLATION VALVE PIT (FIVP)
 LOAD VERIFICATION
 FILE: 0485.16, 0.4.9.20.6, 5.17 SERIAL: 18421

- REFERENCE: (1) LETTER D G EISENHUT TO J W COOK, COMPLETION OF SOILS REMEDIAL ACTIVITIES REVIEW, DATED MAY 25, 1982
- (2) LETTER W P HAASS TO J W COOK, NRC ACCEPTANCE OF REVISED CP CO QUALITY ASSURANCE TOPICAL REPORT, DATED MAY 19, 1982

P. 15 Topical-1

Attached are copies of (1) the Midland Project Quality Plan for Underpinning Activities (MPQP-1, Revision 3) and (2) the Midland Project Quality Plan for Remedial Soils Activities and Soils Related Work in Q Areas (MPQP-2, Revision 0). These plans have been previously reviewed by Dr Ross Landsman and Mr John Gilray, as indicated in the attached Summary of CP Co-NRC Meeting between W R Bird and J Gilray on July 6, 1982. (Attachment 3).

On August 3, 1982, Mr J A Mooney was advised that NRR desired a submittal of the enclosed Quality Assurance Plans to formally document the material previously reviewed with Mr Gilray and Dr Landman. This submittal meets that request.

It is anticipated that minor revisions of the Quality Assurance Plans or of the topical reports referenced above may occasionally be necessary. The Company intends to submit proposed revisions to the Quality Plans bearing on the work covered by the April 30 Board Order for approval by NRR before putting such revisions into effect. Changes to the Topical Report will be continued to be handled as per the approved CPC-1A Topical as given by NRR

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letter of May 19, 1982 (Reference 2). It would be very helpful if the NRR Staff could act promptly in such circumstances so that necessary revisions can be made and implemented in a timely fashion.

James W. Cook

JWC/WRB/bjw

- Attachments:
1. Midland Project Quality Plan for Underpinning Activities (MPQP-1, Revision 3)
 2. Midland Project Quality Plan for Remedial Soils Activities and Soils Related Work in Q Areas (MPQP-2, Revision 0)
 3. Summary of CP Co-NRC Meeting between W R Bird and J Gilray on July 6, 1982

CC: Atomic Safety and Licensing Appeal Board
CBechhoefer, ASLB
MMCherry, Esq
FPCowan, ASLB
RJCook, Midland Resident Inspector
RSDecker, ASLB
SGadler
JGilray, USNRC
JHarbour, ASLB
GHarstead, Harstead Engineering
DSHood, USNRC
DFJudd, B&W
JDKane, USNRC
FJKelley, Esq
RBLandsman, USNRC
WHMarshall
JPMatra, Naval Surface Weapons Center
Wotto, Army Corps of Engineers
WDPaton, Esq
SJPoulos, Geotechnical Engineers
FRinaldi, USNRC
HSingh, Army Corps of Engineers
BStamiris

BCC AJBoos, Bechtel
JEBrunner, M-1079
MLCurland, Midland
PJGriffin, P-24-513
RWHuston, Washington
BWMarguglio, Midland
JKMeisenheimer, P-14-208
JAMooney, P-14-115A
DBMiller, Midland
MIMiller, IL&B (3)
JARutgers, Bechtel
JRSchaub, P-14-305
PPSteptoe, IL&B, Chicago
TJSullivan/DMBudzik, P-24-624A
LASutkus, Bechtel
FCWilliams, IL&B, Washington
NRC Correspondence

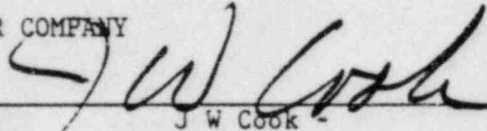
CONSUMERS POWER COMPANY
Midland Units 1 and 2
Docket No 50-329, 50-330

Letter Serial 18045 Dated August 5, 1982

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits a request to release the remaining soils remedial work. This letter delineates the scope of the remedial soils work including the acceptance criteria.

CONSUMERS POWER COMPANY

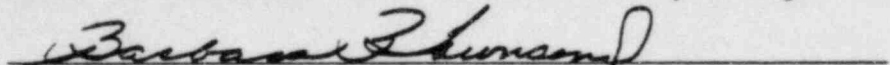
By _____



J. W. Cook

Vice President, Projects, Engineering and Construction

Sworn and subscribed before me this 9 day of August 1982



Notary Public

Jackson County, Michigan

BARBARA P. TOWNSEND

Notary Public, Jackson County, MI
My Commission Expires Sept. 3, 1984

ATTACHMENT 1

QUALITY PLAN FOR
UNDERPINNING ACTIVITIES

Effective Date July 26, 1982

Approved *Walter Bird*
Manager MPQAD

Approved *Alan Boos*
Bechtel Assistant Project Manager

Approved *Ganconey*
Midland Project Office

~~6208120223~~

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

1. GENERAL

All activities for the remedial soils work are covered by the existing Consumers Power Company and Bechtel Power Corporation Topical Reports CPC-1-A and BQ-TOP-1, Revision 1A, respectively. This Quality Plan provides a more detailed written description of the accomplishment of activities specific to certain soils remedial work. This Quality Plan was developed to describe how quality programmatic coverage is extended to encompass the underpinning subcontractors as required by the Quality Plan for Remedial Soils Work (MPQP-2).

The senior management, consisting of the Vice President of Projects, Engineering and Construction, Consumers Power Company, and the Midland Project Manager, Bechtel Power Corporation (CP Co's contractor for the Midland Nuclear Plant), reviews and approves major decisions and design concepts regarding underpinning work. For CP Co, a Midland Project Office Executive Manager and an Assistant Project Manager, and for Bechtel, a Bechtel Assistant Project Manager, will manage the underpinning work. The Bechtel Site Manager manages overall field activities including the underpinning work.

The Manager of MPQAD and the Civil Section Head will manage the MPQAD support of underpinning work with the overview of the Director of Environmental and Quality Assurance.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

2. SCOPE

This Quality Plan is applicable to the auxiliary building and service water structure underpinning tasks. The "Q" list for this work is all inclusive and, as such, covers activities, items and structures beyond the requirements provided by the FSAR. This extension to provide Quality Assurance Program coverage over and above the coverage for safety related items provides an additional assurance that the non-safety related activities will not have an adverse affect on safety related structures.

The following major categories of the underpinning work are specifically covered by this Quality Plan.

1. Underpinning of the Service water Pump Structure as delineated by Specification 7220-C-194(Q).
2. Underpinning of Auxiliary Building (removal, replacement of fill, and underpinning beneath the feedwater isolation valve pit areas, auxiliary building electrical penetration areas, control tower, and beneath the turbine building) as delineated by Specification 7220-C-195(Q). (Reference MPQP-1)

Any activity or structure which will be excluded from Quality Assurance Program coverage shall be specifically documented on an exception basis. Assurance of NRC Region III concurrence with any general exclusion from the Quality Assurance Program is required prior to conducting any work activities in the excluded area.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Specifications, procurement documents, drawings and procedures are specific as to the design attributes and activities which require quality verification. ^{QA/QA} The need for verification shall be dictated by the following principal:

The Quality Assurance Program shall provide control over activities affecting the quality of the identified structures, systems and components to an extent consistent with (a) their importance to safety; (b) their possible detrimental interaction or effect on safety related structures and items; or (c) assuring obtainment of the overall Project objectives.

3. UNDERPINNING WORK ORGANIZATIONS

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

CP Co Project Management

Sets policy, coordinates licensing review, and submittals to the NRC.

CP Co Safety and Licensing

Performs licensing reviews and coordinates FSAR revisions.

CP Co Design Production

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

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

CP Co Site Management

Provides overview and direction as necessary for underpinning activities for compliance with NRC commitments. Monitors underpinning activities with respect to commercial type items, construction activities (such as equipment care, labor and production).

Bechtel Project Management

Coordinates with client and sets project policy for Bechtel organizations.

Bechtel Project Engineering

Establishes design criteria and reviews input from non-Bechtel sources. Originates and issues design documents for construction.

Bechtel Project Geotechnical Engineer

Functions as Project Engineering's Geotechnical representative on project. Performs geotechnical reviews related to design criteria and procedures. Interfaces with Geotech Services and Resident Geotechnical Engineer.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Bechtel Site Management

Performs the overall on-site management of all construction activities including coordination between Bechtel, CP Co and Subcontractor. Includes a Construction Remedial Soils Group who is responsible for coordinating the activities of the underpinning subcontractors.

Geotech Services

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

Resident Geotechnical Engineer

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

Resident Structural Engineer

Represents Project Engineering on site and provides structural expertise for the underpinning activities. Receives and evaluates data from the underpinning instrumentation systems.

Bechtel Quality Control (QC)

~~UNDER~~ ~~AS~~ ~~AND~~ ~~CONTROL~~

Performs first-line inspection and verification, of items under the Quality Assurance Program. Reviews construction procedures, drawings and specifications for inclusion and establishment of inspection criteria.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Midland Project Quality Assurance Department (MPQAD)

Provides the quality assurance for all underpinning work including work done by Bechtel and Bechtel Subcontractors. Develops quality plans, reviews design documents and construction procedures. Performs over-inspections and pre-planned audits.

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 on construction methods, design, instrumentation or geotechnical items.

4. DESIGN CONTROL

Design Control for the underpinning of the Auxiliary Building (Electrical Penetrations and Control Tower Structure), Feedwater Isolation Valve Pit fill material replacement and Service Water Pump Structure underpinning will be provided by Project Engineering. Engineering Department Procedures (EDPs), Engineering Department Project Instructions (EDPIs), and Project Engineering Procedures (PEPs) provide the controls for Engineering activities which are responsive to the Quality Program requirements of MPQP-2.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Design criteria will be developed from input from consultants, the Midland Plant Safety Analysis Report, 50.54(f) responses submitted to the NRC staff, meetings with and submittals to the NRC staff, and testimony during the ASLB Soils hearing.

Design documents, including specifications, drawings and material requisitions, shall be specific as to what is required to ascertain that processes, activities and final products meet their design requirements.

Design documents, including specifications and drawings (as well as changes and revisions to these documents), will be reviewed and checked for compliance to design requirements by Bechtel Project Engineering. Design documents will be reviewed by Quality Control and MPQAD. The MPQAD review applies to all design documents. (MPQAD Procedure M-11)

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 CP Co Design Production and comments submitted to Bechtel Project Engineering. Specification Change Notices (SCNs), used as interim change documents between revisions of the specification, will receive the same level of review and approval by Bechtel Project Engineering as the basic specifications. Specification Change Notices shall be administered and controlled in accordance with EDPI 4.49.1.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Project Engineering prepares, reviews, approves, issues and controls design drawings in accordance with EDP 4.46. Changes to engineering drawings receive the same level of review and approval as the basic drawing and are administered in accordance with EDP 4.47 and EDPI 4.47.1.

Bechtel design calculations are originated, checked, approved, controlled and documented by Project Engineering in accordance with EDP 4.37. All design calculations submitted by the consultant are checked, reviewed and approved by Bechtel Project Engineering in accordance with EDPI 4.25.2.

Bechtel Construction shall request from or notify Project Engineering of changes to design documents by Field Change Requests (FCRs) and Field Change Notices (FCNs), respectively. The FCRs will be reviewed, evaluated, dispositioned, controlled and administered in accordance with EDP 4.62. FCNs will allow Bechtel Construction to initiate field changes in design documents within the allowable guidelines of Field Procedure FPD-2.000 and Specification G-34 (Q) as provided by Project Engineering. FCNs will be reviewed, evaluated, dispositioned, controlled and administered according to EDP 4.62.

The design interface for the underpinning activities between Project Engineering, project groups, technical support groups and consultants shall be administered as illustrated in Attachment 2, Design Document Interface Flowchart. Geotech Services will receive design for review in accordance with EDPI 4.25.2. The Subcontractor receives design documents

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

from Bechtel Construction in accordance with FID 1.100. The Resident Structural Engineers duties on site are defined in PEP 2.14.9.

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

5. PROCUREMENT AND RECEIVING

Procurement of items and services for the remedial underpinning work is performed by Bechtel employing the technical and quality requirements established in the specifications and drawings. Q-material requisitions are originated by Bechtel Construction in accordance with FPG-8.000. Bechtel Construction is responsible for assuring that applicable Quality Program requirements, design bases, specifications, procedures and drawings are included and referenced in the material requisitions. Bechtel Field Procurement Department initiates formal purchase orders and will be responsible for ensuring that the procurement package conforms to the material requisition. MPQAD reviews and approves procurement documents in accordance with MPQAD Procedure M-5 to assure that necessary Quality Assurance Program requirements are included.

Upon receipt of Q-material, inspections are performed by Quality Control in accordance with PSP G-5.1 to verify items comply with the procurement package requirements and quality verifications packages are complete.

P.3
all
material

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

Quality verification packages are 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 in quality verification packages for non-shop inspected items.

6. PREPARATION AND IMPLEMENTATION OF PROCEDURES/INSTRUCTIONS

Written instructions to the Subcontractor are in the form of engineering specifications, drawings, and approved changes thereto.

The G-321D form (controlled by EDP 4.58) attached to the specifications identify the procedures and other vendor submittals, which are the minimum required to be submitted by the Subcontractor prior to the start of fabrication and construction. These procedures are logged, controlled, and distributed by the Field Document Control Center and reviewed by Project Engineering, Bechtel QC and MPQAD. Project Engineering defines the specific quality attributes of each procedure. The procedures will be specifically reviewed by MPQAD for appropriate inclusion of quality requirements. (MPQAD Procedure M-10)

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

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

7. INSPECTION, EXAMINATION, TEST AND CALIBRATION

Quality verification, inspection and testing of Subcontractor activities is performed by Bechtel Quality Control, independent of the Subcontractor and Bechtel Construction. Bechtel QC will prepare inspection plans (in accordance with PSP G-6.1) utilizing inputs from technical specifications, design drawings and Subcontractor procedures. Project Quality Control Instructions (PQCI) are prepared to cover all Subcontractor quality related activities. Existing PQCI are adapted for standard construction activities such as concrete batching, placement and testing, and reinforcing steel installation. Additional PQCI are developed as necessary to verify new underpinning activities such as temporary support installation, load transfer and threaded reinforcing connectors. All PQCI are subject to MPQAD review and approval according to MPQAD Procedure E-2M. In addition, inspection and test activities are monitored by MPQAD through the use of overinspection plans based on an independent evaluation of design and procurement documents per MPQAD Procedure E-1M. The Subcontractor is indoctrinated to Bechtel QC and MPQAD procedures and inspection planning to assure that hold points, included as an integral part of the Subcontractor's procedures, are adhered to. For site construction activities, the detailed implementing procedures shall utilize integrated construction planning, as follows:

- a) Hold points shall be clearly identified in the procedures.

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

- b) The procedures shall provide for QC/QA signoff to record the completion of the inspection holdpoints prior to proceeding with the further execution of subsequent procedural steps.

Tests are performed to qualify, demonstrate or assure that the quality of procured items or completed construction is as defined in applicable engineering drawings and procurement documents.

Calibration, maintenance and control of measuring and test equipment is provided by an approved agency which will be pre-qualified by MPQAD. This agency provides for the traceability to national standards, the unique identification of each instrument or equipment requiring calibration, the maintenance of calibration frequencies, and the identification of calibration status. Calibration records are maintained by the agency and transmitted to Bechtel Construction for review. At the completion of the subcontract, these records will be turned over to Bechtel Quality Control. Performance and effectiveness of the agency is verified by MPQAD audits and/or overinspections in accordance with MPQAD Procedures F-1M and E-1M, respectively.

8. HANDLING AND STORAGE

All Q-list material is stored and handled in accordance with general Field Procedures FPG 4.000 and 5.000 and supplemented by the Subcontractor's procedure. Storage and handling of material and equipment is subject to Bechtel QC inspection and verification according

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

to PSP G-5.1 and MPQAD overinspections and/or audits per MPQAD Procedures E-1M and F-1M, respectively.

9. DOCUMENT CONTROL AND QUALITY RECORDS

Subcontractor documents which are to be submitted for review and comment by Bechtel Project Engineering, Bechtel QC and MPQAD are controlled by the Field Document Control Center (FDCC) in accordance with Bechtel Field Procedure FPD 1.000. Prior to the start of work, the Subcontractor submits construction procedures, drawings, purchase orders, as required by the specifications, to Bechtel Construction. Bechtel Construction and the FDCC distributes the procedures for review and approval as defined in the Quality Plans included with specifications 7220-C-194 and C-195. Bechtel Project Engineering and/or Resident Engineering, as designated, is responsible for resolving review comments.

All quality records are 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 prescribe the requirement for preparation, control, distribution and transmittal of all Q-related procedures, specifications, drawings and inspection records.

10. NONCONFORMING ITEMS AND CORRECTIVE ACTION

Nonconformances discovered during construction inspection activities are documented and controlled by Bechtel QC in accordance with PSP G-3.2 and MPQAD in accordance with MPQAD Procedure F-2M. These procedures provide

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

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. Bechtel QC and/or MPQAD will be involved in the specific wording of non-conformance reports to assure an accurate description of the condition. Dispositions to non-conformance reports will be reviewed by MPQAD to assure that the disposition is acceptable, that engineering rationale is adequately documented and that quality planning is available for the verification of the disposition. Bechtel QC and/or MPQAD will inspect and provide verification of disposition implementation prior to closing of the non-conformance report.

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

In the design phase, investigation of cause and action taken to preclude recurrence of design deficiencies will be accomplished through EDP 4.65. Design deficiencies include those items which are not identified in the course of design development and which ultimately require changes..

Hardware
of construction activities
deficiencies

ALSO

QUALITY PLAN FOR UNDERPINNING ACTIVITIES

11. AUDITS

Audits are performed by MPQAD to verify conformance to quality requirements. MPQAD Procedure F-1M includes provisions for the identification of deficiencies, the determination of corrective action, and the necessary follow up to verify that timely and effective action is taken.

12. TRAINING AND CERTIFICATION

All inspectors and quality auditors are trained and certified in accordance with PSP G-8.1 or MPQAD Procedures B-2M and/or B-3M. Subcontractor field supervisory and engineering personnel are indoctrinated to the Midland Project Quality Program. This indoctrination includes an introduction to the quality system, inspection activities, nonconformance control, NRC activities, field and engineering design changes and site organizations and interfaces. The indoctrination is initially completed prior to any Q-listed work proceeding. Additional training sessions will be scheduled by MPQAD to indoctrinate personnel which are assigned after the initial indoctrination. The Subcontractor is required to implement training for the procedures covering the Subcontractors Q-listed activities.

. LIST OF
APPLICABLE
PROCEDURES

MIDLAND PROJECT QUALITY ASSURANCE DEPARTMENT PROCEDURES

B-2M	Personnel Training
B-3M	Qualification and Certification of Inspection and Test Personnel
E-1M	Site Inspection Planning and Site Inspection
E-2M	Review of Site Inspection Planning Prepared by others than MPQA
F-1M	Audit
F-2M	Nonconformance Reporting, Corrective Action and Statusing
F-3M	Resolution of Significant Quality Problems
F-11M	Documentation Control
F-12M	Quality Records
M-5	QA Review of Bechtel Field-Originated Procurement Documents
M-10	MPQAD Review of Subcontractor Procedures and Instructions for Underpinning Related Activities
M-11	MPQAD Review of Bechtel Design Specifications, Drawings and Procedures for Underpinning and Related Remedial Activities.

ENGINEERING DEPARTMENT PROCEDURES

EDP - 4.37	Design Calculations
EDP - 4.46	Project Drawings
EDP - 4.47	Drawing Change Notice
EDP - 4.49	Project Specifications
EDP - 4.58	Specifying and Reviewing Supplier Engineering and Quality Verification Documentation
EDP - 4.62	FCR/FCN
EDP - 4.65	Design Deficiency

List of Applicable Procedures

EDP - 5.16	Supplier Document Control
EDP - 5.24	Document Distribution Control Center

List of Applicable Procedures

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REVISION 3
July 26, 1982
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FIELD PROCEDURES

FPG-8.000	FMRs
FPD-2.000	Field Change Request/Field Change Notice
FPG-4.000	Storage Maintenance/Inspection of Equipment and Materials
FPG-5.000	Maintenance/Inspection of Material and Equipment Released for Construction
FID-1.100	Vendor Document Review
FPD-1.000	Field Documentation of Correspondence Control

PROJECT SPECIAL PROVISIONS

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

ENGINEERING DEPARTMENT PROJECT INSTRUCTIONS

EDPI - 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

List of Applicable Procedures

MPQP-1
REVISION 3
July 26, 1982
Page 21

PROJECT ENGINEERING PROCEDURES

PEP-2.14.f

Resident Structural Engineer for Midland Remedial
Underpinning Operation

PROJECT FUNCTIONAL MATRIX FOR UNDERPINNING ACTIVITIES

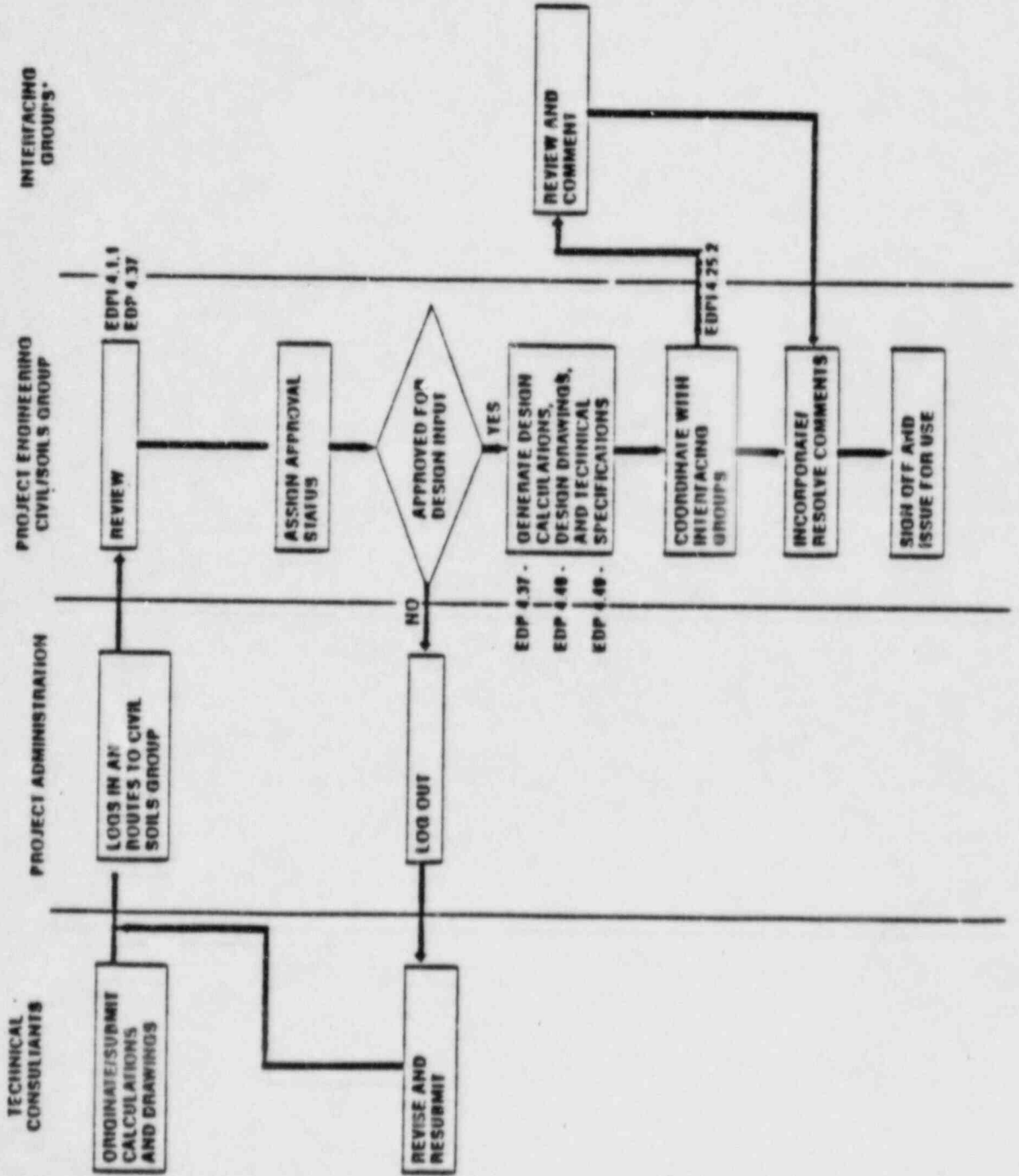
ATTACHMENT 1
 TO UNDERPINNING
 MINI-TOPICAL

	POLICY			DESIGN			PROCUREMENT				INSTALLATION						AUDITS	
	ESTABLISHMENT AND IMPLEMENTATION OF DESIGN CRITERIA	ESTABLISHMENT OF DESIGN CRITERIA	ESTABLISHMENT OF DESIGN CRITERIA (TEMPORARY STRUCTURE)	DESIGN CONTROL (INTERFACE ESTABLISHMENT)	PREPARATION OF ENGINEERING DOCUMENTS	DESIGN REVIEW AND VERIFICATION	PREPARATION AND CONTROL OF DESIGN CHANGES (INCLUDING FIELD)	SUPPLIER EVALUATION AND SELECTION	PROCUREMENT (PURCHASE ORDERS)	INSPECTION AND AUDIT OF OFFSITE ORGANIZATIONS	INSPECTION	PREPARATION AND INSTRUCTIONS OF DRAWINGS/TEST CONTROL	INSPECTION AND TESTING STATUS INDICATORS	NONCONFORMANCE CONTROL	CORRECTIVE ACTION	QUALITY RECORDS	QUALITY RECORDS	
CPCo PROJ MGMT																		
BECHTEL PROJ MGMT																		
CPCo PRODUCTION ENGRG																		
BECHTEL MGMT ENGRG																		
BECHTEL PROJ ENGRG																		
BECHTEL QUALITY ENGRG																		
MIRJ/MERGENTINE (TSA)																		
WISS JANNEY (TSA)																		
SPENCER, WHITE, AND PRENTIS																		
GEUTECH SERVICES																		
UIP SUBCONTRACTORS																		
BECHTEL CONSTRUCTION																		
REMEDIAL SOILS GROUP																		
BECHTEL QUALITY CONTROL																		
MIDLAND PROJECT QUALITY ASSURANCE																		

● DIRECT INVOLVEMENT
 ○ INPUT ONLY

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

DESIGN DOCUMENT INTERFACE FLOWCHART



*INTERFACING GROUPS (as defined by EDP 4.25.2 or approved alternate)

- DISCIPLINE ENGINEERING GROUPS
- CHIEF ENGINEER (per EDP 4.34)
- GEOTECHNICAL SERVICES CONSULTANTS
- QUALITY ENGINEERING (drawings and specifications)
- MPOA (drawings and specifications)

ATTACHMENT 2

QUALITY PLAN FOR
REMEDIAL SOILS ACTIVITIES
and
SOILS RELATED WORK IN Q AREAS

Effective Date July 26, 1982

Approved *W. Peter Bud*
Manager MPQAD

Approved *W. Peter Bud*
Bechtel Assistant Project Manager

Approved *J. M. ...*
Midland Project Office

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QUALITY PLAN FOR REMEDIAL SOILS ACTIVITIES AND SOILS RELATED WORK IN Q-AREAS

6. BWST foundation repairs and tank releveling.
7. Underground service water and BWST piping rebedding or replacement.
8. Any placing, compacting, excavating, or drilling soil materials under or around safety-related structures and systems, as defined by Bechtel drawing C-45 (Q).

GENERAL

This Quality Plan is applicable for all aspects of the above defined work and as such the activities and materials associated with this work is deemed to be "Q-listed." It is recognized that this "Q-listing" covers activities, items and structures beyond the requirements provided by the FSAR. This extension to provide Quality Assurance Program coverage over and above strictly safety related items will provide an additional assurance that no activity will have an adverse effect on safety related structures.

REQUIREMENTS

1. The activities included in the scope will be done to approved design documents and procedures; where existing procedures developed under the requirements of the topical reports do not provide specific coverage, additional procedures will be developed. Design documents will be reviewed by MPQAD to assure that quality planning is in place to support the verification of requirements. Procedures will be reviewed by MPQAD to assure that appropriate quality requirements are included. Specifica-

QUALITY PLAN FOR REMEDIAL SOILS ACTIVITIES AND SOILS RELATED WORK IN Q-AREAS

assure that appropriate quality requirements are included. Specifications, procurement documents, drawings and procedures shall be specific as to the design attributes and activities which require quality verification. The need for verification shall be dictated by the following principal:

The Quality Assurance Program shall provide control over activities affecting the quality of the identified structures, systems and components to an extent consistent with (a) their importance to safety; (b) their possible detrimental interaction or effect on safety related structures and items; or (c) assuring obtainment of the overall Project objectives.

2. MPQAD will be involved in the review of work activities to 1) determine the extent of QC inspections and QA overinspection, 2) assure the adequacy or detail of implementing procedures/instructions, and 3) to determine the extent of quality records. The MPQAD reviews will be documented in accordance with MPQAD Department procedures.
3. An excavation procedure shall be in place to control excavation, drilling and pile driving in Q-listed soils as defined on Bechtel drawing C-45 (Q).
4. A specific Quality Plan will be developed for providing Quality Program coverage of underpinning subcontractors who do not have their own Nuclear Quality Assurance Programs. (Reference MPQP-1)

QUALITY PLAN FOR REMEDIAL SOILS ACTIVITIES AND SOILS RELATED WORK IN Q-AREAS

5. Any activity or structure or item or procurement in support of the remedial soils work which will be excluded from Quality Assurance Program coverage will be done on an exception basis. Concurrence of NRC Region III is required prior to conducting any work activity in the excluded areas.

QUALITY PLAN FOR REMEDIAL SOILS ACTIVITIES AND SOILS RELATED WORK IN Q-AREAS

GENERAL

All activities performed by Consumers Power Company or Bechtel Power Corporation and their subcontractors for the remedial soils work and work within the area covered by C-45Q is 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 such work.

SCOPE

This Quality Assurance Plan is applicable to those activities associated with the following:

1. Underpinning of service water pump structure. (Reference MPQP-1)
2. Removal, replacement of fill, and underpinning beneath the feedwater isolation valve pit areas, auxiliary building electrical penetration areas, control tower, and beneath the turbine building. (Reference MPQP-1)
3. Installation of monitoring system and the monitoring of structural response to underpinning activities.
4. Dewatering systems. The installation, operation, and monitoring of both permanent and temporary dewatering systems.
5. Freeze wall.

ATTACHMENT 3

SUMMARY OF CP CO - NRC MEETING
W R BIRD AND J GILRAY
ON JULY 6, 1982

Mr Bird met with Mr Gilray at the Bethesda Office on July 6, 1982, to present draft copies of a revised MPQP-1 and of a new MPQP-2 for coordination with Mr Gilray. Mr Gilray and Dr Landsman had previously been provided copies of these draft documents via mail. A detailed discussion was held on these documents, and specifically for MPQP-2, a comparison of the wordings and understandings of the ASLB Memorandum and Order of April 30 was conducted. Several wording changes and recommendations to assure clarity were made by Mr Gilray, which are incorporated in the document.

From the NRR Offices, a phone call was made by Mr Bird to Mr Schaub to assure the acceptability of the revisions. In addition, another phone call was made to Dr Landsman to go through the document to see if he had any comments of his own, and to inform him of the changes agreed to by Mr Bird and Mr Gilray. The end result was that the documents, as marked up, were agreed to.

Note: Subsequent to the July 6 meeting and phone calls, some additional comments were generated on MPQP-1 and MPQP-2. These additional comments were coordinated by phone on July 16 and July 19 with Dr Landsman and Mr Gilray, respectively and their concurrence on the changes was obtained. The actual signoff and release of the Quality Plans occurred on July 26, 1982.