

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	Docket Nos. 50-329-OM
CONSUMERS POWER COMPANY)	50-330-OM
)	50-329-OL
(Midland Plant, Units 1)	50-330-OL
and 2)	

INTERVENOR BARBARA STAMIRIS' SECOND SUPPLEMENTAL
PROPOSED FINDINGS OF FACT AND CONCLUSIONS
OF LAW ON QUALITY ASSURANCE AND
MANAGEMENT ATTITUDE ISSUES

Lynne Bernabei
Government Accountability Project
1901 Que Street, Northwest
Washington, D.C. 20009
Telephone: 202/232-8550

Attorney for Intervenor
Barbara Stamiris

8405140231 840511
PDR ADDCK 05000329
Q PDR

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	Docket Nos.	50-329-OM
CONSUMERS POWER COMPANY)		50-330-OM
(Midland Plant, Units 1)		50-329-CL
and 2))		50-330-OL

OPINION

I. INTRODUCTION

This Partial Initial Decision covers both the quality assurance ("QA") issues raised by the Order of Modification of December 6, 1979, and the management attitude contentions raised by Intervenor Barbara Stamiris in the hearings requested by Applicant Consumers Power Company ("Applicant" or "Consumers") in response to the Modification Order.

The only outstanding issue to be decided with regard to the Order for Modification is whether that Order should be sustained given the extensive record developed on Consumer's past and present implementation of its QA program, past and current management attitude, and past and current programs to augment its QA program.

We sustain the Modification Order and hereby prohibit the construction activities enumerated in the Modification Order prior to (1) submission of an amendment to the application for construction permit seeking approval of remedial actions; and

(2) issuance of an amendment to the construction permits authorizing such remedial actions.

In this Partial Initial Decision, we further examine whether or not applicant has carried its burden by a preponderance of the evidence to disprove Mrs. Stamiris' three contentions referenced herein in Section IV, infra. We find that Consumers has failed to carry its burden of proof to demonstrate:

1. That its willingness and commitment to providing truthful, accurate and complete information to the NRC is adequate to ensure it can complete the soils work at Midland in a manner to protect the public health and safety and in accordance with NRC regulatory requirements;

2. That it is willing and committed to placing quality before cost and schedule considerations to ensure that it can complete the soils work at Midland in a manner to protect the public health and safety and in accordance with NRC regulatory requirements; and

3. Given its repeated and flagrant QA failures, that it is willing and capable of implementing a QA program which will ensure that it completes the soils work at Midland in a manner to protect the public health and safety and in accordance with NRC regulatory requirements.

We further vacate our April 30, 1982 interim order regulating the soils work at the site in consideration of our

decision that construction permit amendments are necessary.^{1/}

II. PROCEDURAL BACKGROUND

The record on QA and management attitude issues was previously closed on February 19, 1982. All parties at that time submitted proposed findings of fact and conclusions of law.

During a telephone conference call on April 28, 1982, the Nuclear Regulatory Commission ("NRC" or "Commission") staff informed us that James G. Keppler, Regional Administrator for Region III, was reconsidering his prior testimony in which he gave his reasonable assurance that Consumers' QA program would be implemented properly with respect to future soils construction activities. April 30 Board Order at 3, n.4. In a letter to this Board on June 29, 1982, the NRC staff informed us that it wished to supplement Mr. Keppler's previous testimony.

On July 7, 1982, we reopened the record for the OM hearings on QA and management attitude issues. July 7, 1982 Memorandum and Order at 3.

In his prepared testimony submitted on October 29, 1982, Mr. Keppler explained that he no longer had reasonable assurance that Consumers could, on its own, implement a QA program in accordance with all applicable requirements and

^{1/}April 30, 1982 Memorandum and Order Imposing Certain Interim Conditions Pending Issuance of Partial Initial Decision. (April 30 Board Order).

standards. However, he stated that soils work in his opinion should be allowed to continue subject to the very strict controls and increased inspection efforts imposed by the NRC staff. Mr. Keppler also stated that the catalyzing event which had caused him to submit this testimony was the failure of Consumers in its SALP 2 rating to rise above a Category 3 rating in soils, the lowest possible category. He added that Consumers was given a Category 3 rating in other areas as well. Keppler Oct. 29, 1982 Prepared Testimony, following transcript at 13111.

Mr. Keppler, in his testimony and through the attachments to his testimony, outlined the significant events in the staff's monitoring of Consumers' complex soils work and implementation of its QA program:

1. A May, 1981 inspection of electrical cables at the Midland site showed that 55 Class IE cables were inspected and accepted even though the cables were not correctly routed and that Class IE cables were inspected and accepted after non-conforming cable reel numbers were identified. NRC staff Prepared Testimony, Oct. 29, 1982, at 6 and Attachment 10, following Tr. at 11391. Consumers completed only part of the necessary reinspection even when problems were previously identified and appeared to accept that 5 percent of electrical cables may be misrouted.

2. An NRC inspection of supports conducted in 1982 demonstrated serious inadequacies in QC inspections conducted for

pipe support installations. A later Consumers over-inspection found 45 percent of previously installed and accepted supports were deficient. Id. at Attachment 1; Gardner, Tr. at 14451. Consumers did not adequately address the findings and contended that only a small percentage of the total number of "characteristics" were found defective. Only after the NRC insisted did Consumers agree to complete a 100 percent reinspection of all pipe supports installed prior to 1982.

3. On March 10, 1982 Consumers indicated to the NRC staff that remedial soils instrumentation installation was substantially completed, apparently in order to avoid the requirement that such work be done subject to QA requirements.

4. In April, 1982 Consumers submitted a highly argumentative response to SALP 2 in which it failed to acknowledge the problems the staff had outlined in the soils, electrical and piping areas, and further failed to agree to any substantial corrective actions.

5. On April 30, 1982 this Board imposed a requirement that Consumers obtain prior explicit NRC approval for all activities listed in Part IV of the Modification Order.

6. On June 21, 1982 pursuant to a request from Mr. Keppler, two of his Region III Division Directors provided him with an assessment of the serious attitude and QA problems at Midland, which included the following:

(a) Consumers appears unwilling to commit to doing a full, quality job, and is argumentative;

(b) The Midland project is the most complex and complicated in Region III and imposes on Consumers' management construction pressures it cannot handle;

(c) James Cook, then the Vice-President responsible for Midland, has created animosity in relations with the NRC staff and appears unwilling to delegate responsibility and unable to issue clear orders.

These inspectors recommended that Mr. Keppler emphasize to Consumers the importance of timely identification and correction of problems and consider drastic recommendations, including Consumers' working on one unit or establishment of an entirely new management group, perhaps up to the Vice-President level, to deal with soils. Further, they suggested an independent design and construction verification program ("IDCVP").

Similarly, Robert Warnick forwarded to Mr. Keppler a list of indicators of Consumer's poor performance compiled by Senior Resident Inspector Ron Cook. Mr. Cook's most trenchant criticisms were the following:

(a) Bechtel, not Consumers appeared to control the construction project and dictate the poor regulatory environment;

(b) Consumers did not place responsibility for quality workmanship at the foreman or workman level;

(c) Consumers was unwilling to give information to the NRC. Bechtel was unwilling to give information to the NRC, and sometimes even to Consumers.

(d) Consumers attempted to undercut NRC staff enforcement by going to different NRC offices in an effort to obtain an opinion favorable to Consumers' positions when one segment of the NRC staff disagreed with Consumers.

(e) Consumers attempted to exclude much of the remedial soils work from the QA program by labeling it "non-Q."

Mr. Warnick subsequently wrote a memorandum to Mr. Keppler in which he outlined Region III recommendations for Midland, which were in apparent contradiction to NRR's recommendations as expressed at a July 26, 1982 meeting. These recommendations from the newly created Office of Special Cases ("OSC") were:

(1) Increased NRC inspection effort concentrated in areas of significant safety concern;

(2) An independent third party review of a vertical slice of a safety-related system from design through completion of construction;

(3) That Consumers assume all reporting and supervisory responsibility over QC inspectors;

(4) That Consumers provide NRC with all commitments in writing and NRC provide all releases on hold points in writing;

(5) That Mr. Keppler and Harold Denton meet with top Consumers and Bechtel management to ensure senior management is informed of QA problems; the site QA superintendent is given the support necessary to do his job; and finally, that Bechtel make quality and not cost and schedule its primary concern.

At that time, Mr. Warnick was appointed Director of the Office of Special Cases ("OSC") to manage field activities at the two troubled plants of Midland and Zimmer.^{2/}

On August 26, 1982, Mr. Keppler and Darrell Eisenhut, Director, Division of Licensing, NRR, met with Mr. Cook and Mr. Selby of Consumers to discuss the NRC's serious concerns with the lack of progress in QA implementation and soils work. At that meeting, Mr. Keppler passed on Mr. Warnick's suggestions and testified that he mandated that Consumers make certain changes, including a comprehensive "get-well plan," later incorporated into the Construction Completion Program. Keppler, Tr. at 15177-91, 15197, 15201, 15207, 15212, 15217.

Consumers presented its solution in two letters dated September 17, 1982: one for the soils work and one for all other construction work at the site. Attachments E and F to Keppler Oct. 29, 1982 Prepared Testimony, following Tr. at 15111. Mr. Keppler stated that both these plans were too vague. On

^{2/}Wayne Shafer, formerly head of the Midland Team, testified that Mr. Keppler created CSC because of Consumers' demonstrated inability to manage the Midland project. Tr. at 14817.

October 5, 1982, Consumers submitted a second draft proposing third party reviews. Id., Attachment G.

In early August, the NRC staff determined that on two occasions Consumers had conducted excavations in violation of the April 30 Board Order which directed Consumers to obtain prior explicit NRC staff approval for most soils work. Soils work was stopped in response to the NRC staff's serious objections, and Region III issued a Confirmatory Action Letter requiring that prior to resumption of work, Region III approval be obtained. Id., Attachment I. The NRC staff instituted the Work Authorization Procedure on that same date establishing a formal procedure for the staff to provide written authorization for all critical soils activities proposed by Consumers under the April 30 Board Order. Id., Attachment H.

In mid-September, 1982, soils work was once again stopped when the NRC staff discovered serious problems with the training and certification of QC inspectors in remedial soils. The staff issued a Confirmatory Action Letter on September 24, 1982, which required Consumers to carry out certain remedial actions prior to lifting the stop work order. At that time, the Midland Team discussed whether or not it should order suspension of all safety-related construction on site because of the continuing failure of Consumers to implement a quality QA/QC program. The Midland Team, excepting Dr. Landsman who recommended shut-down, believed it needed additional information about the implementation of the QA program in those areas outside of soils.

Therefore, the Team scheduled an intensive inspection of the Diesel Generator Building ("DGB"), since Consumers had done substantial safety-related construction in the DGB during 1982.

At the exit meeting for the DGB inspection, the Midland Team stated that it would recommend shut-down of all safety-related construction at the site unless Consumers itself shut down that construction. On December 2, 1984, Consumers suspended all safety-related construction except reinspection of pipe supports and electrical cables; NSSS and HVAC installation; soils work; and post-turnover work. J. Cook, April 11, 1983, Prepared Testimony at 5, 16, following Tr. at 18025.

On October 6, 1983, the NRC staff approved Consumers' Construction Completion Plan ("CCP").

The NRC staff released the underpinning work on December 9, 1982. Consumers' prior work in the soils area had been preparatory to the underpinning work.

In June, 1982, Consumers established the Excavation Permit System to prevent disturbance of underground utilities and other structures during the underpinning work. Only at the longstanding urging of the NRC staff in May, 1983, did Consumers agree to expand the system to include underpinning. Landsman, Tr. at 16289-16295.^{3/}

^{3/}The Excavation Permit System is Bechtel Procedure FIC 5.100, Rev. 1. Prior to excavation work, Bechtel Field Engineering must certify that it has reviewed existing underground utilities

III. LEGAL STANDARDS TO DETERMINE WHETHER CONSUMERS CAN ADEQUATELY IMPLEMENT A QUALITY ASSURANCE PROGRAM TO COMPLY WITH REGULATORY REQUIREMENTS AND HAS A MANAGEMENT ATTITUDE CONSISTENT WITH COMPLIANCE WITH NRC REGULATORY REQUIREMENTS AND ENSURING COMPLETION OF THE SOILS WORK IN A MANNER TO PROTECT THE PUBLIC HEALTH AND SAFETY

A. Quality Assurance Standards

Consumers must demonstrate that its QA program is implemented in accordance with 10 C.F.R. Part 50, Appendix B, and in such a manner to ensure the soils work can be completed to protect the public health and safety. The Atomic Safety and Licensing Appeals Board recently stated that the ultimate question must be whether the Licensing Board has any legitimate doubt as to the overall integrity of the construction of the facility and its safety-related structures and components caused by a breakdown in QA procedures. Union Electric Co. (Callaway Plant, Unit 1), ALAB-740, (Sept. 14, 1983).

In Comanche Peak, the Licensing Board took a similar view and asked the question whether on the record before

(footnote continued)

and has taken appropriate action to protect them. Field Engineering must certify that it has identified all structures or utilities which may be encountered during the excavation. Consumers construction verifies that the NRC staff has authorized the work. MPQAD verifies that it has committed to provide appropriate QA/QC coverage.

Consumers has also established the soils work permit system which was instituted in the summer of 1982 to control Consumers' release of work to its contractors. In a manner similar to the excavation permit system, Consumers and Bechtel personnel must certify that proper controls are in place and NRC approval has been obtained for the work.

it, in light of the applicant's failure to adopt a system to correct design deficiencies promptly and applicant's failure to answer certain design questions raised by intervenor, it had sufficient confidence of the design quality of Comanche Peak. In that case, the Licensing Board decided that without an independent design review, it did not have such confidence. Texas Utilities Electric Co. (Comanche Peak Steam Electric Station, Units 1 and 2), LBP-83-81, Slip Op. at 69-70, 72-75, (Dec. 28, 1983).

Similarly, the Byron Licensing Board recently denied Commonwealth Edison Company an operating license on the ground that given the serious failures in its QA implementation and in oversight of the QA programs of its subcontractors, and the NRC staff's admitted uncertainty about the ability of the reinspection program to ensure the adequacy of QA implementation to guarantee sound construction, it did not have assurance that there were no serious construction deficiencies. The Board found, further, that it was highly likely, given the inadequate oversight by the utility of its many subcontractors' work, that much of the important safety work was not adequate and the reinspection program might not detect that. Commonwealth Edison Co. (Byron Nuclear Power Station, Units 1 and 2), ASLBD 79-411-04 PE, Slip Op. at 297-306.

Finally, it is important that this Licensing Board make the decision as to whether or not it has reasonable

assurance that Consumers can continue and complete the soils work so as to ensure sound and safe construction of the Midland plants, in accordance with NRC regulatory requirements. We cannot delegate to the NRC staff, as applicant suggests in its proposed findings, Second Supplemental Proposed Findings at 240-241, that the staff decide the conditions under which the soils work can proceed. With important contested issues such as QA, on which an extensive record has been developed, all parties have the right to have the Licensing Board decide the contested issues. Mr. Keppler's assurances notwithstanding, the decision as to QA is one which lies with this Board alone. As the Commission said as far back as 1974, Licensing Boards cannot use post-hearing resolution "to obviate the basic findings prerequisite to an operating license--including a reasonable assurance that the facility can be operated without endangering the health and safety of the public. 10 C.F.R. 50.57.... In doubtful cases, the matter should be resolved in an adversary framework prior to issuance of licenses, reopening hearings if necessary." Consolidated Edison Co. (Indian Point Station, Unit 2), CLI-74-23, 7 AEC 945, 951-52 (1974).

Further, this Board must make its decision on the QA issue on the basis of whether the applicant can, through its program and its willingness or unwillingness to comply with regulatory requirements, adequately implement a QA program. We cannot, as Consumers suggests, envision that the Midland project is a type of partnership between the utility and the NRC staff

in which together they can provide, through their respective programs, reasonable assurance. As stated in the recent South Texas decision, licensees are directly in control of plant design, construction, operation and maintenance; they are the first line of defense to ensure the safety of the public. The NRC's role is one primarily of review and audit of licensee activities, recognizing that limited resources preclude 100 percent inspection. Petition for Emergency and Remedial Action, CLI-78-8, 7 NRC 400, 418 (1978), cited in Houston Lighting and Power Company (South Texas Project, Units 1 and 2), ASLBP No. 79-421-07 (March 14, 1984), Slip Op. at 17. The ultimate question is not as applicant phrases it, "whether Consumers Power and the staff together have created and implemented effective programs to accomplish the remedial soils work...." Applicant Second Supplemental Findings at 9. Rather the issue is as stated by both applicant and intervenor in initial Proposed Findings: Whether the record of these OM hearings provides us with reasonable assurance that Consumers quality assurance program can be properly implemented with respect to current and future soils work and adequate implementation will continue throughout the completion of construction so as to protect the public health and safety and comply with all regulatory requirements. Consumers Proposed Findings, par. 37; Stamiris Proposed Findings, par. 10.

B. Management Attitude

Ms. Stamiris raises in her three contentions essentially three aspects of management attitude which she argues

support sustaining the Modification Order. These three management attitude issues are:

- 1) Consumers unwillingness or inability to provide full, accurate information to the NRC in a timely fashion;
- 2) Consumers' failure to put quality concerns ahead of cost and scheduling concerns to the detriment of quality construction work and ensuring protection of the public's health and safety; and
- 3) Consumers inability or unwillingness to implement an adequate QA program as evidenced by its repeated history of QA failures.

All three contentions challenge Consumers' character, including its truthfulness, integrity, and willingness to provide accurate and timely information to the NRC, and its commitment to quality and safety over cost and scheduling considerations. Consumers' character and willingness to provide full and accurate information is of paramount importance to the NRC.

The Appeal Board in Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-106, 6 AEC 182 (1973), stated clearly that without a proper managerial attitude, which it described as "a willingness--indeed, desire--on the part of the responsible officials to carry it out to the letter, no program is likely to

be successful." Id., at 184. Essentially, what we have termed "character," the Licensing Board called "commitment" in Virginia Electric and Power Co. (North Anna Nuclear Power Station, Units 1 and 2), LBP-77-68, 6 NRC 1127, 1151 (1977), and the Licensing Board called "capability" in Carolina Power and Light Co. (Shearon Harris Nuclear Power Plant, Units 1, 2, 3 and 4), LBP-79-19, 10 NRC 37 (1979).

Because the NRC regulatory system is largely a self-regulatory system and the NRC's role is to review and audit licensee activities, licensees must provide the NRC with not only truthful and accurate information, but complete and comprehensive information as well. Virginia Electric and Power Co. (North Anna Power Station, Units 1 and 2), CLI-76-22, 4 NRC 480 (1976), aff'd, 571, F.2d 1289 (4th Cir. 1978). Licenses can be revoked for material false statements, which include both intentional falsehoods or false statements made with disregard for the truth. FCC v. WOKO, 329 U.S. 223 (1946); Leflore Broadcasting Co. v. FCC, 636 F.2d 454 (D.C.Cir. 1980); Virginia Electric and Power Co. v. NRC, supra; Hamlin Testing Laboratories, Inc., 2 AEC 423, 428-29 (1964). The NRC inspection and oversight system is simply not sufficient to develop and implement a QA program where an applicant such as Consumers has failed or defaulted.^{4/}

^{4/} More recently, the Commission warned the parties and attorneys in this proceeding about the seriousness of withholding of material information or a deliberate false statement. The Commission stated that a license could be withheld even when a plan to withhold information or submit false information is not carried out. Consumers Power Co. (Midland Plant, Units 1 and 2), CLI-83-2, 17 NRC 69, 70 (1983).

Of relevance to Ms. Stamiris' third contention that Consumers is not willing or capable of implementing an adequate QA program given the past pattern of serious QA deficiencies, are the following factors:

- (1) Consumers' past lack of compliance with NRC regulations;^{5/}
- (2) Its response to noncompliances and enforcement action by the NRC;
- (3) Whether Consumers has made material false statements or omissions; and
- (4) Whether Consumers has answered questions propounded by the Staff, the parties and the Board with candor. See generally Houston Lighting and Power Co., supra, Slip Op. at 19-20.

In our examination below, of most significance to our opinion are the two allegations, which we believe have been substantiated, that Consumers made false statements to the NRC without sufficient regard for their truthfulness, and that Consumers' violated our April 30, 1982 Order. These led to investigations by the Office of Investigations ("OI"). In the investigation of the violation of the Board Order, OI

^{5/} Duquesne Light Co. (Beaver Valley Power Station, Unit 1), LBP-76-3, 3 NRC 44 (1976); Washington Public Power System (WPPSS Nuclear Project No. 1), LBP-83-66, Slip Op. at 10 (October 14, 1983).

Director Ben Hayes stated that "one could view CPCO's actions in this matter to be sufficiently negligent to constitute careless disregard of NRC requirements." Staff Exh. 28. We believe the evidence as developed on this record to be much stronger. We find, as explained in Part IV, infra, that the evidence establishes a reckless or deliberate violation of the Board Order and the NRC staff's direction not to excavate below the deep-Q duct bank. On the basis of this direct violation of the Board Order alone, we believe the Modification Order should be sustained.

IV. OPINION ON QUALITY ASSURANCE ISSUE AND
INTERVENOR CONTENTIONS ON QUALITY
ASSURANCE AND MANAGEMENT ATTITUDE

A. Board Lacks Reasonable Assurance that Midland
Soils Work can be Completed in Accordance
with Regulatory Requirements

We have examined on this record Consumers' implementation of its QA program starting from April, 1982 through the end of these hearings in December, 1983. We have also examined those corrective actions Consumers has taken, as well as the controls the NRC has mandated for the soils and balance of plant work. Finally, we have reviewed the third party reviews imposed by the NRC staff to determine the adequacy of construction and design of Midland. On this record, we conclude that we lack reasonable assurance that Consumers can complete the soils work at the Midland plants in accordance with regulatory requirements and in a manner to protect the public health and safety.

Applicant has urged us to accept Mr. Keppler's

reasonable assurance and to determine that Consumers and the NRC staff together have created and implemented effective programs to accomplish the remedial soils work in a manner so that all soils construction deficiencies will be identified and corrected.

However, as explained in our legal opinion, Part III, supra, we do not believe that the soils work can be regarded as a joint venture between the utility and the NRC staff. Rather, the NRC has a limited monitoring role, both in terms of its resources and manpower in inspection and enforcement activities, and in terms of its ability to affect construction decisions. For example, even the greatly-expanded inspection effort at Midland has not resulted in effective implementation of Consumers' QA program.

And, the NRC staff cannot affect many important construction decisions, since they are not building the plant. For example, they cannot choose top soils and QA managers they consider qualified and dedicated to quality work. Nor can they reorganize the QC Department to remove all Bechtel QC supervisors. Thus they cannot control many of the critical decisions concerning construction of the plant.

The NRC regulatory system depends on complete and accurate information from its licensees, such as Consumers. Only if it receives fully accurate information can the NRC staff perform its job of monitoring the quality of the construction at Midland. Therefore, we believe Consumers' phrasing of the issue before us fundamentally misconstrues the NRC staff's role.

We must determine whether Consumers is able and willing to comply with NRC regulations and will construct Midland in accordance with regulatory requirements. We can, of course, consider corrective actions taken by Consumers. However, we cannot simply substitute NRC controls or third party overviews for Consumers' unwillingness or inability to comply with regulatory requirements.

Similarly, we cannot simply rely on the NRC staff's assurance that the soils work can go forward. It is our responsibility, as a Licensing Board, to determine contested issues before us, here whether or not there is such reasonable assurance of Consumers' adequate QA implementation in the soils area. We cannot delegate that responsibility to the NRC staff. It is especially improper to delegate that authority in this case when Mr. Keppler admits that he does not know whether or not the third party overviews and additional controls, which he has imposed on Consumers, will work. He acknowledged in testifying before us in May, 1983, that he would like to report to us how the various programs were working after they have been in operation for six months. Keppler, Tr. at 15674.

Given that we do not yet know how the third party reviews will operate, we must judge Consumers' ability and willingness to carry out an adequate QA program largely by its performance within the last two years. On the extensive record before us, we find Consumers has failed to demonstrate by a preponderance of the evidence that it is either capable or willing to carry

out the soils work in compliance with all regulatory requirements.

The NRC staff has documented, in its SALP 3 Report, the deteriorating performance of Consumers in the soils area. In fact, the staff considered giving Consumers an unacceptable rating, which is usually reserved for those areas of work which have been effectively suspended.

Further, those reforms and corrective actions Consumers has instituted do not appear to be working so as to ensure adequate QA performance. These include integration of the QC inspectors into Consumers quality assurance program ("MPQAD"); increased Consumers' management involvement in soils QA; and creation of a single point of accountability in soils in Mr. Mooney.

The numerous and serious problems in the remedial soils area since April, 1982 lead us to believe that even under the current strict controls of our April 30, 1982 Board Order, the Work Authorization Procedure, and the work permit and excavation permit systems, Consumers is unwilling to follow its QA program.

The problems discovered in the remedial soils area since April, 1982 include: Consumers' bypassing of hold tags; Consumers' refusal, except under pressure from the NRC, to increase the test load for the FIVP four-point jacking; drilling into duct banks; its failure to inform the NRC about QA problems in the load test for Pier 11 West; and its failure to construct the

slope layback at the Auxiliary Building access shaft in accordance with its design.

However, these problems pale in comparison to Consumers' material false statements to the NRC staff on March 10 and March 12, 1982, about the status of installation of underpinning instrumentation. We find that Consumers, in an attempt to exempt from coverage of a QA program certain instrumentation work, misrepresented to the NRC staff the status of the work on at least two occasions.

Similarly, we have found that Consumers deliberately violated our April 30, 1982 Order which prohibits soils work listed in that Order without obtaining prior explicit approval from the NRC staff. It appears that Consumers excavated beneath the deep Q duct bank and relocated a fireline in direct violation of that Order after numerous NRC staff warnings not to excavate.

If Consumers is unable to obey direct and clear orders of this Licensing Board, we do not know what other controls could be imposed on the soils work to ensure that it is done in accordance with regulatory requirements. It is hard to imagine a stricter system of controls and checks than that currently existing for the soils work at Midland.

We also find that Consumers management failed to respond to the NRC staff criticisms and inspection findings except when threatened with drastic enforcement action, such as suspension of all safety-related construction in December, 1982.

We find Consumers, throughout this hearing, has failed to acknowledge that the DGB inspection revealed a QA breakdown at the site. In its response to the February, 1983 Notice of Violation, Consumers was at times evasive and nonresponsive. For example, Consumers did not admit the IPIN problem, but claimed that the problem was limited to the so-called Return Option. Similarly, Consumers did not stop the use of IPIN's by QC inspectors until long after they had been notified of the NRC concerns.

Moreover, Mr. Shafer testified that Consumers management reverted to its usual nonresponsive attitude once the threat of shutdown passed. Among the indicators that management was no longer receptive to NRC criticisms was its refusal to carry out its promise of December, 1982, to carry out a 100 percent reinspection of all safety-related system until the NRC conditioned acceptance of the CCP in the spring, 1983, upon such reinspection.

In short, we find that Consumers has not demonstrated, either by implementation of its QA program since April, 1982; or by the effectiveness of corrective actions and reform programs since that date; or by a changed management attitude, that it is willing or capable of carrying out future soils work in accordance with NRC requirements.

In fact, to the contrary, Consumers' violation of this Board's Order in July and August, 1982 and its defense of its actions in this recent set of hearings, demonstrate that

its management attitude is deteriorating at least in terms of its willingness to comply with NRC requirements.

B. Consumers Lack of Candor and Honesty
in Dealing with the NRC

Ms. Stamiris' Contention No. 1 states, in essence, that Consumers lacks the required honesty, truthfulness and candor in dealing with the NRC to ensure it will complete the soils work in accordance with regulatory requirements. As we noted above, this Board believes a licensee's responsibility to provide full, complete and accurate information to the NRC cannot be overstated. It is the cornerstone of our regulatory system.

We agree with Ms. Stamiris that, on the record before us, we are unable to find Consumers' possesses the necessary truthfulness, honesty and candor.

We find a number of instances in which Consumers has given the NRC staff information which was not accurate or which was, in some respect, misleading. We also found numerous instances in which the NRC staff could not obtain the information it needed from Consumers because Consumers had inadequate control over its contractor Bechtel. Finally, we heard evidence about innumerable efforts by Consumers to manipulate the information transmitted to the NRC in order that the company might obtain approval for some position with which the Region III staff disagreed.

We consider all the above-cited examples important indicators of Consumers' lack of candor and truthfulness.

Most significant to this Board, however, are the material false statements Mr. Boos made to the NRC staff in an attempt to have the installation of instrumentation exempted from the staff's requirement that all underpinning work be covered by a QA program. As examined in depth in our findings, we believe Mr. Boos' misrepresentations to the NRC staff on March 10 and March 12 were deliberate, and intended to obtain some benefit for Consumers.

In addition, we believe the company's deliberate violation of our April 30 Board Order, and its numerous attempts to cover up that violation, are examples of an improper attitude toward NRC regulation. We do not find persuasive Consumers' argument that the NRC staff's confusing directives to Consumers in May through August, 1982 contributed to the "misunderstandings" and "miscommunications" between the staff and Consumers. Both the Boos' incident and the violations of the Board Order contain too many indicia of "deliberateness" for us to find that Consumers merely misunderstood the NRC staff. At a certain point, as we believe has been reached in this case, a history of miscommunication and misunderstanding, turns into deliberate and intentional misconduct.

C. Consumers Has Put Cost and Scheduling Ahead of Quality at Midland

Ms. Stamiris Contention No. 2 states that

Consumers' placed cost and schedule concerns ahead of quality, which has led to soils work which is inimicable to the public health and safety. We agree. We find that many of the QA deficiencies described in the first part of our opinion, as well as the rushing of training of QC inspectors; proceeding with underpinning work prior to adequate QA checks; and inadequate procedures and inspection plans, support this conclusion.

Similarly, we find that Consumers' material false statements to the NRC staff in March, 1982 and Consumers' deliberate violation of our April 30, 1982 Order were caused by management's concern with the schedule for completion of the Midland plant, now delayed years beyond its original fuel load date.

Finally, we have taken judicial notice of, and allowed for litigation in these OM-OL proceedings, allegations that Consumers misrepresented the true schedule for completion of the Midland plants to the NRC staff.-/

Given the evidence before us, and the nearly unanimous opinion of the Midland section that the cause of the QA

-/As we note in our findings, the Dow Chemical Company has sued Consumers to terminate its contract to buy steam from the Midland plants and to cancel its liability to pay any portion of the cost of the plants on the basis that Consumers misrepresented to Dow the true cost and schedule for completion of the plant. The Dow Chemical Co. v. Consumers Power Co. Case No. 83-002232-CK-D (Cir.Ct.Midland July 14, 1983)

deficiencies at Midland in recent years is management's excessive concern with cost and scheduling, we have decided that Consumers failed to carry its burden on this contention.

D. Consumers' Repeated Pattern of Quality Assurance Deficiencies Represents a Managerial Attitude Inconsistent with Implementation of a Quality Assurance Program in Accordance with Regulatory Requirements

We believe that our description of the QA breakdown at Midland in the soils and balance of plant areas over the last two years is adequate to describe Midland's history of serious QA deficiencies. We find the problems at Midland and their causes distressingly similar over the years.

For example, the SALP 3 Report finds Consumers' performance in the soils area deteriorating. Just as in years past, the NRC staff concludes that the cause of Consumers' poor performance is lack of management involvement and the abdication of responsibility to Bechtel and subcontractors.

In this section of our findings, we describe changes over the last two years in top Consumers' management both in the soils area and in MPQAD. We find that Consumers still has placed largely inexperienced, unqualified persons in important positions within QA and soils management at Midland. Further, we believe that several important individuals, such as Mr. Mooney and Mr. Wells, have demonstrated since mid-1982 that they do not have the proper dedication to quality construction and QA principles to hold the positions they do.

Most importantly, we believe the return of Mr. Howell to the top managerial position at Midland brings back to Midland the same management attitudes and orientation which prevailed prior to 1980. In his testimony in the hearings before us, he indicated that he does not believe Consumers' management was responsible for any of the failures in the soils area in the 1970's and that he still blames the NRC and the intervenors for the project's failures. At this critical juncture, Consumers' management needs an honest, forthright approach toward quality work and quality principles. Mr. Howell clearly does provide that fresh orientation.

E. Conclusion

In conclusion, we find that Consumers' deteriorating performance in implementing its QA program and in the soils area, indicates that the present controls and reforms instituted since August, 1982 have not worked. We have no assurance that Consumers can, under the current set of controls, including our April 30 Board Order, continue the soils work in accordance with regulatory requirements.

Further, we find a great deal of the fault is that of Consumers' management which does not, at the present, possess a sufficient dedication to quality principles, and is not sufficiently candid and truthful in its dealings with the NRC to proceed with the soils work. For these reasons, we sustain the Modification Order and order submission of appropriate amendments to the construction permit application.

FINDINGS OF FACT

I. QUALITY ASSURANCE

A. QA History Since July, 1980

1. The SALP 2 Report rated Consumers the lowest category, Category 3, in soils, for the period of July, 1980 through July, 1981. Stamiris Exh. 55. Every NRC soils inspection report issued during calendar year 1982 included at least one noncompliance with the soils area. Landsman, Tr. at 14758; Shafer, Tr. at 14764. Mr. Cook said that in April, 1982 when the SALP Report was made public, he would still rate Consumers a Category 3 in soils. Shafer, Tr. at 14766.

2. The SALP team also rated Consumers' performance for this period a Category 3 in the areas of Piping Systems and Supports and Electrical Power Supply and Distribution. Stamiris Exh. 55.

3. The SALP 2 Report stated that "[t]he enforcement history indicates a lack of attention to detail by the licensee and a continuing inability on the part of the licensee to successfully implement proposed resolutions of the soils settlement issues." Stamiris Exh. 55 at 2.

4. Both Mr. Cook and Mr. Shafer agree that the three major areas of work to complete the Midland plants are electrical, piping systems and support, and soils. Shafer, Tr. at 14780.

5. On May 17, 1982, Consumers responded to the SALP 2 Report in a lengthy point-by-point rebuttal of the report.

The SALP team found the response overly argumentative and another indication of Consumer's inability or failure to recognize the serious problems at the Midland site. Stamiris, Exh. 56.

Mr. Shafer, in his comments on Consumers' response stated, inter alia, that Consumers was "purely argumentative;" had not in the past determined the extent of the problems; at one point in the response was "lying" or implying that the NRC staff was lying; was playing games with numbers; and finally, in one portion of the response had responded, in a manner which "did not speak well of Bechtel's ability to control documents and CPCO's ability to control Bechtel." His overall comment on the response was that Consumers spent too much time trying to justify its behavior. Shafer, Tr. at 14784-14802; Stamiris, Ex 57.

Mr. Cook echoed many of Mr. Shafer's comments, but was even more pointed in his remarks on how the response reflected on Consumers' management. He wrote in his comments on the response that Consumers had made a false statement in the response; that its management ability to communicate with the NRC had not improved; Consumers' management only responded to strong enforcement action; and overall the response reflected Consumers inability to listen to the NRC. Mr. Cook's notes also state that Consumers did not have a firm grasp on the number or quality of QA/QC people needed for an adequate quality assurance program. The most poignant comment is Mr. Cook's assessment that Consumers' evaluation of seven items of

identified noncompliances as "not excessive and...of relatively low consequence" would support removal of Consumers as the licensee until a complete purge of management and a resulting attitude realignment had occurred. Stamiris, Exh. 58; Cook, Tr. at 15968-82.

6. Mr. Shafer and Mr. Keppler testified that a major factor in creating the Office of Special Cases was Consumers' response to the SALP 2 Report. Shafer, Tr. at 14719; Keppler, Tr. at 151624.

7. On June 26, 1982, a second public meeting was held on the SALP 2 Report. At that time, Mr. Keppler stated that he did not understand why Consumers could not implement an adequate QA program and stated, "I have to wonder if Consumers can do the job." Keppler, Tr. at 15162-63; Landsman, Tr. at 14832. Mr. Keppler also stated that he would have to reconsider his earlier reasonable assurance testimony before this Board. Ibid.

Dr. Landsman at that meeting discussed an incident in which although Consumers had assured the NRC that all QA preparation had been made to proceed with drilling, the staff found that the QA manual had 15 mistakes. Dr. Landsman used this as an example of how the NRC considered the problems at Midland much more serious than did Consumers' management. Stamiris Exh. 59; Landsman, Tr. at 14832-37.

8. The NRC staff after this meeting informed Consumers that the staff was not going to change its position, as

stated in the SALP 2 Report, about the problems at the Midland site. It expected Consumers to re-evaluate its response. Gardner, Tr. at 14867. Mr. Warnick, chairing a public meeting on August 5, 1982, informed Consumers that the NRC staff was not going to change the SALP Report. Shafer, Tr. at 14871.

9. As stated in Part II, supra, Mr. Keppler received two sets of recommendations from his staff as to what reforms or improvements should be implemented at Midland. Keppler, Oct. 29, 1982, Prepared Testimony, following Tr. at 15111, Attachments A and D, Enclosure 4.

10. On August 26, 1982, Mr. Keppler, Mr. Eisenhut Mr. Selby and Mr. Cook met with other Consumers officials and NRC staff to discuss what recommendations to the NRC staff would mandate for Consumers. Keppler, October 29, 1982, Prepared Testimony, at 4-5, following Tr. at 15111; Keppler, Tr. at 15177-91, 15201, 15212. At that meeting, Mr. Keppler communicated Mr. Warnick's recommendations to Mr. Selby, the majority of which he adopted or agreed with. Id. at 15182.

11. He told Consumers to come back to him with a "get well plan" in one week. Id. at 15197, 15207, 15212, 15217. Except for two concerns, Mr. Keppler agreed that the points communicated to Consumers were those appearing under the title "Keppler's List" on Elinor Adensam's notes. Stamiris Exh. 68 at 31; Keppler, Tr. at 79-81.

12. Consumers and Bechtel management met with

the NRC staff on September 2, 1982 at O'Hare Airport in Chicago. Consumers brought a draft letter to that meeting which it submitted formally to the NRC staff on September 7, 1982. Id. at 15188, 15197-15200; Stamiris, Exh. 64.

13. The NRC staff reviewed this submittal and found it lacking in detail. Stamiris Exh. 65. The staff stated clearly that the licensee's draft commitments to improve its implementation of quality assurance in the soils area "fall short of what we believe is needed to turn this project around."

14. Consumers submitted a second letter on October 5, 1982, which Mr. Keppler found acceptable. However, the Office of Nuclear Reactor Regulation (NRR) had other criticisms and Consumers was forced once again to revise the letter. Stamiris, Exhs. 71 and 72; Keppler, Tr. at 15246-52. On October 25, 1982, Region III and the NRC's Bethesda Office of Inspection and Enforcement staff met to discuss Consumer's proposals. The NRC staff criticized Consumers' plan for not making the vertical slice review broad enough; emphasized the need for a third party overview for the balance of plant work; stated that the INPO "backward look" needed to be broadened; and determined MAC, suggested as one of the third parties, lacked independence. Id. at 15254. Mr. Keppler affirmed that the staff was "far from satisfied at that meeting." Id. at 15255.

15. During this period, Mr. Keppler drafted his revised testimony regarding QA. An earlier version of his testimony

stated that the results of the NRC staff's DGB inspection would affect whether he could give his reasonable assurance. Stamiris Exh. 73. This statement was eliminated from the testimony which the NRC staff prefled in these reopened hearings.

16. On June 8, 1982, the Advisory Committee on Reactor Safeguards ("ACRS"), requested that the NRC staff arrange for a broad assessment of Midland's design adequacy and construction quality of the Midland plants, especially with respect to the electrical, control, and mechanical equipment and foundation work. Stamiris Exh. 90. Mr. Keppler testified that he believed the recommended independent design review, included as part of the construction completion program, was intended to satisfy this ACRS concern. Keppler, Tr. at 15340-45.

17. On October 12, 1982, the Midland team began its intensive inspection of the DGB to determine the status of Consumers' QA implementation for recent 1982 construction work. On November 10, 1982, the Midland team held a major exit meeting with Consumers on the DGB inspection. Mr. Shafer, then Chief of the Midland Section, wrote in his official log "Team is up tight--wants to recommend shutdown--will probably go for C-P [civil penalty]." Stamiris Exh. 67.

18. On November 23, 1982, the Midland team and Mr. Warnick held an exit meeting with Consumers and Bechtel management in which Mr. Warnick informed Consumers that the Midland team wanted to stop all safety-related work at the site.

Since this was a time-consuming process for the NRC, the team wanted Consumers to suspend construction and allow the NRC staff to follow with a Confirmatory Action Letter. Stamiris Exh. 66. The staff told Consumers to get back to them with a plan to control work for the future "forward look," and to provide an independent "backward look." The staff gave Consumers a deadline of one week so that the plan would be ready for a meeting on December 7, 1982 between Region III and NRR. Stamiris Exhs. 66 and 67. Shafer, Tr. at 15068-70, 15082-83. Gardner, Tr. at 15071.

19. On December 2, 1982, Consumers announced that it would shut down all safety-related work other than HVAC and B&W installation, soils work, and some engineering work. Shafer, Tr. at 15086.

20. On December 3, 1982, Consumers submitted yet another revision of its October 5 letter regarding its proposed independent design review, which incorporated the NRC staff's criticisms expressed at meetings held with Consumers on October 25 and November 5, 1982. Stamiris Exh. 81. On December 6, 1982, Consumers submitted a letter to Region III requesting permission to proceed with the first underpinning work on Piers 12 East and 12 West.

21. At a meeting held on December 7, 1982, the NRC staff discussed the submissions of Consumers regarding third party overviews and improvements in its QA implementation. The

NRC Staff decided to direct Consumers to consolidate all plans and reviews in a single plan, and to consider whether or not the scope of the independent design review proposed in Consumers December 3, 1982 letter was adequate. Stamiris Exh. 74. Apparently, from Mr. Hernan's notes of the meeting, the NRC staff also suggested that Consumers consider a 100 percent reinspection of all safety-related construction at the plant. Stamiris Exh. 79 at 3.

22. In accordance with the NRC staff's direction, Consumers did submit a comprehensive Construction Completion Plan on January 10, 1983.

23. It is clear that it was the NRC staff and not Consumers which initiated every major aspect of the current Construction Completion Plan and the soils overview. Moreover, it is clear that all improvements in the QA organization; in Consumers' assumption of control over the QC functions; 100 percent reinspection of the work of all failed QC inspectors; and 100 percent reinspection of electrical and pipe support work which the NRC found seriously deficient, were actions agreed to by Consumers only after extensive negotiations with the NRC staff and the threat of severe enforcement action. Suspending all safety-related construction in December, 1982 was done only after the Midland team issued an ultimatum to Consumers that despite the difficult and time-consuming process, the NRC staff would shut down construction if the utility did not itself do it.

The CCP, including the independent design review, the "backward look" or quality verification program, and the construction implementation overview ("CIO") were shaped by the NRC staff every step of the way. Further, the NRC staff had to exert great pressure over an extended period of time to ensure that even arguably independent overviews were chosen for the third party reviews.

Finally, the independent design review concept itself was initiated in response to an ACRS request that, given the long history of QA failures at Midland, the NRC staff provide it with an independent design and construction verification of the plants. The numerous meetings which the NRC staff was compelled to hold with Consumers, which in some cases involved reviewing drafts of proposed reform plans, demonstrate that Consumers did not initiate even the details of the CCP after the NRC staff drew its broad outlines. Further, it is clear that Consumers continued to argue with the NRC staff throughout most of 1983 about the scope and extent of the CCP. See Part B, *infra*.

B. Third Party Overview of Soils and Construction Completion Program

24. Mr. Keppler testified that he did not have confidence in Consumers' QA program to provide reasonable assurance that Consumers could complete the plant in accordance with regulatory requirements. He gave his reasonable assurance only on the condition the following controls were in place:

(a) An independent overview by a third party of future safety-related work;

(b) An independent design verification of completed work on selected safety-related systems by a third party;

(c) Intensive NRC oversight of construction activities and QA implementation. Keppler March 25, 1983 Prepared Testimony, following Tr. at 15114.

25. Mr. Keppler admitted that although the Midland team requested at least five more inspectors for Midland alone, he did not have personnel to provide those five more inspectors. Keppler, Tr. at 15327.

26. The independent design review conducted by the Tera Corporation is called the Independent Design and Construction Verification Program ("IDVCP") which is intended to review a "vertical slice" of three chosen safety systems to ensure that they will be able to function in accordance with their safety design bases and Consumers' FSAR commitments.

Consumers originally proposed that the scope of the IDVCP cover only the Unit 2 Auxiliary Feedwater System. J. Cook, April 11, 1983 Prepared Testimony, at 19-20, following Tr. at 18025.

However, the NRC staff recommended and Consumers finally agreed to expand the scope of the IDVCP to

include the diesel generator electric power system and the control room HVAC. Keppler, Tr. at 15256-15258.

27. The first Monthly Status Report of Tera, dated May 27, 1983, identified a number of significant design concerns, including the following:

(a) The Midland Technical Specifications do not meet NRC B&W Standard Technical Specifications in that there is a lack of an action plan for immediate action if both AFW systems are inoperable (C-002);

(b) B&W BOP criteria regarding control of FOGG from the Auxiliary Shutdown Panel are not met and may indicate a problem with B&W and Bechtel design interface (C-B11);

(c) The AFW System may not be functional during station blackout conditions (C-012);

(d) The "Feed Only Good Generator" system may perform in a detrimental manner under conditions of steam generator tube failure followed by loss of offsite power (C-025);

(e) The AFW system design may not meet a B&W interface requirement that auxiliary feedwater temperature be at least 40 degrees F (C-028);

(f) Four hangers were field measured to be out of installation tolerance limits, which indicates construction deviation control process is not functional (C-031);

(g) Hanger H-10, a horizontal snubber, was field measured to be about three feet from its design location (C-032);

(h) Hanger H-7, a vertical rigid hanger, was field measured to be about three feet from its design location (C-033);

(i) Hanger H-11, a vertical rigid hanger, was field measured to be mis-located by one foot, three inches, according to drawing dimensions (C-035);

(j) Under condition of loss of all AC, the AFW pump minimum flow would not be operable because it is powered from Class 1E AC power (C-038); and

(k) Failure to comply with vendor's recommended storage instructions for the pumps and turbine since 1978 (C-046).

Stamiris Exh. 101.

28. Mr. Cook, at the time he testified before this Board, acknowledged that Item (c) listed above was the only finding which Consumers at that time considered significant. J. Cook, Tr. at 18360-18361. Even without the benefit of Tera's technical analysis of the above-listed confirmed findings, the Board believes the items listed above show serious problems with not only the capability of the current design to meet safety functions, but also with the great divergence between the design and the as-built condition of the plant.

As Consumers acknowledged, neither Consumers nor Bechtel had discovered any of the Tera problems prior to this first monthly report. J. Cook and Rutgers, Tr. at 18364.

It appears that even with the assistance of a competent third party overseer, Consumers is unable to identify and determine the seriousness of problems in the design and as-built construction of the Midland plants.^{6/}

29. The CCP is essentially broken down into two phases:

(1) Phase 1, which is intended to determine the status of the completed work and the quality of the past construction. The latter is labeled the Quality Verification Program ("QVP").

(2) Phase 2, which is intended to complete construction of the Midland plants under an improved QA/QC program which will ensure that the remaining construction work confirms to design and specifications. J. Cook, Prepared Testimony, at 5-6, following Tr. at 18025.

30. The initial portion of Phase 1, determining the status of current construction, will be performed by construction completion "teams of craftspeople and an MPQAD

^{6/}TERA has made the following additional findings in its IDVCP review:

- 1) Finding 3201-008-F-055: Inconsistencies observed within certain welding procedures and procedure qualification records;
- 2) Confirmed Item 3201-008-C-104: Inconsistencies and errors in the Auxiliary Building mass moment of inertia calculations. Bechte confirmed an omission of a 25 percent live load for the EPA wings.
- 3) Confirmed Item 3201-008-C-108: Questioning of assumption in the Auxiliary Building stick model.
- 4) Finding 3201-008-F-015: Inadequate consideration of floor flexibility in the seismic analysis.

representative, based on the WPSS statusing team concept. MPQAD, as noted above, will conduct the QVP.

Phase 2 involves developing work procedures for the completion of construction, as well as the actual construction work.

Management reviews will be conducted at the end of both the Phase 1 and Phase 2 planning stages. Id. at 14.

See generally, Gardner, Tr. at 16027-16034; Figure 1-1, following Tr. at 16034.

31. At the NRC staff's insistence, Consumers included specific NRC staff and third party hold points in the CCP. Additional hold points were added at the end of all Phase 1 management reviews prior to release of Phase 2 work. Shafer, Tr. at 14698-14702; J. Cook, Prepared Testimony, Attachment 4, following Tr. at 18025; Consumers Exh. 48.

Mr. Shafer testified clearly that the reason the NRC staff wanted either the staff or the third party to remain in the in-line review of the ongoing construction work was that they were not confident Consumers could do the work properly without NRC or third party monitoring. Shafer, Tr. at 14702.

32. The Construction Implementation Overview ("CIO") is the third major third party review which involves an overview of future construction work at Midland to ensure that it

proceeds in accordance with adequate construction procedures and inspection plans. Consumers Exh. 48. The third party reviewer will audit the management reviews conducted at the end of the Phase 1 and Phase 2 planning stages.

The NRC staff insisted and Consumers finally agreed to establishment of hold points in the CIO. Again, the hold points will be established for both Phase 1 and Phase 2. J. Cook, Prepared Testimony, Attachments 3 and 4, following Tr. at 18025.

33. Stone & Webster Engineering Company was chosen as the third party reviewer.

The NRC staff determined that S&W met the so-called Palladino criteria and approved Consumers' choice. As stated above with respect to the third-party overview of soils, we do not believe the staff did a thorough job of assessing the independence and competence of Stone & Webster. It is especially striking that S&W was considered independent even though it has been on site since September, 1982 performing the soils overview work. In addition, it is difficult to understand how the NRC staff could determine that Tera, because it was conducting the IDVCP was not "independent enough" to perform the CIO, and yet S&W does not suffer from that same disability.

Again, Ms. Adensam's notes indicate that the NRC was encouraging Consumers as early as October 25, 1982

to hire S&W to do an overview of the balance of plant construction work "over time." The October 25, 1982 entry indicates that the NRC recommendation, made in a meeting between Region III and Mr. Eisenhut, was that the S&W assessment of remedial soils work be expanded to include balance of plant to "gain assurance that we have confidence that the program is being implemented." Stamiris Exh. 68; Keppler, Tr. at 15427-33.

This Board concludes that the NRC staff, instead of in fact approving S&W for the two overview roles according to the Palladino criteria, were eager for S&W to conduct the overview as early as September, 1982, and may in fact have been the ones to push Consumers to hire S&W.

While it is not clear on this record that S&W is not competent for the role, or that another third party would be preferable, it is clear Mr. Keppler did not approve the third party reviewers in the manner he represented. Given the fact that the manner in which he approved these third party overviews was offered as support for his reasonable assurance, we discount his reasonable assurance. Further, we do not believe the Regional Administrator should represent he acted in accordance with the Palladino Criteria, a set of standards to which NRC Chairman Palladino committed in response to inquiries from Congress, if he did not.

34. The CCP includes, most importantly, the quality verification program ("QVP") which is a "backward look" at the installed, safety-related components, structures, and systems.

For inaccessible systems, MPQAD will do a 100 percent review of documentation. For accessible systems, MPQAD will conduct a 100 percent reinspection. Consumers will also conduct a 100 percent reinspection of closed IPIN's and DR's, as well as NCR's. Gardner, Tr. at 16046; Keppler, Tr. 15383-15384; J. Cook, Prepared Testimony, Attachment 4, following Tr. at 18025.

35. The NRC staff told Consumers in the December 7, 1982 meeting described above that it wanted 100 percent reinspection of all safety-related components and structures. Consumers resisted 100 percent reinspection and instead insisted on a sample approach until a predetermined number of deficiencies appeared, at which time it would begin 100 percent reinspection. The NRC staff throughout the spring of 1982 insisted on 100 percent reinspection, which Consumers accepted on June 10, 1982. Shafer, Tr. 16801; Consumers Exh. 48.

Consumers agreed to do 100 percent reinspection only under what appears to be heavy NRC staff pressure, which indicates management still does not understand the seriousness of the QA problems at Midland. Moreover, given the finding of a QA breakdown in the DGB inspection and the early findings of the IDVCP, we do not understand why Consumers did not, at an earlier time, understand the need for 100 percent reinspection.

36. Further, given the numerous documentation problems encountered at Midland in the past, this Board finds it doubtful that a documentation review alone of those inaccessible

systems and components is adequate. Despite Mr. Keppler's assurances that the documentation is valid, given the long history of QA failures at Midland, this Board is not as sanguine. Therefore, this Board believes that that portion of the QVP which calls for only documentation review for inaccessible systems and components is inadequate. Keppler, Tr. at 15386-91.

37. The Board finds more serious, however, the fact that Consumers has been entrusted with inspecting and finding the problems in the as-built condition of the plant. As Mr. Keppler acknowledged, and the Midland team documented in the DGB Inspection Report, Consumers has been up to the present, unable to identify construction problems at Midland. Keppler, Tr. at 15336. The QA breakdown documented in the DGB Report proved, beyond any legitimate doubt, that lack of adequate QA implementation had led to serious construction deficiencies, and serious variances between the as-built condition and design of the Midland plants.

38. The NRC staff states in response that a third party overviewer will monitor the QVP to ensure that Consumers is doing an adequate job. However, given the small number of reviewers, this Board believes this situation is analogous to the NRC inspection staff overseeing Consumers' QA implementation over the last few years. Despite tough reviewers, the third party simply does not have sufficient staff to monitor adequately Consumers inspection of the as-built condition of the plant.

The parties and this Board appear to be in agreement that the QVP is the most important part of the CCP. Therefore, we find that allowing Consumers to conduct the QVP calls into serious doubt the entire CCP as an adequate control to ensure that past construction work at Midland is sound.

39. Although not specifically listed by Mr. Keppler as a basis for his reasonable assurance, the third party overview of the remedial soils work has long been seen as the basis for the NRC staff's confidence that the soils work will proceed in accordance with regulatory requirements.^{2/}

^{2/} Both the NRC staff and Consumers have argued that Stone & Webster Engineering Corporation ("S&W") was approved as third party reviewer of the soils work only after the NRC staff decided S&W met the so-called Palladino Criteria for independence and competence. This Board, after hearing about the NRC staff's review, is convinced that it did not do an adequate review of either the corporation or the individuals assigned to Midland to ensure their independence and competence. See generally, Shafer, Tr. at 16108-16131.

Moreover, it appears that the NRC staff did not apply the criteria in any way prior to permitting S&W to begin its overview of the soils work in September, 1982. Although not formally approved until February, 1983, S&W was on site and charged with significant responsibility by the NRC staff from the time it was on site. Therefore, this Board finds that contrary to the staff's testimony at these hearings, it did not apply the Palladino Criteria. It appears the NRC staff approved, and perhaps recommended, S&W as the third party overviewer of soils at Midland for reasons not brought out on this record. Shafer, Tr. at 16104; Gardner, Tr. at 16132; Keppler, Tr. at 15418-20, Stamiris Exh. 68 at 45; Keppler, Tr. at 15433, 15445-47, 15457-67.

The NRC staff further admitted that the presence of S&W on site was an "important factor" in releasing the soils work in December, 1982. Keppler, Tr. at 15438.

40. In February, 1983 the NRC staff told Consumers that it needed to increase the scope of the S&W overview to include an assessment of design work packages for technical adequacy. Keppler Prepared Testimony of March 25, 1983, Attachment D to Attachment 1, following Tr. at 15114.

In response to the NRC request, Consumers expanded the scope of the S&W overview.

41. Consumers, in its Second Proposed Findings of Fact and Conclusions of Law, commented on S&W assessment of the underpinning and remedial soils work through September 30, 1983. Findings at 285-286. While we believe it is inappropriate to base any findings on evidence not introduced at the time of hearing and subject to cross-examination, this Board would draw attention to recent S&W Reports which state the following:

1) Report No. 59, November, 1983: Incomplete data sheets for crack mapping of the Auxiliary Building; unclear data sheet entries; performance of activities which were under hold status. Two additional cracks reached the alert level in the SWPS. Wiss, Jenney did not notify the FSO within four hours, as required.

2) Report No. 61, November 15, 1983: Wiss, Jenney procedures for crack monitoring were not revised to reflect revisions to Bechtel specifications.

3) Report No. 62, December 1, 1983: Insufficient attention to detail since alert level cracks were not reported in a timely manner to resident soils engineers; failure to display graphically crack monitoring on the required data forms; failure to keep procedures current.

42. Other reforms mandated by the NRC in late summer, 1982 and incorporated by Consumers into the CCP, include the following:

(a) integration of QC under MPQAD in both soils and BOP work;

(b) upgraded QC inspection training;
 (c) increased Consumers management involvement in soils QA; and
 (d) creation of a single point of accountability in soils. Mooney, Prepared Testimony at 4-24, following Tr. at 17017.

43. Apparently, since August, 1981, Mr. Mooney has served as the single point of accountability in the Soils Organization. Mooney Prepared Testimony at 16, following Tr. at 17017. Although included as part of Consumer's "get well program" in its September 17 letter, this change is not new.

Various members of the Midland team, especially Dr. Landsman, testified that Mr. Mooney, ever since coming to the Midland site, has had communication problems with the Midland team. Both Mr. Cook and Dr. Landsman suggested that Mr. Mooney did not contribute to dedicated management or to a good management attitude on the part of Consumers. Landsman, Tr. at 16539-42, 16843; Cook, Tr. at 16840-41.

44. On January 17, 1983, Consumers placed the QC function for all work on site other than soils and HVAC work under the direct supervision of MPQAD. However, QC inspectors still report on administrative and employment matters to Bechtel supervisors. The NRC staff has repeatedly urged Consumers to remove Bechtel QC supervisors entirely, but Consumers has refused. Cook and Shafer, Tr. 16301-02.

The QC function in the soils area was integrated under Consumers QA organization in soils when Mr. Meisenheimer began work as MPQAD Soils Superintendent in July, 1982.

45. Despite this realignment of the QC function directly under Consumers QA program, we find little to no beneficial effect on Consumers implementation of its QA program. The hoped-for improvements in QA performance have not materialized, either in the soils work or in the BOP work. The numerous problems Consumers has encountered in the soils work, enumerated below, indicate that limited integration of the QC inspectors under the authority of MPQAD, without similarly integrating their Bechtel supervisors into Consumers' QA organization, has had no effect on improving Consumers QA performance.

46. In the August 26 and September 2, 1982 meetings described above, the NRC staff directed Consumers to decertify all soils QC inspectors and retrain and recertify them properly.

In September, 1982 when the Midland team conducted an inspection of the QC recertification process, they determined that the requalification effort was still not acceptable. The problems they found included excessive repeating of questions; marking questions not applicable when, in fact, the questions were relevant; questions whose technical content was inadequate to assure examinees had knowledge of the facts needed to be inspectors; and problems with uncontrolled Project Quality Control Instructions

("PQCI"). Gardner, Tr. at 14454-14463; Landsman, Tr. at 14463. See also Confirmatory Action Letter issued on September 24, 1982, NRC Staff Prepared Testimony of Oct. 29, 1982, Attachment 1a, following Tr. at 11391.

47. The NRC staff testified that Consumers promised in a September 29, 1982 public meeting that it would reinspect 100 percent of the work of any inspector who failed the exam. Later, Consumers took the position that it would do 100 percent reinspection only if an inspector, after two chances to take the test, failed. Landsman, Tr. at 14470; Cook and Shafer, Tr. at 14471. The NRC staff believed Consumers had reneged on its earlier commitment. Landsman, Tr. at 14943-44; Shafer, Tr. at 14945.

48. In January, 1983 the NRC Midland team continued to find problems in the retraining and recertification of QC inspectors. The NRC staff found that there was not always sufficient instructional material; questions raised during the training session were not always answered; and certain PQCI prerequisites were not well-defined. Gardner, Tr. at 14481-82. Mr. Gardner stated that the cause was that Consumers wanted to rush recertification of QC inspectors so that the inspectors could begin work. Ibid.

49. Mr. Gardner further testified that scheduling concerns had such a bad impact on the quality of recertification training that in early April, 1983 Consumers was forced to suspend recertification of inspectors for BOP work. Gardner, Tr. at 14484.

50. Mr. Gardner also expressed his opinion that these "significant" problems regarding QC retraining and recertification were a management problem, not a training problem. Gardner, Tr. at 14488.

51. In addition, it appears that Consumers has committed to Reg. Guide 1.58, Rev. 1, only for new hires. Stamiris Exh. 81; Gardner, Tr. at 16621-22. In the past, the NRC has been concerned that Consumers failed to commit to this standard and substituted certification for education and experience. Id. at 16622.

52. Consumers made so many schedule changes in the performance demonstrations that it was often difficult for the NRC staff to review the training. Gardner, Tr. at 16632. Mr. Gardner testified that often the cancellations were due to construction schedule pressures; trainees were often pulled out of training in order to perform construction inspection activities. Id. at 16633. Mr. Cook testified that such schedule changes in performance demonstrations were an example of Consumers' placing its construction schedule ahead of its QA responsibilities, in this case, recertification of QC inspectors. Cook, Tr. at 16641-42. Mr. Cook said that not only has Consumers failed to correct the problem, but the schedule changes have gotten worse. Id. at 16643. See also Stamiris Exh. 82.

53. Consumers has no responsibility to certify subcontractor QC personnel or Bechtel QC personnel in areas other

soils certified to procedure B-3M-1. Shafer, Tr. at 16657-58. Therefore, it appears that Consumers has not yet fulfilled its commitment to have all QC inspectors certified to that procedure and thus fully certified to MPQAD procedures. Stamiris Exh. 84; Cook, Tr. at 16658.

54. Dr. Landsman testified about yet another problem with recertification of QC inspectors he found when he reviewed a PQCI for batch plant inspection. He discovered that the reference criteria in the PQCI did not agree with the line items with which they were matched. Consumers was essentially certifying the inspectors to inspect the batch plant prior to revision of the relevant PQCI's. Dr. Landsman stated the cause of the problem was Consumers' schedule pressure to pour the concrete. Landsman, Tr. at 16824-26.

55. This Board must conclude that despite the NRC's constant monitoring of the retraining and recertification of QC inspectors, Consumers continues to have a problem in implementing an adequate recertification program. The NRC staff seems to be unanimous in its conclusion that these problems over the last two years have stemmed from Consumers' management putting schedule concerns ahead of proper training and recertification. Therefore, this Board concludes that even the current recertification effort has not improved Consumers' implementation of its QA program.

B. Problems in the Soils and Balance
of Plant Work Since April, 1982

56. The Board has closely scrutinized the record

to determine what, if any, good effect the third party overviews and changes in Consumers QA program has had on Consumers implementation of its QA program and the soils work continuing at Midland.

The Board has concluded that Consumers implementation of its QA program is deteriorating as is its performance in the remedial soils work. Therefore, this Board must conclude that it has no reasonable assurance that the third party reviews and NRC staff controls imposed on Consumers up to this point in time, will ensure that Consumers completes the soils work and future construction work in a manner to protect the public health and safety.

57. Among the serious problems found by the NRC staff since April, 1982, when the SALP Panel rated Consumers a Category 3 in Soils, are the following:

(a) Dr. Landsman testified that in May, 1983, Consumers bypassed hold tags in the underpinning work. Consumers wrote conditional releases on the hold tags even though the hold points had not been released. Landsman, Tr. at 16692-97; Stamiris Exh. 89. Mr. Mooney's testimony that such hold tag violations were not serious is disturbing and indicative of a poor management attitude on the part of Consumers. Mooney, Tr. at 17337-38.

(b) Dr. Landsman testified that one of the drifts had collapsed and Consumers had failed to inform him. After that, he insisted that Consumers call him every day to inform him

of the status of the soils work and any problems Consumers had encountered. He stated that he had instituted the "courtesy call" because the situation was deteriorating. Landsman, Tr. at 16704-06.

(c) Dr. Landsman testified that for about a year, the NRC staff had argued with Consumers about the load to be applied during the Feedwater Isolation Valve Pit ("FIVP") four-point jacking. Dr. Landsman expressed his concern that the existing grillage support might not hold the full weight of the FIVP since the lean concrete below the FIVP could stick to it and significantly increase the weight to be lifted. Finally, Consumers agreed to add the extra weight to the load. Nonetheless, the top slab of the FIVP cracked during the jacking, and even now, Consumers does not appear to have determined the root cause for the cracking. Landsman, Tr. at 14632-34; 14636-37.

Another problem encountered during the jacking was that the subcontractor Wiss Jenney collected certain data only five minutes after the jacking began even though the NRC staff believed the data should be taken about one hour after the jacking began. The NRC staff finally convinced Consumers and the subcontractor to take data after one hour. Cook, Tr. at 14637-40.

Dr. Landsman expressed his opinion that Consumers would not accept the NRC's recommendation about the load for a year because it might delay construction. Landsman, Tr. at 14632-34.

(d) On February 10, 1983 Consumers'

construction personnel, in attempting to break up a mudmat adjacent to a Q-duct bank, accidentally drilled into the duct bank 14 times. Stamiris Exh. 54.

Dr. Landsman stated his opinion that the root cause for this accident was the workmen's lack of attention to detail and Consumers and Bechtel upper management's attitude which failed to emphasize doing the job right the first time. Landsman, Tr. at 14731-32. He also stated that Consumers had failed to inform him of this incident for over a month, even though he considered such information important to doing his job. Id. at 14723, 14730.

Of equal importance to this Board is that Dr. Landsman characterized Robert Wheeler's prior testimony on this incident, Wheeler, Tr. at 11440, as a "gross mischaracterization of the same incident." Mr. Wheeler described the incident as "one of those hand rigs accidentally knicking the side of the duct bank." After reviewing the NRC's description of the incident, Stamiris Exh. 54, this Board finds that Dr. Landsman's explanation of the incident is more accurate and believes Mr. Wheeler's testimony reflects poorly on his credibility as a witness in these hearings.

(e) Consumers encountered a number of problems in attempting to perform a load test for Pier 11 West to confirm the design parameters for the auxiliary building permanent underpinning wall. Consumers was unable to get the

full load down to the bottom of the pier and neither Consumers nor Dr. Landsman understood the cause of the problem at the time of the hearing. Landsman, Tr. at 14664-67.

Dr. Landsman also testified that Consumers had encountered a problem with the Carlson meters which he had learned about from an individual on the site. He fully expected three Consumers' managers present in Region III's Glen Elyn office to inform him about the problem when they came to meet with the NRC staff. None of the three individuals, including Mr. Wheeler, informed him of the problem. Landsman, Tr. at 16792-93; 16832-33.

Of additional concern to Dr. Landsman was the fact that Mr. Mooney, prior to beginning the load test, had assured him that he had checked out all the instruments on the pier and they were in order. It was with Mr. Mooney's assurances that Region III signed the work authorization for load testing the pier. Landsman, Tr. at 16832-33. Afterward, Mr. Mooney found problems with the PQCI's concerning the Carlson meters contrary to his earlier assurances to the NRC. Mooney, Tr. at 17356.

(f) Consumers installed instrumentation to monitor movements of the auxiliary building prior to beginning the underpinning of that building. Dr. Landsman requested from the resident structural engineer, the data for the deep-seated bench marks at the end of the electrical penetration area

("EPA"). He and Mr. Gardner found that the wings of the EPA were rising instead of settling. More disturbing was that no one in the Bechtel engineering department was analyzing the data to monitor movement of the building. At that time, according to Dr. Landsman, Consumers had not assigned any personnel to read the data, and Bechtel had clearly failed to do so. He found further that the resident structural engineers had not followed the proper procedures for review of the data. Landsman, Tr. at 14671-75.

(g) In a July-August, 1982 inspection, the NRC staff found that Consumers had failed to assure that the slope layback at the Auxiliary Building access shaft was constructed in accordance with design drawings. The completed slope was 1:1 instead of 1.5:1 as required by the drawing. Further, Bechtel had issued a Field Change Notice ("FCN") to record the nonconformance instead of an NCR. Since the slope work had been completed, Consumers was obliged to issue an NCR. NCR staff, Oct. 29, 1982, Prepared Testimony, Attachment 5 at 4, Tr. following 11391. The NRC staff also found that the on-site geotechnical engineer did not perform his monitoring duties properly. Ibid.

(h) The NRC staff recommended to Consumers that the FIVP supports be inspected in accordance with Consumers QA program. Consumers insisted, however, that since the FIVP supports were not permanent, they were not subject to a

Q-umbrella. Subsequent inspections of the FIVP supports indicated problems in their installation. Mr. R. Cook indicated that the reason Consumers did not want to subject the supports to inspection or proof load testing was because it wished to keep to its schedule for excavation below the FIVP. Keppler, Oct. 29, 1982, Prepared Testimony, Attachment B at 6, following Tr. at 15111.

(i) Dr. Landsman also testified that he understood that several of the cracks had opened up to the alert level in the Service Water Pump Structure ("SWPS"). He stated that he believed the SWPS had cracked because it was settling. Although at the time of his testimony he could not comment on the seriousness of the cracks, he did note that Consumers had failed to report the SWPS cracks to him by telephone, even though that had been the arrangement made a short time before. Landsman, Tr. at 14659-62.

58. The Board must conclude from problems listed in paragraph 57, some of which are very serious, that neither Consumers' QA implementation nor its performance in the soils area has improved since April, 1982. In fact, it appears to the Board that Consumers' performance in these two critical areas has deteriorated.

Dr. Landsman testified that he is not confident that Consumers can complete the remedial soils work, unprecedented in complexity at a nuclear plant site, in an adequate manner. Landsman, Tr. at 16753, 16492.

Further, Dr. Landsman testified, contrary

to Mr. Keppler's statements to this Board, that he had never urged or encouraged Mr. Keppler to permit release of the underpinning work in December, 1982 or at any other time. Landsman, Tr. at 16002.

59. The SALP 3 Report further supports this Board's conclusion that Consumers' performance in the soils area has deteriorated. Staff Exh. 24.

The SALP 3 Panel determined that Consumers' performance in the soils area had not only failed to improve, but had actually declined despite the extraordinary controls in place. Harrison, Tr. at 20643-44. The NRC staff extended the SALP 3 rating period in order to allow Consumers time to implement improvements made in response to the SALP 2 Report. Cook, Tr. at 20725. Despite the extra time, from June 30, 1982 through March, 1983, Consumers' performance continued its decline.

The NRC staff stated that they attributed the decline to lack of management involvement in the soils work and overreliance on Bechtel and subcontractors. These are the same criticisms which have been voiced by the NRC staff since issuance of the SALP 2 Report. Harrison, Gardner, Cook, Landsman, Tr. at 20719. Mr. Cook stated that Consumers had not done anything to improve the situation itself. All controls and improvements put into place since April, 1982 have been done by or at the insistence of the NRC. Cook, Tr. at 20656.

The SALP Board further considered rating

Consumers in soils less than minimally acceptable, but decided that since work was proceeding under strict work controls, it should be rated a Category 3. Landsman, Tr. at 20660; Harrison, Tr. at 20661; Gardner, Tr. at 20666. Mr. Cook described the current ongoing soils work as in a "kind of stop-work mode" in that the NRC is only releasing piecemeal portions of the work. Cook, Tr. at 20738.

The NRC staff also testified that any minimal increase in Consumers' responsiveness to NRC concerns had short duration. Harrison, Tr. at 20684.

The SALP 3 Report echoes many of the conclusions we have reached on the record before us. We believe that the strict NRC controls, the third party reviews, and changes made in Consumers' QA/QC organization have failed to bring about any improved QA implementation. Moreover, Consumers' performance in the soils area has declined.

D. Diesel Generator Building Inspection and BOP Problems

60. From October 12 through November 25, 1982 and January 19 through January 21, 1983, the NRC staff conducted a special inspection of the Diesel Generator Building ("DGB Inspection"). The inspection results were issued in Report No. 50-329/82-22, 50-330/82-22, on February 8, 1983. The DGB Report found a breakdown in Consumers' implementation of its QA program and led to a \$120,000 fine levied against the utility.

Keppler's, March 25, 1983 Prepared Testimony, Attachments 3 and 4, following Tr. at 15114.

61. In a February 8, 1983 letter to Mr. Selby, Mr. Keppler summarized the results of the inspection as follows:

(a) The breakdown was caused by personnel who failed to follow procedures, drawings and specifications; by first line supervisors and field engineers who failed to identify and correct unacceptable work; by construction management who failed to call for QC inspections in a timely manner, allowing a backlog of almost 16,000 inspections to develop; and many QA personnel who failed to identify problems.

(b) Quality control supervisors instructed QC inspectors to suspend inspections if excessive deficiencies were found during performance of inspections so that not all observed deficiencies were reported and complete reinspections were not always done after those deficiencies which had been reported were corrected. This was the inspection system of In-Process Inspection Notices ("IPIN's").

Region III categorized the violations outlined in the Notice of Violation as Severity Level III. Id. at Attachment 3.

62. The NRC staff testified that they discussed categorizing the violations as Severity Level II violations, unusual for a non-operating plant. Moreover, Dr. Landsman testified that imposition of a \$1 million fine was discussed as

a way to draw Consumers' attention to the seriousness of the problems. Gardner and Landsman, Tr. at 15089-90.

63. The NRC staff further testified that their findings from the DGB inspection convinced them that all safety-related construction at the site should be shut down, given the widespread and serious noncompliances they had found. Tr. at 15069-15082; Stamiris Exh. 66. See Finding 19, supra. Mr. Cook testified that the inspection staff found problems every place they looked in the DGB. Cook, Tr. at 15766.

64. The NRC staff also testified that it did not believe Consumers had acknowledged a breakdown in QA implementation and did not recognize the seriousness of the problems discovered by the inspection staff. Landsman, Tr. at 16095.

For example, even though the NRC staff informed Consumers of its concern with the use of IPIN's in November, 1982, Consumers stated publicly that it did not know of that concern until January 18, 1983, the date of the enforcement conference. Shafer, Tr. at 16264-65. Consumers claimed that IPIN usage was stopped in early December, 1982; however, the NRC inspectors stated that as late as January, they found during their inspection, that QC inspectors were using IPIN's. Ibid.

65. Consumers admitted the great majority of violations listed in the DGB Report, presumably because of the harsh enforcement action it faced.

Nonetheless, it did contest two of the violations. Consumers did not admit until it became an issue in these hearings that it had failed to indicate the material identity of the muffler saddle supports and plates for the diesel generator exhaust system in design drawings and specifications supplied to the vendor which provided these components. Keppler's March 25, 1983, Prepared Testimony, Enclosure to Attachment 3 at 5, following Tr. at 15114. Mr. Cook stated that he believed Consumers had failed to ensure that the vendor from which it obtained these exhaust system parts had been supplied by Bechtel with adequate specifications to ensure that the components would be seismic Category 1. Cook, Tr. at 19503-05; 19509-10; 19540; 19542; Stamiris Exh. 105.

Consumers' original response to this notice of violation had been that it did not have adequate information to respond. In a second response, Consumers indicated that it was not its responsibility to guarantee the material identity of these vendor-supplied exhaust system parts, but the responsibility of the vendor. Peck, Prepared Testimony, Attachment 1 at A2-19, following Tr. at 18921; Consumers Exh. 51. Mr. Cook testified that he believed it was Consumers' responsibility to ensure that all portions of a safety system which were Q or seismic Category 1 were certified upon receipt from the vendor to be Q or seismic Category 1. Cook, Tr. at 19517, 19548.

66. The Notice of Violation also cited Consumers

for its failure to purchase Armor Stone for the Q-portion of the perimeter dike in accordance with QA procedures. Keppler, March 29, 1983 Prepared Testimony, Attachment 3, following Tr. at 15114.

Dr. Landsman testified it was only his intervention which stopped the Armor Stone from being placed on the perimeter dike. Landsman, Tr. at 15822. Dr. Landsman stated that he believed use of the wrong Armor Stone could impair the integrity of the dike. He also testified that he believed the use of non-Q procedures in placing the Armor Stone was in violation of this Board's April 30 Order. Id. at 15823-25.

67. The Midland Section testified that whereas there was a slight improvement in Consumers' attitude after learning of the findings of the DGB inspection and suspension of safety-related construction, that change was short-lived. In fact, Consumers began to pull back from its promises a short while after the enforcement conference was held in January, including its original promise to do 100 percent reinspection of all accessible systems. Cook, Tr. at 16248, 16254-56; Shafer, Tr. at 16535.

68. This Board believes Consumers' deteriorating performance in QA implementation for balance of plant work during 1982 is disturbing. The Board also believes that Consumers' response to the findings of the DGB inspection indicate that only the most severe form of enforcement action has any effect on management's willingness to comply with NRC requirements.

Finally, we are forced to conclude that subsequent to the shutdown of safety-related construction in December, 1982, Consumers' willingness to observe regulatory requirements has declined.

E. Conclusion on Quality Assurance Issue

69. The Board concludes that despite the assurances of Mr. Keppler, despite increased NRC inspection efforts, and despite the institution of numerous work controls, third party overviews and reviews of the quality of the design and past construction of the Midland facility, we do not have, on the record before us, reasonable assurance that either the soils work or the balance of plant work, if permitted to continue, will proceed in accordance with NRC regulatory requirements.

II. CONTENTION THAT CONSUMERS LACKS NECESSARY CANDOR AND WILLINGNESS TO PROVIDE INFORMATION TO THE NRC

70. In those reopened hearings, we have to decide whether Consumers has prevailed by a preponderance of the evidence in disproving the three contentions raised by intervenor Barbara Stamiris concerning Consumers' management attitude:

Ms. Stamiris' Contention No. 1 states:

Consumers Power Company statements and responses to NRC regarding soil settlement issues reflect a less than complete and candid dedication to providing information relevant to health and safety standards with respect to resolving the soil settlement problems...and this managerial attitude necessitates stricter than usual regulatory supervision

(ALAB-106) to assure appropriate implementation of the remedial steps required by the Order Modifying Construction Permits, dated December 6, 1979.

Ms. Stamiris alleges in this contention that Consumers does not possess the necessary candor, truthfulness and willingness to provide the NRC with complete, comprehensive and accurate information.^{8/}

71. Although evidence about Consumers' management attitude is necessarily, in part, opinion evidence the Board believes that Consumers' willingness to provide information and be honest and truthful in all dealings with the NRC are perhaps the most important characteristics of any NRC licensee. Therefore, this Board has examined carefully the evidence which reflects on these characteristics.

72. First, we must examine Consumers' willingness, or lack thereof, to provide information to the NRC, whether or not it is requested. The NRC staff has been highly critical of Consumers' unwillingness to provide inspectors with full and complete information, even after repeated requests. For example, Dr. Landsman testified that it took him one month to obtain the resume of a QC supervisor in charge of the remedial soils group and it was difficult to obtain the resumes of other QA personnel.

^{8/}This Board takes judicial notice that Dow Chemical Company and several groups of Consumer shareholders, in their recently-filed lawsuits against Consumers have made similar allegations that Consumers has failed to provide them with full, complete and accurate information about, inter alia, the projected cost and schedule of the Midland plants.

Similarly, he said it was difficult to obtain the calculations he needed on a beam in the Auxiliary Building. Landsman, Tr. at 14396-97. Mr. Cook testified that it took "quite a while" for Region III to obtain calculations on anchor bolts and several days to receive requested calculations for the jack and bolts under the mufflers for the diesel generators. He was able to obtain calculations regarding welded connections in instrument panels only after he threatened to go down himself to Bechtel headquarters in Ann Arbor, Michigan to search for them. Cook, Tr. at 14397-99. See also, Cook, Tr. at 14576; Landsman, Tr. at 14577.

Mr. Shafer testified that Consumers' failure to furnish documents in a timely fashion is viewed by the NRC as "a mild form of harassment." Shafer, Tr. at 14578-79.

73. The Midland Section testified to two causes of their difficulty in obtaining this information:

(a) Consumer supervisory personnel direct its employees not to talk to the NRC. Cook, Tr. at 14401; Staff Exh. 19; Landsman, Tr. at 14418.

(b) Consumers does not have adequate control over its contractor Bechtel, and sometimes itself has problems obtaining needed information. Cook, Tr. at 14579; Landsman, Tr. at 14583-92.

74. Among the most egregious examples given by the Midland section are the following:

(a) During the DGB inspection, the NRC asked for drawings of the muffler exhaust pipe hangers. Consumers told the NRC that Bechtel would not give Consumers the hanger drawings. When the NRC asked a Bechtel employee for the drawings, he said he could not talk to the NRC. Finally, Mr. Cook and Dr. Landsman talked to the Bechtel supervisor of the hanger group who had direct control over the hanger drawings. The supervisor attempted to convince the two inspectors that Bechtel had already provided the drawings. The two NRC inspectors became angry and only then were they able to obtain the drawings. Landsman, Tr. at 14580-82.

(b) The NRC could not obtain documents concerning equipment qualification for over a year. The documents were not different than others the NRC had obtained in a few weeks. Cook, Tr. at 14589-92.

75. More serious is the fact that Consumers has provided the NRC with less than fully accurate or complete information. The following are examples:

(a) Consumers statistical analysis of the percentage of pipe support hangers with nonconforming conditions was misleading. Cook, Tr. at 14389-90; 14574-75.

(b) The NRC staff found that Mr. Wells authorized a change in a quality trend draft which removed an annotation that stated that Bechtel QC and Bechtel construction had agreed not to write all deficiencies on IPIN's. This annotation did not appear on the final copy of the quality trend

draft, which was made available to the NRC. Shafer, Tr. at 16255-56.

(c) As described in Part I.A, par. 57(e), supra, Mr. Wheeler and two other Consumers' employees were in Region III headquarters speaking to Dr. Landsman and yet failed to inform him about the problems Consumers encountered during the load test for Pier 11 West. Landsman, Tr. at 16695-96, 16792-93; 17495-98.

(d) Dr. Landsman also described other incidents about which Consumers did not promptly inform him, including collapse of a drift, Landsman, Tr. at 16704; an NCR concerning an unauthorized 1/16 inch gap on lagging plates, Id. at 16703; and the results of the U.S. Testing audit Id. at 16792. Because of these numerous and serious failures by Consumers to communicate with the NRC, Dr. Landsman insisted that Consumers call him every day to tell him the status of soils work on site. Id. at 16705-06.

76. This Board also found disturbing Mr. Howell's testimony in which he defended Consumers' failure in May, 1980 to turn over the NRC staff certain cost and schedule information. Specifically, Consumers stated in a May 5, 1980 Memorandum that it adopted, and generally agreed with Bechtel's Forecast 6 Cost and Schedule figures, which differed from those figures which Consumers presented to the NRC staff. Mr. Howell said that he believed this memorandum, Consumer Power Company's Response to Stamiris' Motion to Litigate Dow Issues, Attachment

7, was not a final position of the company and therefore did not need to be turned over. Howell, Tr. at 21041-46, 41048. He gave this opinion despite the fact that he understood that such cost and schedule information influenced the staff in its scheduling of its review of the Midland FSAR. Id. at 21047.

77. Another aspect of management attitude which the Board believes falls under Ms. Stamiris' Contention 1 is Consumers' continuing attempts to find one office or individual within the NRC which agrees with its position when it takes a position in opposition to that of Region III. Most serious is Mr. Cook's recent attempt during 1983 to meet with Mr. Dircks to discuss Midland without first contacting Mr. Keppler. Evidently, Mr. Keppler perceived Mr. Cook's attempt to contact and speak with Mr. Dircks as an attempt to undermine his (Keppler's) position. Mr. Howell testified that problems between Mr. Cook and the NRC staff, including the one with Mr. Keppler, formed part of the basis for re-involvement of Mr. Howell in the Midland project. Cook, Tr. at 21008-09; Howell, Tr. at 20942, 21006-11.

In addition, Consumers is still involved in appealing positions taken by Region III as to what structures, components and systems must be covered by Consumers' QA program. See, e.g., Stamiris Exh. 49; Landsman, Tr. at 14551-54. This is the same failure to confront problems directly and openly which Mr. Cook described in paragraph 12 of his Memorandum entitled, "Indicators of Questionable Licensee Performance." Keppler, Oct. 29, 1982, Prepared Testimony, Attachment B, following Tr. at 15111.

78. Prior to our examination below of the instances in which we conclude Mr. Boos misled the NRC staff about the status of completion of the instrumentation for the underpinning work, we examine two similar instances in which Consumers misled the NRC staff by communicating inaccurate and false information.

First, Dr. Landsman testified that Consumers gave the NRC staff false information that certain additional soils borings required by the Army Corps of Engineers needed to determine soil parameters, would be performed under a QA program. Mr. Hood authorized Consumers to take the soils borings only because of such assurances. Later, Dr. Landsman testified, the NRC staff determined that, in fact, no adequate QA program was in place. Region III management was very disturbed and made these mis-statements the subject of escalated enforcement action. Landsman, Tr. at 17489-92.

Dr. Landsman testified that Consumers had also misled the NRC staff in proceeding with placing the rip-rap on the dike near the ultimate heat sink without application of a QA program, even though Consumers knew that the April 30 Board Order applied to that work, which had to be covered by a QA program. Dr. Landsman discovered the problem when he inspected the work. He believed Consumers proceeded with the work knowing that the NRC staff had approved the work only on the condition that it be done under the QA program.

A. Boos' Material False Statements
on Cable Pulling

79. We have thoroughly examined, during this hearing, the alleged, and we believe, proven material false statements by Al Boos, Bechtel Assistant Project Manager for the Midland Project, in a March 10 meeting with the NRC staff in Bethesda, and in a March 12 telephone conference call with Region III staff.

Region III did an investigation into the statements and found, largely based on the advice of the NRC's Office of Executive Legal Director ("ELD"), that the misstatements did not constitute material false statements. Staff Exh. 22. We have concluded differently, largely based on the more complete and comprehensive record developed before us in five days of hearings, that Mr. Boos' statements were, in fact, material false statements.

We note that Region III, and apparently the Office of Investigation's policy of writing reports but drawing no conclusions may have inhibited the chief investigator Chuck Weil from doing as complete and thorough an investigation as he would otherwise do. We find it difficult, without attempting to reach conclusions, to focus our inquiry as a Licensing Board. Similarly, we found that Mr. Weil had some apparent difficulty in focusing his investigation, and missed the opportunity to ask many questions, which were subsequently covered during our hearings.

In light of the extensive record before us, we believe our conclusions are well-supported.

80. On March 10, 1982 the NRC staff called a meeting in Bethesda, to clarify that from that point in time forward, all soils work at the Midland site would be Q. Both Dr. Landsman and Mr. Boos testified that prior to the meeting, the NRC staff and Consumers had had numerous disagreements about how much of the underpinning work was covered by the QA program and the limits of NRC review. Landsman, Tr. at 17478; Boos, Tr. at 20037. Dr. Landsman testified that prior to that meeting, Consumers had disagreed as to what work he could inspect. The "straw that broke the camel's back," according to Dr. Landsman, was his discovery that half of a soldier-pile in an access shaft was Q and half was non-Q, which disturbed both him and the site QA people. Landsman, Tr. at 17478-80.

Mr. Mooney was the ranking Consumers' official at the meeting, but apparently, Mr. Boos did most of the speaking for Consumers. Mr. Hood testified that he believed it spoke poorly of Consumers' management that Bechtel was allowed to represent Consumers' position at this meeting. Hood, Tr. at 17781-82.

81. At that meeting, Consumers proposed a new QA category, which would ensure that certain underpinning work would be done Q, but that the Region III staff would not be able to cite non-compliances in their inspection of the work. The NRC staff rejected this classification, and stated that from that date forward, all underpinning work was to be done Q.

82. Apparently, Mr. Boos stated that he would have to be excused from the room in order to stop work at the site because work was ongoing, which was not being done under the QA program. Landsman, Tr. at 17604; Boos, Tr. at 20043; Hood, Tr. at 17756-57.

The NRC staff told Mr. Boos that he need not do that since work which was already completed prior to March 10, which inspection proved satisfactory, would not have to be backfitted Q. Landsman, Tr. at 17604, 17769.

At that time, the NRC staff gave the specific example of the access shaft which had then been excavated to a depth of 609 feet. The staff said that any further digging would have to be done subject to the QA program, but no work up to that point would have to be backfitted. Landsman, Tr. at 17835-36, 17875-76, 17902; Staff Exh. 22 at 7, n.3; Cook, Tr. at 17856, 17862-64.

Mr. Hood testified that the staff also stated that from that point forward, Consumers would be granted an exemption to proceed with a particular peice of underpinning work non-Q only if it could demonstrate to the NRC staff the justification, on a case-by-case basis. He said that FIVP supports were given as an example of a completed piece of work which did not need to be backfitted Q. Hood, Tr. at 17758, 17763.

Mr. Hood stated that the NRC staff came to that

non-negotiable position after caucusing with higher management. He said he conveyed to Consumers that the staff's position was non-negotiable. Mr. Boos testified that he understood it that way. Hood, Tr. at 17766-67, 17898-178900; Boos, Tr. at 20041.

Although Mr. Mooney testified that Consumers never "accepted" the NRC position, Consumers never appealed that position. Therefore, we must conclude that Consumers understood, as did apparently Mr. Boos, that all soils work from March 10 forward would be Q, unless the NRC staff granted a special exemption. In fact, it appears that that was the purpose for the carefully-orchestrated March 12 phone call to Region III--to obtain special exemptions for particular underpinning work, including instrumentation work.

83. Mr. Boos stated on March 10 that the instrumentation installation was almost complete. Landsman, Tr. at 17427-28; Cook at 17428; Staff Exh. 22, at 6-7.

Mr. Kane, also present at the March 10 meeting, stated that he remembers that Mr. Boos stated that "a lot of instrumentation was installed." Id. at 14.

Most of Consumers' personnel, including Mr. Mooney, and Bechtel personnel, including Mr. Boos, do not remember Mr. Boos' statements regarding the status of installation of underpinning. Id. at 12, 16, 18. (Mooney, Horn, Budzik, Boos). However, Consumers' attorney Frederick Williams corroborates the NRC staff's memory of Mr. Boos' statement. Mr. Williams stated

that he remembers Mr. Boos stating that instrumentation cable had been pulled, although he did not believe Boos stated how much cable was pulled. He also stated, most significantly, that Boos' statement "was made during the discussion of whether the instrumentation installation was to be included in the QA program." Id. at 21.

Mr. Budzik did state that he knew on March 10 that the instrumentation system, at that time, was less than 50 percent complete. Id. at 18.

84. On March 12, 1982 Consumers initiated a conference call to Region III and asked Mr. Cook to participate. Consumers had prepared a matrix of items it wished to discuss with Region III in order to obtain Region III's concurrence that these items could be done non-Q.

Upon Consumers' request, a stenographer kept a record of the telephone conference call. We find this procedure unusual, as did the participants, and an indication among others that Consumers wished to obtain a record of formal Region III concurrence in those items it intended to complete without QA program coverage. Cook, Tr. at 17853-54.

85. At the beginning of the conference call, Mr. Boos stated clearly his understanding of the NRC staff's position at the March 10 meeting and the purpose for the meeting. He stated that he understood that the NRC staff has determined that all work done in the remedial soils areas was to be Q unless Consumers could demonstrate or justify particular items as non-Q.

He stated that at the weekly coordination meeting earlier that day, he drew up a list of items which he was going to propose as non-Q, either (1) because they had been completed or were in the process of being completed; or (2) because they could be treated as non-Q. Apparently, all the items which appeared on the matrix and all the items discussed during the telephone conference call fell within one of those two categories. Staff Exh.22 Exh. 1. We find that Consumers intended the instrumentation installation to fall within the first category cited above.

86. Given Mr. Boos' apparently excellent understanding of the NRC position at the March 10 meeting, we find unconvincing Consumers' argument that the staff had stated that only work in Phase 2 was to be Q. Mr. Boos initiated the March 12 conference call explicitly to obtain NRC permission to proceed with portions of underpinning work as non-Q. There is no other reason for the conference call on March 12. See also Matrix, Id. at Exh. 10.

87. Mr. Boos mentioned the instrumentation installation twice during the conference call. The first time he stated,

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 taking of the reading would be Q.... The instrumentation system is in a data room - it has been procured and installed with environmental controls as non-Q.... Our

instrumentation is essentially well under way. Wiring has been pulled--raceway has been installed.

After the entire list was discussed with the NRC staff, Dr. Landsman repeated that the staff could not be in the approval chain. Mr. Boos then repeated the following concerning the instrumentation: "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 instrumentation and termination of wire that we are talking about that, with respect to procurement through installation."

It is strange that at the end of the conversation, Mr. Boos repeated only his statement that the instrumentation installation was being done non-Q, evidently to solidify Region III approval of work. Id. at 5-7.

88. Dr. Landsman and Dr. Ron Cook both testified that they understood Mr. Boos' statements to mean that the instrumentation installation was almost complete. Landsman, Tr. at 17427-28; Cook, Tr. at 17788-89, 17798-99; Staff Exh. 22 at 6-8. Region III Section Chief Dwayne Boyd, who participated in the conference call, also said Mr. Boos stated during the conversation that the underpinning installation was complete. Id. at 8.

Mr. Boos' explanation that he meant to say that the instrumentation work had begun is not credible. For one thing, that is not the plain meaning of his words. Second, there would be no purpose in his stating that during the March 12

conference call, because simply beginning work would not secure Consumers an exemption from the Q-umbrella. Therefore, Mr. Boos had no reason to state that any work item had begun.

Nowhere in the transcript of the conversation is there any indication that his purpose in making the repeated statements about the status of the instrumentation installation is "to warn Landsman not to be surprised during his next inspection that work had begun," as Mr. Boos told the NRC investigator Weil Id. at 12.

Both Mr. Boos and John Schaub, Consumers' engineer, told Mr. Weil that they knew on March 12 that none of the instruments had been delivered to the site. Id. at 12, 22. Further, Mr. Schaub said that it should have been obvious that without the instrumentation, it would not be possible to route the cable and conduit. Id. at 22. John Fisher, Bechtel Remedial Soils Group Manager, told Mr. Weil that he knew that installation of instrumentation had begun, but was not complete. Id. at 21.

89. We find that both Consumers and Bechtel personnel knew that the instrumentation installation was not near completion and that Mr. Boos' statements to the NRC on March 12, 1982 would tend to mislead the staff to believe exactly that. We find especially probative the fact that at least one Consumers or Bechtel individual who knew of the March 12 conference call told a member of the NRC staff that he knew Mr. Boos was giving the NRC inaccurate information. See generally, Cook and Landsman, Tr. at 17537; In-Camera Hearing Tr. at 17542-50, 17558-78, 17580,

17600. The in-camera testimony, together with staff Exh. 22, demonstrate that other Consumers' and Bechtel personnel knew or should have known that Mr. Boos' statements would mislead the NRC staff. These include Mr. Fisher and Mr. Schaub. See Finding 83, supra.

90. The NRC staff stated that instrumentation installation included the installation of raceway and cables, the terminations of the cables, and the calibration of the instruments. Landsman, Tr. at 17432; Gardner, Tr. at 17728-30.

Dr. Landsman and Mr. Cook testified that they expected from Mr. Boos' statement on March 12 that all wiring had been pulled, all raceways installed, all instruments installed, and all other work completed except for a few terminations and a few calibrations of instruments. Landsman, Tr. at 17446, 17769-71; Cook, Tr. at 17788-89; Staff Exh. 22, Exh. 6.

The NRC staff testified that Mr. Boos' statements about the status of the instrumentation installation at both the March 10 meeting and during the March 12 telephone conference call affected their actions in regulating the underpinning work. Landsman, Tr. at 17836; Landsman and Cook, Tr. at 17894-95; Landsman, Cook and Hood, Tr. at 17851-53.

91. Dr. Landsman and Mr. Gardner made an inspection of the status of the instrumentation installation on March 17. At that time, they were surprised to find a small portion, perhaps 10 percent, of the cable pulled (from eight to ten cables). They found a large part of the conduit laid, but no instruments

installed and no cables terminated. Landsman, Tr. at 17431, 17912; Gardner, Tr. at 17731, 17911-12, 17913-18; Cook, Tr. at 17910-11.

Mike Schaeffer, Consumers Electrical/Instrumentation and Controls QA Section Head, told the NRC inspectors that cable pulling for the instrumentation did not begin until March 11. Landsman, Tr. at 17675, 17805; Gardner, Tr. at 17741; Landsman and Cook, Tr. at 17741-42.

92. A stop-work was ordered for the instrumentation installation on March 19, 1982, after Region III told Consumers that they would institute escalated enforcement action if Consumers did not stop this work. Region III management agreed with Consumers' management that instead of issuing a Confirmatory Action Letter ("CAL"), a reverse CAL would be issued. This enforcement action was embarrassing to the NRC inspectors, and this Board believes is one in a series of actions which has undermined their enforcement efforts at the site. Landsman, Tr. at 17463-66; Gardner, Tr. at 17643-67; Cook, Tr. at 17647.

93. At site meetings on March 17, 18 and 19, 1982 between NRC inspectors and Consumers personnel prior to issuance of the stop work order, Mr. Marguglio insisted that James Cook had reached an agreement with Mr. Keppler that the NRC staff would not cite Consumers for items Consumers believed should not be covered by the QA program. The Region III staff called Region III headquarters and were informed that Mr. Keppler denied

any such agreement. Although the Region III inspectors informed Mr. Marguglio of Mr. Keppler's denial, he continued to insist that such an agreement had been reached.

During his investigation, Mr. Weil determined that Mr. Cook had telephoned Mr. Keppler shortly after learning of the NRC position taken at the March 10 meeting. In an attempt to convince Mr. Keppler to accept a type of QA category of work, Mr. Cook made the same argument to Mr. Keppler that Consumers and Bechtel personnel had made unsuccessfully at the March 10 meeting. Mr. Cook told Mr. Weil that Mr. Keppler had essentially agreed with Cook's approach and told Mr. Cook that he needed to discuss the matter with his staff before making a final decision.

Apparently, Mr. Cook told Mr. Marguglio about this alleged agreement with Mr. Keppler.

Mr. Keppler told Mr. Weil that he did have such a conversation with Mr. Cook, but that he referred him to Mr. Norelius and did not reach any agreement. Staff Exh. 22 at 26-27.

94. The Board believes Mr. Cook's attempt to undermine the clear position of the NRC staff stated at the March 10 meeting is indicative of a bad management attitude and was an attempt to find some segment of the staff which would agree with Consumers' position.

We also find that Mr. Cook and Mr. Marguglio misrepresented Mr. Keppler's position, which reflects poorly on their truthfulness and compliance with NRC directives.

On the record before us, we cannot say that Mr. Margulgio's statements are material false statements. Nonetheless, they are indicative of of a management attitude contrary to compliance with regulatory requirements.

95. Mr. Keppler's cover letter to Mr. Weil's investigative report states the following:

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

96. Dr. Landsman and Mr. Cook testified that prior to this cover letter of January 18, 1983, they had helped to draft three other cover letters which contained equally strong language. The Region III inspectors believed that Mr. Boos had made material false statements to them, but deferred to the judgment of ELD that that could not be proven. Mr. Weil told the inspectors that he believed Mr. Boos had lied to them, but he could not prove it. In giving Mr. Selby the investigative

report under cover of the January 18, 1983 Keppler letter, Mr. Keppler told him that he was right on the fence in terms of taking enforcement action against Consumers, and the next time he would not refrain from taking such action. Stamiris Exh. 95; Landsman, Tr. at 17512-17, 17528-30; Cook, Tr. at 17514.

97. The following factors, brought out in cross-examination of the NRC staff, indicate that Mr. Boos made inaccurate statements about the status of the instrumentation installation with the intent to mislead the NRC staff:

(a) Mr. Boos was in a position to know the correct status of the installation at the site and took the lead role in the March 10 and March 12 discussions with the NRC.

(b) The NRC staff gave Mr. Boos, as an analogous situation, the access shaft, from which he should have understood the criteria according to which the NRC staff agreed to exempt work items from the QA program.

(c) Mr. Boos indicated at the March 10 meeting that he understood fully what the NRC staff position was in offering to run from the room and stop work on site, what Mr. Cook called the "theatrics" of that meeting.

(d) Mr. Boos repeated the inaccurate statement not just once, but three times, once on March 10 and twice on March 12, when he wished to obtain an NRC commitment to exclude the work from QA coverage.

(e) The NRC had told Consumers at the March 10

meeting that it did not want a laundry list of work for which Consumers wanted an exemption. The NRC indicated to Mr. Boos that the items to be discussed in the March 12 conference call should be "substantive" items, not trivial items. Weil, Landsman, Cook, Hood, Tr. at 17871-78, 17888-89, 17893, 17897, 17443-44.

98. The NRC staff is of the opinion that Mr. Boos' motivation in making false statements about the status of instrumentation installation on March 10 and March 12 was to save time and money since the installation could be done without QA requirements. Landsman and Cook, Tr. at 17681, 17880-82.

99. None of the arguments proffered by Consumers in opposition to the NRC staff's conclusions are convincing.

First, Consumers suggests that it believed that the instrumentation was part of Phase 1 because it had to be installed prior to beginning Phase 2. Therefore, the argument continues, it did not have to be completed under the QA program, since that requirement only applied to Phase 2 underpinning work. Mooney and Wheeler, Prepared Testimony at 12, following Tr. at 19883. However, it is clear from Mr. Boos' introduction to the telephone conference call of March 12 that he raised the subject of instrumentation installation because he believed it would have to be covered by the QA program unless the NRC agreed to exclude it. The NRC investigative report of interviews with Mr. Horn, Mr. Swanberg and Mr. Williams, corroborates Mr. Boos'

understanding of the NRC position established at the March 10 meeting. Staff Exh. 22 at 16, 19 and 21.

Second, Consumers argues that Mr. Boos meant only that the instrumentation for the eight electrical instrumentation locations was essentially complete, as testified to by Mr. Black and Ms. Glass. Glass, Prepared Testimony at 7-8, following Tr. at 19790; Black, Prepared Testimony at 9-11, following Tr. at 19778; Black and Glass, Tr. at 19866-67. However, Mr. Boos himself testified that when he spoke of the instrumentation installation on March 12, he meant the entire installation system, not just that necessary for Phase II. Boos, Tr. at 20087. That also appears to be the clear meaning of his statements on March 12, which are broad and inclusive. Therefore, we must assume that he meant the total instrumentation planned as of the date of March 10 and March 12. On this record, we have no reason to believe the number of cables required was different than the number Mr. Swanberg gave to the NRC on March 17, that is 159 cables.

Consumers argued that the total number of cables for the instrumentation system changed from 30 to over 200 between the beginning of March and the end of March, but that this information was not communicated to the field. However, according to meeting notes of March 5, 1982, the specifications for the underpinning installation were scheduled to be completed by March 8 and March 15, 1982. Stamiris Exh. 114 at 4. It is not credible that this information would not be immediately transferred

to the field, and not transferred immediately to Mr. Boos even prior to completion.

It also appears that the field engineers, as early as March 19, 1982, had information indicating instruments were to be installed at 77 locations. Glass, Tr. at 19969; Stamiris Exh. 113.

Third, Consumers argues that the schedule for the instrumentation installation for the eight instrument locations indicates that the instrumentation was completed by March 8, 1982. However, the evidence indicates that date was the projected completion date for the work and there was slippage in the schedule. Black and Glass, Tr. at 19848-49; Stamiris Exh. 112; Boos Tr. at 19990-94. We find unconvincing Consumers' argument that the slippage was not for Bechtel work, but only for Wiss Jenney work. See generally, Stamiris Exh. 112 at 2, par. 12 and 13, par. 1; Black and Glass, Tr. at 19939-40, 19944-50.

Consumers also was unable to present any documentary evidence that cable pulling had begun prior to March 11. Black and Glass, Tr. at 19898-99, 19903-04. All documentary evidence, including time cards and evidence of the amount of conduit laid as of March 19, 1982, is consistent with the NRC staff's observations on March 17 that only 10 cables had been pulled. Stamiris Exh. 96 at 2; Consumers Exh. 55. As Mr. Gardner explained, the conduit would be installed first and the cable would be pulled later. The greatest amount of time would be taken in installing the conduit.

We do not find credible Mr. Black and Ms. Glass' testimony that the cable began to be pulled the moment it arrived on site, especially since they appeared unable to remember any other dates during this time period without the aid of written notes. Black, Tr. at 19771-72, 19905-07; Glass, Tr. at 19487.

Finally, the Board does not find credible Consumers' argument that it was not sure in the March 10 to March 12 period of the number of cables and configuration of instruments to be installed. Instrumentation of this sensitivity, which Dr. Landsman testified he believed would be installed Q, normally would be installed without the guidance of design drawings. Consumers has argued that it field-routed the cable and then finalized the drawings. However, it has failed to provide this Board with the final design drawings, so that we might examine their effective date. Given the projected dates for completion of the specification on March 8 and March 15, we do not accept this argument.

Moreover, Mr. Boos admits that only one-third to one-half of the cables were installed as of March 12. Clearly, his statements to the NRC staff indicate that more than one-third to one-half of the installation was completed. Therefore, even viewing the evidence in the light most favorable to Consumers, we are forced to conclude that Mr. Boos made misleading statements on those two dates.

100. In conclusion, considering the great weight of evidence indicating that Mr. Boos' statements were false and that Mr. Boos intentionally made these false statements to mislead the NRC staff to grant Consumers an exemption from Q coverage, and considering that Consumers has not presented any persuasive evidence that the statements either were not false or that Mr. Boos and Consumers were confused about the status of installation, we find that Mr. Boos, on March 10 and March 12, made material false statements to the NRC staff.

101. We also note that the NRC staff had a good basis for determining that all underpinning work after March 10, 1982 should be covered by a QA program. Much of the instrumentation installation, in fact, had problems and many nonconforming conditions were found upon inspection. These included excessive wire pull, excessive bending and incorrect pull box distances. See generally, Stamiris Exh. 117 at 8; Stamiris 115.

B. Violation of Board's April 30, 1982 Order

102. The NRC staff has presented extensive evidence supporting their conclusion that Consumers violated our April 30, 1982 Board Order in excavating beneath the deep Q duct bank in July, 1982, and soon thereafter, in late July and early August, 1982, relocating a fireline without first obtaining NRC staff approval. OI conducted an investigation into Region III's charges that Consumers has violated the Board Order. It was completed on August 8, 1983 and concluded that "the weight of the

evidence developed during the supplemental investigation^{9/} supports the charge that Consumers violated the April 30, 1982 Order. OI also found that, in examining Consumers' intent, it was possible to view Consumers actions "as sufficiently negligent to constitute careless disregard of NRC requirements," considering the extensive prior notice given to Consumers by the NRC that approval was required to excavate below the deep Q duct bank. Staff Exh. 28.

103. On May 20, 1982, Dr. Landsman, Mr. Hood and Mr. Kane were at the Midland site for an ACRS hearing. Dr. Landsman asked that a meeting be held between them, representing both NRR and Region III and Consumers and Bechtel. Dr. Landsman requested the meeting because he discovered on that date that Consumers was considering digging the deep Q duct bank excavation deeper and he wanted to stop it. Landsman, Tr. at 21549, 21754-21755.

^{9/}OI conducted its initial investigation between January 3, 1983 and March 30, 1983. Mr. Weil, the lead investigator, testified that the investigation was concluded at that point because, inter alia, of lack of resources. He also testified that he lost some of his notes and did not follow up on all leads at that point, including the information given him by Dr. Landsman and Mr. Cook about Mr. Donnell. Weil, Tr. at 22302, 21380.

Region III requested on July 11, 1983 that OI reopen its investigation to follow up these additional leads, which OI agreed to do. The supplemental investigation report. Staff Exh. 27, is much more complete and we find greatly aided our decision. We commend OI for reopening the investigation and find the OI Report issued on September 12, 1983 to be markedly superior to Mr. Weil's report on the Boos' misrepresentations, and the initial OI Report on Consumers' violation of the Board Order. Staff Exh. 18; Staff Exh. 26.

105. Dr. Landsman told Mr. Mooney and Mr. Schaub directly that they were not to excavate beneath the deep Q duct bank without formal NRC approval. Landsman, Tr. at 21610, 21764. Mr. Kane and Mr. Hood corroborated Dr. Landsman's testimony and stated that they remember clearly that Consumers was told by the NRC not to dig under the deep Q duct bank, either by Mr. Kane or Dr. Landsman. Kane, Tr. at 21563-65, 21762; Hood, Tr. at 21566, 21762. Further, Mr. Hood testified that when Consumers asked him who would approve the deep Q duct bank excavation, he told Consumers that Region III would have that approval authority. Hood, Tr. at 21559.

106. After the May 20, 1982 meeting, Consumers should not have had any misunderstanding about the need for or source of approval for further excavation beneath the deep Q duct bank.

107. Mr. Hood stated that since the May 20 meeting was an informal meeting, with no official notice given of the meeting, he asked that no minutes be published. He stated that because of the informal nature of the meeting, no NRC approvals could have been granted. Hood, Tr. at 21726-27.

Dr. Landsman testified that he believed either Mr. Mooney or Mr. Schaub looked him in the eye and nodded his head to agree to Dr. Landsman's prohibition of further excavation. Landsman, Tr. at 21764, 21653

108. Mr. Fisher's notes of that meeting corroborate the unanimous understanding of the NRC staff as to what occurred

at that meeting. The notes state: "We will proceed w/exposing utility and not proceed with excavating the pit below deep Q until NRC approval." Staff Exh. 26, Attachment 8.

109. Robert E. Sevo, a Bechtel Superintendent of Underpinning Verification, also recorded the NRC prohibition: "No further deepening of the deep duct bank until NRR concurrence after [sic] ." Staff Exh. 27, Attachment 17 at 2.^{10/}

110. On May 21, 1982 at an exit meeting with Consumers, Dr. Landsman once again told Consumers not to excavate the additional depth beneath the deep Q duct bank without NRC approval. Landsman, Tr. at 21610. Staff Exh. 26, Attachment 9 at 4.

Brian Palmer, Consumers Supervisor for Remedial Soils Inspection, wrote minutes of that meeting for Mr. Horn's signature. Mr. Horn read the minutes prior to signing and approving them for issuance on June 4. Staff Exh. 27, Attachment 8 at 1. These minutes include the following corroboration of Dr. Landsman's testimony that he prohibited excavation beneath

^{10/} Contrary to Consumers' statement in its findings, Applicant's Second Supplemental Findings, Finding 610 at 405, we do not find that Mr. Sevo's notes contradict this prohibition in that part which reads, "Deep duct bank opened up to allow freeze to start-then finish excavation to till." Staff Exh. 27, Attachment 17 at 1. It appears that Mr. Sevo probably believed that the excavation as approved by the NRC could proceed, which would permit activation of the freezeway, and that later the additional excavation to the till could be done. He was correct to the extent that the freezeway was activated prior to completion of the additional excavation beneath the deep Q duct bank.

the deep Q duct bank on that date:

Landsman confirmed his understanding that the excavation would be terminated a short distance below the duct bank rather than lower, as originally planned.

Staff Exh. 26, Attachment 9.

111. The testimony of Mr. Palmer, Mr. Schaub and Mr. Murray is inconsistent on the meaning of this portion of the minutes. Schaub, Tr. at 22534-35; Staff Exh. 26, Attachment 8, Attachment 30, Attachment 9. We find their testimony not credible in that the plain meaning of the words is consistent with Dr. Landsman's testimony that Consumers was ordered to stop excavation, originally planned for six inches below the duct bank, and not excavate further without explicit NRC approval.

112. At an exit meeting one week later, May 28, 1982, Dr. Landsman again told Consumers not to excavate any further below the deep Q duct bank without first obtaining NRC approval. Landsman, Tr. at 21610.

Dr. Landsman documented this NRC hold point in an inspection report he wrote in June, 1982. That inspection report was not issued until August, 1982. Landsman, Tr. at 21580, 21768; Kane, Tr. at 21770; Staff Exh. 26, Attachment 11.

113. Mr. Horn, in an interview with Mr. Weil, confirmed that in May, 1982, his group recognized that a commitment had been made to Dr. Landsman that excavation would not take place beneath the deep Q duct bank without Dr. Landsman's prior

approval. Stamiris Exh. 120; Weil, Tr. at 21531.

114. On July 28, 1982 Dr. Landsman was on site and discovered that Consumers was in the process of excavating beneath the deep Q duct bank, in opposition to his prior explicit instructions. He told Consumers of his concern and Consumers issued a stop work order on July 29, 1982. Staff Exh. 26, Attachment 2 at 2. Dr. Landsman mentioned in his Memorandum of August 24, 1984 to the Midland Section Chief that he believed Consumers willingly stopped work at that point because it had already excavated to the clay as it intended. Id.

115. In fact, it does appear that although Dr. Landsman informed Consumers of his concern some time during the day shift on July 28, 1982, Consumers did not stop work but continued to excavate an additional amount in a second shift on July 28 and in one shift on July 29, 1982. His conclusion that Consumers wished to complete the excavation prior to stopping work is correct. Stamiris Exh. 134; Wheeler, Tr. at 22084-97.

116. Dr. Landsman told Consumers during an exit meeting on July 30, 1982, that Consumers had violated the Board Order and its Construction Permit in excavating beneath the deep Q duct bank without prior NRC approval. At that meeting, Consumers told Dr. Landsman that it had obtained permission to do that excavation from Mr. Hood and Mr. Kane in Ann Arbor, Michigan, earlier that morning. Staff Exh. 26, Attachment 2. Both Mr. Hood and Mr. Kane deny that they gave Consumers any

such permission to excavate beneath the deep Q duct bank. Hood and Kane, Tr. at 21837-40. Mr. Kane did not even remember any conversation about the excavation. Kane, Tr. at 21853. Mr. Hood said that he spoke to Mr. Mooney, who informed him that Dr. Landsman was upset about the excavation. Mr. Hood informed Mr. Mooney that he would have to work out any problem of that sort with Region III. Hood, Tr. at 21568-69.

Mr. Kane stated that Mr. Schaub's statement to Mr. Weil--that Mr. Kane allowed Consumers to proceed with this at its own commercial risk--was flatly wrong. Staff Exh. 26, Attachment 15; Kane, Tr. at 21851.

116. On August 4, 1982, in conducting another inspection at the site, Dr. Landsman discovered Consumers had excavated to relocate a fire line. He told Consumers that day that he believed it was excavating in violation of the Board Order and without prior NRC approval. Staff Exh. 26, Attachment 2 at 2; Landsman, Tr. at 22219-20.

Consumers continued work on the fireline excavation until August 10, 1982, according to Work Permit 6 authorizing the work. Staff Exh. 26, Attachment 7. Dr. Landsman testified that unequivocally, he did not authorize Consumers to continue work on the fireline excavation until that work was completed. Landsman, Tr. at 22223. Dr. Landsman's Inspection Report indicates that Consumers stopped work on August 9, 1982 at the end of the work day. Id., Attachment 17 at 7.

117. The NRC staff held an August 11, 1982 enforcement meeting with Consumers in which the staff informed Consumers that Region III believed Consumers had violated the April 30, 1982 Board Order in excavating below the deep Q duct bank and excavating to relocate the fireline without prior NRC approval.

Both Mr. Cook and Mr. Mooney attended that meeting. Although both Mr. Cook and Mr. Mooney evidently reviewed Mr. Fisher's notes of the May 20, 1982 meeting and Mr. Horn's Memorandum of June 6, 1982 of the May 21, 1982 meeting, neither disclosed these to the NRC staff at that time. Staff Exh. 27, at 12, 13, and Attachments 10 and 11. Instead, these documents were disclosed first to the NRC during the OI investigation.

118. At the August 11 meeting, according to the testimony of the NRC staff, Consumers essentially defended its actions on the ground that it had obtained prior NRC approval for the two excavations. Staff Exh. 26, Attachment 17 at 6.

Dr. Landsman testified that Consumers did not state at the meeting as a basis for that approval either the May 25, 1982 letter from Mr. Eisenhut to Mr. Cook, Staff. Exh. 26, Attachment 4, or the alleged agreement between him and Mr. Wheeler concerning minor excavations. Landsman, Tr. at 22249-59, 22288. Mr. Hood testified that he recalls mention of the May 25, 1982 letter as a justification for the excavation, but not the alleged Landsman-Wheeler agreement. Hood, Tr. at 22259-60, 22262-63. Bert Davis' notes of that meeting, which were used

in examination but not admitted, Stamiris Exh. 130, provide no indication that either the May 25, 1982 letter or the alleged Landsman-Wheeler agreement were proffered by Consumers as justification for these two excavations. Tr. at 22249-58.

119. Dr. Landsman testified that in August, 1982, John Donnell, former B&W Soils Remedial Inspector, told him that he had notified Consumers of Dr. Landsman's prohibitions against excavating beneath the deep Q duct bank at the time the excavation began. Mr. Donnell told Dr. Landsman that he had been terminated because of bringing this matter to Consumers' attention. Dr. Landsman stated that he later contacted Mr. Donnell to ask him to give a written statement on this matter, but that Mr. Donnell refused because he was afraid that submission of such a statement would jeopardize his future employment opportunities. Staff Exh. 27 at 3, Attachment 1.

Mr. Cook testified that he had a similar conversation with Mr. Donnell in which Mr. Donnell said that he had notified Consumers of Dr. Landsman's prohibition against excavating beneath the deep Q duct bank and that he thereafter became a threat to Consumers because he had put Consumers on notice of their potential violation of the Board Order. Id. at 4, Attachment 2. See also, Landsman, Tr. at 21359, 21370-71; Cook, Tr. at 21372-89.

120. Mr. Donnell, when he was contacted by OI investigators in July, 1983, appeared to corroborate many of Dr.

Landsman and Mr. Cook's statements, although he claimed he had not been terminated because of his notice to Consumers that it was excavating in violation of Dr. Landsman's orders. Mr. Donnell did state that he was aware that Dr. Landsman had prohibited excavating beneath the deep Q duct bank without explicit NRC approval; that all workers in the soils remedial program were aware of Dr. Landsman's prohibition, and that he had notified Consumers of that prohibition. Mr. Donnell also indicated, throughout his interview with NRC investigators Walker and Galanti, that he was afraid of retaliation by Consumers in speaking to them and that he was reluctant, even at that time, to sign a written statement.

The Board concludes that Mr. Donnell essentially corroborates Dr. Landsman and Mr. Cook's account of their conversations with him and that any variance or differences are due to Mr. Donnell's employment difficulties and fear of retaliation from Consumers for his cooperation with the NRC. In addition, the fact that Mr. Donnell told essentially the same story to both NRC inspectors Landsman and Cook further supports their account of the conversation. Finally, we do not find either his deposition, Staff Exh. 31, or his signed and sworn statement provided to the NRC investigators, Staff Exh. 27, Attachment 3, to be significantly different from his conversations with the NRC inspectors. Therefore, we find that Mr. Donnell corroborates the NRC staff's conclusion that Consumers was put on notice immediately prior to beginning excavation beneath the deep Q duct bank that such excavation was in violation of Dr.

Landsman's orders. Staff Exh. 27, Attachments 3 and 4; Donnell, Tr. at 22575, 22578-79, 22581 (someone indicated that excavation beneath the deep Q duct bank required NRC approval), 22583 ("general statement that everything required Landsman's approval"), 22595; Walker, Tr. at 21382, 21384-85, 21386 (Donnell brought to someone's attention that the digging would contradict Landsman's order, but could not remember who), 21391, 21398-99.

121. The entire NRC staff expressed the opinion that Consumers had violated the April 30 Board Order in excavating beneath the deep Q duct bank. While all agreed with Mr. Hayes' cover letter speaking of Consumers' careless disregard of NRC requirements, at least two of the staff went further to describe Consumers' violation of the Board order as deliberate. Mr. Cook testified that the violation may have been deliberate, depending on the individuals involved, Cook, Tr. at 21642-43. Dr. Landsman testified that he believed it had been deliberate. He based his opinion on his warning to Consumers on three different occasions not to excavate beneath the duct bank; the fact that Consumers proceeded with work on the fireline excavation after learning of his concern with the duct bank excavation on July 28, 1982; Mr. Sevo's notes of the May 20, 1982 meeting; and Stamiris Exhs. 123 and 124. Landsman, Tr. at 21643.

Stamiris Exhibit 123 indicates that Mr. Schaub confirmed to Mr. Murray and Mr. Sibbald that the NRC had approved excavation beneath the deep Q duct bank and the fireline relocation, respectively.

Stamiris Exh. 124 indicates, at 4, par. 23, that the NRC would be notified about Consumers' plans for utility protection.

122. This Board finds substantial additional evidence developed on this record to indicate that Consumers deliberately violated this Board's Order on the two occasions in question. This includes the following:

(a) Bechtel meeting notes of the May 14, 1982 Remedial Soils Weekly Meeting indicate, that as of that date, all work on site other than installation of deep-seated benchmarks and dewatering wells, had stopped and would not be restarted until NRC approval had been obtained. Stamiris Exh. 126 at 2; Landsman, Tr. at 21624. These minutes indicate Consumers needed prior NRC approval for excavation beneath the deep Q duct bank.

(b) Bechtel meeting notes of the May 21, 1982 Remedial Soils Weekly Meeting indicate that Mr. Schaub stated that all work in the remedial soils area was then Q-listed. Stamiris Exh. 127 at 3; Landsman, Tr. at 21624-25. These minutes put Consumers on notice that all remedial soils work, including excavation beneath the deep Q duct bank, required prior NRC approval.

(c) An August 2, 1982 Telephone Call Record regarding NRC authorization for utility probing around the service water wells indicates that Consumers, when in doubt, refused to bring to the NRC's attention activities which may have required

explicit NRC approval. In this instance, Midland Construction personnel brought to Mr. Schaub's attention a question about whether NRC approval had been obtained for the utility probing described above. Mr. Schaub said he was not in favor of alerting the NRC to the activity to determine if prior approval were required, since he judged the probing to be part of the process required to drill the wells. Stamiris Exh. 129. Dr. Landsman, interpreted the telephone record to be evidence that, as of August 2, 1982, Consumers' management did not want to adhere to the Board Order. Landsman, Tr. at 21687-88.

Just as in the instance described in this telephone message, Consumers attempted in the case of excavation beneath the deep Q duct bank to argue that the additional excavation was included within work approved by the NRC in its May 25, 1982 letter even though the work was substantially different than that originally proposed and approved.

(d) Bechtel Meeting Notes of the July 23, 1982 Remedial Soils Weekly Meeting indicate that the Mergentime design for excavation beneath the deep Q duct bank was not approved until July 20, 1982, a few days before the actual excavation began. Stamiris Exh. 113 at 4. It is not credible that Consumers believed it had, at a much earlier time--May 25, 1982--received NRC approval when the design for the modification was not completed until July 20, 1982.

(e) Even though Mr. Cook and Mr. Mooney were aware of documentary evidence indicating that Dr. Landsman had

prohibited excavation beneath the duct bank in May 20 and May 21 meetings, they did not bring these notes to the attention of the NRC until the NRC commenced an investigation into the matter.

(f) Consumers has presented, at different times since August 11, 1982, various and conflicting theories as to why its excavation beneath the deep Q duct bank and to relocate the fireline was not in violation of our April 30 Order. These include that the May 25 NRC letter authorized the excavation; the alleged Wheeler-Landsman agreement exempted the excavations from the requirement of prior NRC approval; the NRC staff approved the excavation at Consumer's commercial risk on May 20, 1982; and the NRC staff approved the excavations during a design audit in Ann Arbor, Michigan on July 29 and July 30, 1982. If Consumers' management had a legitimate justification for the excavations, it would have been brought forward on August 11, 1982. Consumers' numerous and conflicting justifications for the excavations support our conclusion that Consumers deliberately violated our Order in excavating beneath the duct bank and in relocating the fireline.

(g) Consumers did not stop work on either the deep Q duct bank or the fireline until all planned work had been completed. This deliberate defiance of directives from Dr. Landsman indicates Consumers had every intention of finishing the work regardless of its legality.

(h) Consumers published a weekly schedule of proposed work in the remedial soils area to be sent to Dr.

Landsman and Mr. Hood. This schedule, entitled "Soils Progress Schedule Status Report," included an indication that certain work activities required NRC review or NRC approval.

Mr. Schaub was responsible for determining which work activities required NRC review and for directing that an asterisk be placed to the left of such activities on the schedules. Schaub, Tr. at 22527; Staff Exh. 32 at 2.

On the June 23, 1982 schedule, Mr. Schaub determined that an asterisk should be placed by the work activities "complete deep Q duct bank" and "relocate fire protection pipeline." Similarly, on the June 20, 1982 schedule, Mr. Schaub determined that an asterisk should be placed by these two work activities, Staff Exh. 27, Attachment 20; Schaub, Tr. at 22527-29. Mr. Schaub stated that in these two cases, the asterisks next to "complete deep Q duct bank," indicated that NRC approval was required for the permanent backfill of the excavation. The asterisk next to the "relocate fire protection pipeline," indicated that NRC approval was required for the entire item. Ibid.; Staff Exh. 32 at 2.

For all later schedules, the asterisks were removed for these two work activities. Mr. Schaub, who was responsible for placing the asterisks, stated that he did not know why the asterisks were removed, Schaub, Tr. at 22530; Staff Exh. 32.

Mr. Schaub initially denied that he was one of Consumers' management responsible for determining which work

activities required prior NRC approval under the April 30, 1982 Board Order prior to institution of the Work Authorization Procedure. He admitted that he, along with Mr. Mooney and Mr. Wheeler, were responsible for making this determination, only after being confronted with Consumers' response to Ms. Stamiris' Interrogatory No. 20. Schaub, Tr. at 22522-23.

123. We do not find convincing Consumers' arguments that it held a reasonable belief that it had the authority to conduct the excavations.

124. Consumers argues, first, that the May 25, 1982 letter from Mr. Eisenhut to Mr. Cook approved excavation below the deep Q duct bank to the depth described by Consumers' personnel at the May 20, 1982 meeting. Mr. Mooney testified that he believed the modifications Consumers described on May 20, 1982 to the utility crossings were field variations of an approved "conceptual design." Mooney, Tr. at 22360-62.

For the reasons explained at length by the NRC staff witnesses, we do not believe any reasonable interpretation of the May 25, 1983 letter would lead Mr. Mooney or any other Consumers' manager to that conclusion. As Mr. Hood stated, paragraph I(c) of Enclosure 4, confirms prior approval of the "soil removal" and "underground utility protection" activities listed in paragraph I(c) of Consumers' May 10 letter. Hood, Tr. at 21360-62.^{11/}

^{11/} Enclosure 4 to the May 25, 1982 letter addressed specific items in Consumers' May 10 letter, including the freezwall and utility protection. Staff Exh. 26, Attachment 4.

The May 25, 1982 letter further references explicitly those prior Consumers' submissions on which it relies, including the January 6, 1982 Consumers' letter to Mr. Denton. Staff Exh. 26, Attachment 26.

Further, the final paragraph of Enclosure 4 to the May 25 letter states explicitly that the NRC is not approving through that letter "related work in support of" freezeway installation, freezeway monitoring and freezeway activation, because of the ambiguity of this proposed work. Mr. Hood testified that he intended, in this paragraph, to notify Consumers that its proposal to modify the deep Q duct bank crossing presented on May 20, 1982 was not approved.

Mr. Hood also testified that in an abundance of caution, he added the sentence, "Any deviations must be reported and approved by the staff." Staff Exh. 26, Attachment 4, Enclosure 4 at 2. Hood, Tr. at 21361-62, 21797-21808.

Mr. Kane testified that his input to the letter was made well before May 20, 1982, so in no way could he have approved

—/This paragraph reads, in relevant part:

In summary, ambiguity associated with CPCo's use of the terms "Phase I work" and "related freezeway work" preclude confirmation of specific prior approval of those activities. Similarly, failure by CPCo to identify the particular existing construction dewatering wells precludes us from determining whether previous staff concurrence had been indicated. No description or discussion is provided for a "FIVP proof load test" and no record of prior staff approval can be located. Consequently, continuation of these activities in conformance with the foregoing staff comments will be in accordance with the Board Memorandum and Order of April 30, 1982.

the modifications Consumers presented to the NRC staff for the first time on May 20. Further, Mr. Kane points out that references 5 and 7 in the letter refer to correspondence which is dated, at the latest, February 12, 1982. Kane, Tr. at 21657.

125. Second, Consumers argues that the NRC granted it approval for the excavation at a design audit meeting in Ann Arbor, Michigan on July 29 and July 30, 1982. No explanation is given as to how prior NRC approval could have been obtained at this meeting if excavation beneath the deep Q duct bank began before the meeting. Nonetheless, it is clear that neither the agenda for the meeting nor any NRC statements made at that meeting provided Consumers with approval for either of the excavations, or any justification to continue work on either of the excavations.

Mr. Kane denies that he ever told Mr. Schaub at the audit that Consumers could use concrete fill at its own commercial risk. Kane, Tr. at 21853. In addition, it is clear that the agenda indicated that Consumers still owed the NRC information about the four utility crossings at the time of the audit. In fact, Consumers still, at the time of these hearings, owed the NRC information about the modified design of the crossings, according to the SSER 2. Hood, Tr. at 21571, 21874; Kane, Tr. at 21570, 21821-22; SSER 2 at 252, par. 2.5.4.7.

Further, Staff Exh. 30, a July 19, 1982 letter from the NRC to Consumers, states that Consumers has no right to rely on any designation of categories in the draft SSER as approval

for any work. Therefore, Consumers' argument that somehow the agenda passed out at that meeting based on the NRC's draft SSER confused or misled the company as to the status of approvals for the work is without basis. Hood, Tr. at 22229-30.

126. Third, Consumers argues that both excavations were minor excavations and, thus, covered by an alleged agreement between Dr. Landsman and Mr. Wheeler that minor excavations would be excluded from coverage of the April 30 Board Order and exempted from prior NRC approval.

This Board does not find credible Consumers' explanation that such an agreement existed between Dr. Landsman and Mr. Wheeler. First of all, Dr. Landsman explained that any such conversation with Mr. Wheeler had to do with his prior approval of major or minor design changes. He said that Mr. Wheeler, in June, 1982, was bringing him excavation permits in Q soils, in and around safety structures which indicated certain design changes. Dr. Landsman told Mr. Wheeler that he would not have to give him prior approval for minor design changes. Dr. Landsman said that the assumption was that the only work which was involved was that work which had been previously approved by the NRC pursuant to the April 30 Board. Order.

Dr. Landsman did not document this conversation, which Mr. Wheeler labels an agreement, because he was speaking only of work, approval for which had already been document. He also stated that he told Mr. Wheeler that he wanted to see design changes for major excavations for prior approved work, but does

not remember if he gave Mr. Wheeler, as an example, a change to the service water pump structure underpinning. Landsman, Tr. at 21005-38. Dr. Landsman stated that he did not need to state explicitly that he was talking about work which had received prior NRC approval because it was obvious from the environment in which the work was proceeding after our April 30 Order. Landsman, Tr. at 21937-38.

Dr. Landsman's testimony is more credible than that of Mr. Wheeler. Therefore, we accept his characterization of the conversation on June 11, 1982 between him and Mr. Wheeler, and any understanding reached between them.

127. Further, even if we accept Mr. Wheeler's characterization of his agreement with Dr. Landsman, we do not see, on this record, any way in which this agreement exempted excavation beneath the deep Q duct bank on the fireline relocation from the requirement of prior NRC approval. First, it appears that Mr. Schaub, not Mr. Wheeler, approved the excavation beneath the deep Q duct bank. Stamiris Exh. 123; Wheeler, Tr. at 21986-88, 21990. Moreover, there is no evidence on this record that Mr. Schaub even knew of the alleged Wheeler-Landsman agreement at the time excavation beneath the deep Q duct bank began. In fact, Mr. Wheeler does not remember ever discussing it with Mr. Schaub, Wheeler, Tr. at 22007, and Mr. Murray stated that he does not know if Mr. Schaub was aware of the agreement prior to the fireline relocation, Staff Exh. 27 at 7. Mr. Schaub himself states that he does not know when he became aware of the alleged agreement. Id. at 33.

Mr. Wheeler does not remember any discussions with his staff about either the work permit or the excavation permit for excavation beneath the deep Q duct bank, and Mr. Sibbald is not certain that he talked to Mr. Schaub, although he believes he did. Wheeler, Tr. at 21993-94; Staff Exh. 26, Attachment 13.

Clearly, this Board on the basis of the evidence before it, cannot find that Consumers' proceeded with the excavation without prior NRC approval on the basis that the alleged Wheeler-Landsman agreement exempted the work from that requirement. The best evidence is that Mr. Schaub approved the work and that he did not know of the agreement on the date the excavation began, July 23, 1982.

Similarly, there is insufficient evidence on the record before us to conclude that Consumers proceeded with the fireline relocation on the understanding that the work was exempt from NRC approval on the basis of the alleged Landsman-Wheeler agreement. Again, according to Mr. Wheeler's chart indicating the source of confirmation of NRC approval for these two excavations, Stamiris Exh. 123, Mr. Schaub verified that NRC approval had been obtained for the work. Stamiris Exh. 123; Wheeler, Tr. at 21992.

Yet, Mr. Schaub has stated to Mr. Weil that Mr. Wheeler released the fireline relocation work based on his agreement with Dr. Landsman. Staff Exh. 27 at 33.

Mr. Sibbald, who signed the excavation permit on July 26 said he could not remember whether he discussed the

permit with anyone before signing it. Id. at Attachment 13. Mr. Murray, who signed the work permit on July 27, stated that he believes he contacted Mr. Schaub for approval, as Stamiris Exh. 123 would appear to indicate. Id. at 12 at 2; Stamiris Exh. 140. Mr. Schaub does not remember this discussion with Mr. Murray. Mr. Wheeler, who testified that it is his usual practice prior to releasing such work pursuant to excavation and work permits to discuss with his staff whether or not NRC approval has been obtained, said in this instance, he does not remember whether or not he did that. Wheeler, Tr. at 21993, 21999-22000, 21993-94.

We have found the evidence conflicting as to who actually released the work and verified prior NRC approval had been obtained. If, as appears most likely, it was Mr. Schaub, there is scant evidence that he did so on the basis of the alleged Wheeler-Landsman agreement.

128. We must note that overall we found Mr. Schaub's testimony and his statement to NRC investigators not credible. Among the factors we took into account in discounting his testimony, were the significant contradictions between his testimony and that of NRC staff, including Mr. Kane and Mr. Hood; his refusal to sign or swear to statements he gave in the OI investigation into violations of the Board Order; and finally, the numerous changes he made to those statements he did give to NRC investigators at the time of our hearings. In making this finding, we also take into account his attitude toward NRC

regulatory efforts in the remedial soils area, which is reflected in Stamiris Exh. 192.

We believe that Consumers' failure to produce Mr. Schaub voluntarily as a witness indicates the company's efforts to disclaim responsibility for its management's willful violations of our April 30 Order. We find this conduct in the hearings before us indicates a continuing failure on the part of Consumers' management to deal honestly, openly, and in good faith with the NRC, both its staff and this Licensing Board.

129. Finally, we do not accept Consumers' argument that the excavation beneath the deep Q duct bank and the fireline relocation were minor excavations. We do not believe the 16 cubic yards of soil removed in the first excavation is slight. More importantly, however, is that the deep Q duct bank excavation had major safety implications. Kane, Tr. at 21565. This record is replete with evidence that the NRC had communicated its concern about this utility crossing and the other three utility crossings to Consumers prior to the start of excavation.

Similarly, we do not believe that the approximately 300 man-hours required for the fireline relocation to be a minor effort. Staff Exh. 27 at 34.

130. We find that Consumers deliberately violated our April 30, 1982 Order in failing to obtain prior NRC staff approval for excavation beneath the deep Q duct bank according to a design not approved by the NRC staff. We find also that

Consumers deliberately violated the order a second time in excavating to relocate the fireline. In both cases, Consumers was put on notice, as explained above, of the NRC staff's prohibition against such excavations and yet proceeded with the work. When ordered by Dr. Landsman to cease the work, Consumers still refused to do so, waiting until the work in question had been completed.

131. In responding to threatened enforcement action by Region III and in presenting evidence before this Board, we find Consumers compounded its original defiance of our April 30 Order by adopting and discarding one legal justification after the next. As expressed in our findings above, we have grave doubts about the credibility of the three witnesses who appeared in support of Consumers' case on this issue: Mr. Mooney, Mr. Wheeler, and Mr. Schaub. Consumers has acknowledged that these three individuals are the ones who determined whether or not soils work was included within the coverage of our April 30 Order. Schaub, Tr. at 22522. The fact that we have such grave doubts about the witnesses' credibility in the extended hearings held on this issue speaks poorly of Consumers current management team in the remedial soils area.

132. We have also considered the fact that Consumers' has continued to defend the two excavations throughout the hearings before this Board held in 1983. The argument that Consumers' management has changed since the late summer of 1982 is effectively defeated by the company's current defense of its conduct in the July-August, 1982 period.

C. Conclusion

133. We find that Ms. Stamiris has prevailed on her contention that Consumers does not have the willingness or commitment to provide truthful, accurate and complete information to the NRC so as to ensure that it will complete the soils work at Midland in accordance with NRC regulatory requirements and in a manner to protect the public health and safety.

IV. CONSUMERS POWER COMPANY HAS PLACED COST AND SCHEDULE CONCERNS AHEAD OF QUALITY AND SAFETY AND THUS WE CANNOT FIND THAT CONSUMERS WILL COMPLETE THE SOILS WORK AT MIDLAND IN ACCORDANCE WITH REGULATORY REQUIREMENTS AND IN A MANNER TO PROTECT THE PUBLIC HEALTH AND SAFETY

134. Stamiris Contention No. 2 reads, in relevant part:

Consumers Power Company's financial and time schedule pressures have directly and adversely affected resolution of soil settlement issues, which constitutes a compromise of applicable health and safety regulations.

135. Many of the QA failures listed above, Consumers' material false statements to the NRC in the March 10 and March 12, 1982 discussions with the NRC about the instrumentation installation; and Consumers' deliberate violation in two instances of this Board's April 30, 1982 Order, support Ms. Stamiris' contention.

Consumers' desire to speed up its construction schedule was Consumers' motivation in proceeding to excavate beneath the deep Q duct bank and to relocate the fireline in violation of this Board's April 30, 1982 Board Order. Similarly,

Consumers' desire to save money by performing soils-related work without a Q-umbrella was its motivation in making material false statements to the NRC about the status of the installation of instrumentation in March, 1982.

As discussed below, many of the QA failures pointed out above by NRC inspectors were caused by Consumers' attempts to finish construction as quickly and as cheaply as possible, regardless of the quality of the work.

136. One area of repeated concern to the NRC staff is the training and certification of QC inspectors. Even Consumers' most recent retraining and recertification program is fraught with difficulties caused by schedule pressures. Mr. Gardner testified that Consumers was rushing its training program in order to meet a date by which it expected QC inspectors would be needed to conduct inspections. Gardner, Tr. at 14481-85. This resulted in a lack of instructional materials; questions in training sessions which were not addressed; and certain PQCI prerequisites which were not well-defined. Ibid.

137. Mr. Cook testified that schedule pressures led to cancellations of performance demonstrations and caused problems with training of QC inspectors. Cook, Tr. at 16633-34; Stamiris Exh. 82. He also testified about a general NRC concern that Consumers, in the spring of 1982, was rushing the training of QC inspectors. Cook, Tr. at 16797-97.

138. Dr. Landsman testified that Consumers had improperly certified inspectors to inspect the batch plant even

though the PQCI's to which the inspectors were certified had a major revision pending. Landsman, Tr. at 16824. He believed the reason for the problem with the training was the pressure of the construction schedule. Ibid.

139. Dr. Landsman also testified that he believed the basis for all his misunderstandings with Mr. Mooney, Mr. Schaub and Mr. Fisher was "cost and scheduling." He included Consumers' violation of the Board Order among these so-called "misunderstandings" caused by Consumers' primary focus on the cost and schedule for completion of Midland. Landsman, Tr. at 16539-41.

140. Dr. Landsman testified that he believed the remedial soils subcontractor Mergentine was doing a good job. He also said he believed that the QC inspectors appeared to be doing an adequate job in the remedial soils area. However, he believed the numerous and serious problems occurring in the soils area were caused by management which was not taking corrective action on the nonconforming items found because of concern about the cost and schedule for completion of Midland. He blamed Consumers and Bechtel upper management, including MPQAD management. Landsman, Tr. at 16920-21.

141. Mr. Cook testified that Bechtel had done slipshod work in the past and was continuing today to do shoddy work at Midland. It was clear from his testimony that he believed cost concerns were the basis for the poor workmanship. Cook, Tr. at 14394, 14442-43.

Although Consumers argues that Mr. Cook's evaluation of the quality of work at the Midland site is not relevant to our decision, we disagree. Mr. Cook, in using the words "shoddy" and "slipshod" to describe the quality of construction is stating his opinion that the quality of work at the Midland site is poor. His opinion is documented and substantiated in many of the NRC inspection reports forming part of this record. Moreover, this testimony supports a view that Consumers' management lacks the necessary commitment to quality. In fact, Region III's mandate that a quality verification program be instituted to determine the quality of the as-built condition of the plant is the most eloquent testimony to the NRC staff's serious concern about the adequacy of Midland's construction.

142. Dr. Landsman, in explaining why he would not lift the current requirement that Consumers obtain prior explicit NRC approval for all soils work, stated simply, "I don't trust them. There are too many examples of them putting cost and scheduling ahead of quality." Landsman, Tr. at 14692. See also, Keppler, Oct. 29, 1982 Prepared Testimony at 6-7; Attachment D, Enclosure 4; Attachment B.

143. Consumers urges us to accept Mr. Keppler's assessment of the QA problems at Midland in which he states he does not know the cause for the failures. However, we find that the NRC inspectors who constitute the Midland team are closer to the day-to-day construction activities at the site and have a better understanding of the causes of Consumers' QA and management attitude problems than does Mr. Keppler. Therefore,

we will accept the NRC staff's overall assessment that many of the QA and management failures are caused by Consumers paying greater attention to the cost and schedule for completion of Midland than the quality of its construction.

144. We find that Ms. Stamiris has prevailed on her second contention.

- V. CONSUMER POWER COMPANY'S HISTORY OF
QUALITY ASSURANCE DEFICIENCIES
DEMONSTRATES A MANAGEMENT ATTITUDE
INCONSISTENT WITH RIGOROUS ADHERENCE
TO QUALITY ASSURANCE REQUIREMENTS
FOR SOILS WORK
-

145. Ms. Stamiris Contention No. 3 reads in relevant part:

Consumers Power Company has not implemented its quality assurance program regarding soil settlement issues according to 10 CFR Part 50, Appendix B regulations, and this represents a repeated pattern of quality assurance deficiency reflecting a managerial attitude inconsistent with implementation of quality assurance regulations with respect to soil settlement problems, since reasonable assurance was given in past cases (ALAB-100, ALAB-106 and LBP-74-71) that proper quality assurance would ensue and it has not.

A. Quality Assurance/Quality Control Management

146. We heard extensive evidence about the qualification and performance of a number of QA and QC managers. The NRC staff, although reluctant to criticize particular individuals, did state that these individuals were harming the project and not contributing to a positive approach to QA. The staff expressed generally their lack of authority to order the replacement of such

poor managers. Although this Board cannot order their replacement, we can determine that based on their poor performance, we will not allow the soils work to proceed under the current procedures.

147. Mr. Wells who as MPQAD Executive Manager took over site-wide QA responsibility in October, 1982 has no prior QA experience. Consumers told the NRC that Mr. Wells was brought in because he was a good manager. Shafer, Tr. at 14522-23; Landsman, Tr. at 14356-57.

Although Mr. Shafer attempted to convince Mr. Wells that Consumers needed to replace Bechtel personnel in key QC supervisory positions, Consumers has refused to do so. Mr. Shafer testified that Bechtel personnel in those positions continued to be a problem at the time he left Midland as Section Chief. Shafer, Tr. at 14525-27, 14541-42, 14531; Cook, Tr. at 14531; Stamiris Exh. 48.

The NRC staff also pointed out at least four examples of Mr. Wells' poor management attitude. Dr. Landsman stated that he believed he should be replaced. Landsman, Tr. at 16530. Mr. Wells failed to carry out a promise to the NRC staff in September, 1982 to do 100 percent reinspection of all failed QC inspectors' work. Shafer, Tr. at 16255. Mr. Wells also ordered the changing of an annotation to a quality trend graph. The annotation indicated Consumers knew that Bechtel Construction had ordered Bechtel QC not to record all deficiencies on IPIN's.

Id. at 16256. In addition, the NRC staff did not believe Mr. Wells initiated action to stop the use of IPIN's immediately upon learning of the NRC's concern in late November, 1982. Finally, and most importantly, the NRC staff has continued to find rushing of the training and recertification of QC inspectors. Gardner, Tr. at 16686-89.

The NRC staff, other than Dr. Landsman, stated that it would give Mr. Wells a chance to see how he performed, in large part because he had taken as his assistant Mr. Curland, who is experienced in QA matters.

148. This Board does not share the view that an individual such as Mr. Wells with a lack of QA experience and a track record which already lacks distinction, can improve significantly by the extensive experience of his subordinate.

149. Dr. Landsman also stated that he believed Mr. Meisenheimer was unqualified, both technically and in QA respects for his position as MPQAD Soils Superintendent. Mr. Meisenheimer assumed his position in July, 1982, at the time the NRC staff was urging Consumers to upgrade its top QA management in the soils area. Landsman, Tr. at 14535-37, 16530. Dr. Landsman stated that he also had a problem with the fact that Mr. Meisenheimer was not a soils engineer. Landsman, Tr. at 16471-73.

150. Mr. Meisenheimer himself stated that he thought he had an adequate technical and QA background for the position he holds. However, from his testimony, the Board has drawn a number of contrary conclusions.

First, Mr. Meisenheimer's resume, submitted as Consumers Exh. 34, was prepared after he assume his current position, and evidently was an effort to emphasize his QA credentials. Meisenheimer, Tr. at 19660.

151. Second, it does not appear that Mr. Meisenheimer has a clear idea of the rigor and discipline required in a QA program for a nuclear project. He rather cavalierly compared the QA requirements of 10 C.F.R. Part 50, Appendix B, with the quality requirements of other construction projects. Only under questioning about specific criteria of Appendix B did Mr. Meisenheimer admit that nuclear QA requirements were more extensive and rigorous. Meisenheimer, Tr. at 19673-83.

Further, we do not consider his background, at least as set out in his September, 1982 resume, to be equivalent to that of a soils engineer. Meisenheimer, Tr. at 19671.

152. Third, we were disturbed by his answers to questioning about serious problems listed by the Region III staff in a July 13, 1983 letter to Consumers. On that date, the NRC staff asked Consumers about problems encountered in drilling around the service water pump structure, in drilling of Well No. 502 and No. 503, and drilling in Q concrete. Mr. Meisenheimer's response to most questions about these problems was that there was no QA deficiency involved and therefore no QA corrective action needed. This Board disagrees and believes it reflects poorly on Mr. Meisenheimer's understanding of QA that he has not reflected on whether or not the soils QA program may

bear a portion of the blame for these serious soils problems. See generally, Consumers Exh. 58; Meisenheimer, Tr. at 20333, 20355, 20363-67; Stamiris Exh. 116.

Specifically we disagree with Mr. Meisenheimer's response that an incident of drilling in the wrong location for piezometer No. LS-7 was not a QA/QC concern. The QC inspector in question failed to notice that the FCR indicated a revised location. Mr. Meisenheimer argued there were no QC implications even though Consumers acknowledged the need to revise the PQCI to ensure QC engineers in the future compare the coordinates of the location markers to design documents. Consumers Exh. 58, at 2; Meisenheimer, Tr. at 20333-36.

153. Dr. Landsman testified that he believed Mr. Blendy, with QC responsibilities for soils, and Mr. Oliver, with responsibility for QA engineering, were not qualified. Neither, in his opinion, has adequate QA or QC experience to handle his current job. Landsman, Tr. at 14524-25, 14536. Mr. Cook and Mr. Gardner expressed no opinion on Mr. Oliver's qualifications. Cook and Gardner, Tr. at 16456.

154. The NRC staff testified that Consumers' response to NRC criticism that certain people were not qualified for their positions was to reorganize. There has been great turn-over in top QA positions in the company since Mr. Keppler's mandate to make changes in August and September, 1982. Shafter, Tr. at 14530; Landsman, Tr. at 14530-31.

155. Dr. Landsman testified that he continues to believe, as he stated in a September 8, 1982 letter to Consumers, that its QA organization is not qualified for the "complex remedial soils work." Stamiris Exh. 47; Landsman, Tr. at 14522.

156. Dr. Landsman also testified that he believes the problems Consumers encountered in the 1970's with the soils was because they had unqualified people "watching the soils." He stated that Consumers' continued insistence on placing unqualified people in the remedial soils area, in both QA and technical positions, will lead to future soils work not in accordance with regulatory requirements. "Consumers' management missed the whole point of this soils hearing." Landsman, Tr. at 16491-92.

B. Consumers Management in the Soils Area

157. Mr. Mooney is the Executive Manager in the Midland Project Office. He is the so-called single point of accountability for the soils work at the Midland Project. Mooney, Prepared Testimony, at 1, following Tr. at 17017.

Mr. Mooney is an electrical engineer and does not have extensive experience in the soils area. Mooney, Tr. at 17024-25. Further, he is located in Jackson, Michigan, and not at the Midland site. Id. at App. 1. The NRC staff has criticized the fact that he is not located at the Midland site and stated that due to that fact he is not obtaining accurate information in all instances about the soils work at the site. Shafer, Tr. at 16542.

158. Moreover, the NRC staff, most pointedly Dr. Landsman, has criticized Mr. Mooney for his constant and continuing misunderstandings with the staff. Dr. Landsman testified that since Mr. Mooney has arrived on site, he has had

nothing but problems with him concerning the remedial soils work. Landsman, Tr. at 16539-40. Dr. Landsman also stated that he believed the source of all these misunderstandings was cost and scheduling concerns which took priority over quality. Ibid.

159. We agree with the NRC staff, focusing here on Mr. Mooney's participation in the violation of the Board Order and in his failure to correct misstatements made by Mr. Boos on March 10 and March 12, 1982.

We also find that Mr. Mooney, throughout these hearings, has attempted to justify Consumers' compliance with lesser standards than those the NRC staff wished to see apply. In March, 1982, he did not want to comply with the staff's mandate that all underpinning from that date forward be done under a QA program. In August, 1982, he continued to defend Consumers' decision to go ahead with two excavations in direct violation of this Board's April 30, 1982 Order. We find Mr. Mooney's actions in many respects worse than mere "misunderstandings." As noted in Section IIB, supra, we find a portion of his testimony about the violation of the Board Order not credible.

160. The NRC staff appears to believe that Mr. Mooney, Mr. Schaub and Mr. Fisher should be replaced at the Midland Project, but felt that they did not have the authority to make that recommendation to their management. The Midland team testified further that they had told Mr. Warnick and Mr. Keppler their opinion of these three managers, as well as those

individuals who were an asset to the Midland Project. Landsman and Cook, Tr. at 16838-41. Mr. Cook testified that the Midland team had hoped that Consumers would realize that the project was not being helped by these three individuals and remove them as it had removed Mr. Marguglio. Ibid.

Dr. Landsman testified that the team had not mentioned these individuals' names in public because they had been informed that they could be threatened with a lawsuit. Landsman, Tr. at 16843, 16838.

No member of the NRC panel objected to Mr. Cook's statement that the Midland team believed the project was being hurt by Mr. Mooney, ~~Mr.~~ Schaub, Mr. Fisher and, "every now and again" James Cook. Cook, Tr. at 16841.

161. We found Mr. Mooney's attitude toward QA and quality construction work disturbing, given his pivotal position in the remedial soils area.

Mr. Mooney stated that he disagreed with a trend graph which showed an adverse trend in soils for the period from June 16 through July 15, 1982, even though MPQAD pointed out such a trend. Stamiris Exh. 91; Mooney, Tr. at 17123-32.

Mr. Mooney testified that he did not see any generic causes for the problems outlined by the NRC in its July 13, 1983 letter to Consumers about recently-discovered problems in the remedial soils area. Mooney, Tr. at 17178. He also stated

that there were no generic problems in the problems found by S&W in its May 90-day report. Id. at 17363; Consumers Exh. 33.

Mr. Mooney testified, in response to a question from Dr. Cowan, that he believed there was no problem with 200 NCR's being written for the soils work for the period from December, 1982 through May, 1982. Mooney, Tr. at 17333-34. This appears to this Board to be an excessive number of NCR's.

162. Despite the numerous problems encountered in the underpinning work since the work was released in December, 1982, Mr. Mooney testified that he would push again to release the underpinning work even earlier. He stands today behind his earlier request for the work to be released in July, 1982. Id. at 17393-96. He admits that Consumers did not believe a third party review for soils was necessary and that review by S&W was imposed by the NRC. Id. at 17390.

163. Mr. Mooney testified that the changes outlined in his September 17, 1982 letters were intended to improve Consumers' QA performance. However, he admitted Consumers had not anticipated the many problems encountered in the underpinning area since release of the work in December, 1982. Further, none of these problems has been avoided by those changes. Mooney, Prepared Testimony, at 1-21, following Tr. at 17017; Mooney, Tr. at 17167-71.

164. Of most concern to this Board is a statement by Mr. Mooney that he believes Consumers has overemphasized

quality to the extent that quality of construction at the Midland plant has been adversely affected. Mooney, Tr. at 17325. Such a statement from Consumers' Chief Soils Manager shows a very poor understanding of the soils problems, and little to no dedication to rigorous QA principles.

Mr. Mooney's followed this statement with a disclosure of his primary concern about the project: "Stone & Webster has pointed out in their report several times where we haven't underpinned as expeditiously as would be good construction practice because of the, perhaps, emphasis on quality." Id. at 17325.

C. Change in Consumers Top Management

165 . Near the close of these hearings, Consumers announced a major management change in making Stephen Howell once again the senior management official in charge of the Midland project. As Consumers' Executive Vice-President, Mr. Howell described his responsibilities as supervising where necessary the construction, licensing and engineering aspects of the Midland project, which now report to Mr. Cook, and other construction and licensing areas which now report directly to him. Howell, Tr. at 20902-23. Mr. Howell acknowledged that he had similarly been in charge of all aspects of the Midland project from February, 1971 through March, 1980. Howell, Tr. at 20920-23, 20958.

166 . Mr. Cook testified that he would now report to Mr. Howell instead of to Mr. Selby, thereby putting an additional

management layer between him and Mr. Selby. Cook, Tr. at 20925.

167. Mr. Howell stated that he had been placed in his current position in part because of problems Mr. Cook had in relating to the NRC. Howell, Tr. at 20942.

168. This Board sees this change in management as a reversal in Consumers' acknowledgment of its serious QA and soils problems. Mr. Howell appeared not only uninformed about Midland's recent problems, but unwilling to acknowledge that management had been responsible for any of Midland's problems during his earlier tenure.

He stated, for example, that he still believed today he made the right decision in permitting the DGB to go forward in 1977, even based on additional information about fill problems in the area of the DGB. He testified that he still believed the NRC staff after the TMI accident was off chasing issues to the detriment of the licensing process as he believed in 1980. And, finally, he still believed that if it were not for the intervenors, the plant could have been built and operating in 1980, as he had previously stated in 1980. Howell, Tr. at 20970, 20989, 20994, and 20996.

169. Mr. Howell testified that he did not know if the DGB inspection had accurately described a QA breakdown, and stated he did not know if management failures were behind any of the QA deficiencies noted in the DGB inspection report. Id. at 21013-18. Mr. Howell further stated he did not plan to inquire

into whether management failures of the past led to the QA breakdown noted in the DGB Report. Id. at 21021.

170. He testified that he still believed, as he did in 1980, that Consumers was not obliged to disclose to the NRC staff that its management agreed with Bechtel's Forecast 6 cost and schedule estimates. Id. at 21045-46, 21048.

171. Although Consumers has stated that its intention in bringing Mr. Howell into this position was to bring greater senior management attention to the site, it appears that now Mr. Selby will spend even less time focusing on Midland. Howell, Tr. at 21137. Given that Mr. Selby is the senior Consumers official who must ultimately ratify or approve all final decisions on this project, this Board believes he should be spending more, not less, time on Midland.

172. The NRC staff took the position that given the current NRC controls, they did not see what, if any, difference this top management reorganization would have on the Midland project. Harrison and Cook, Tr. at 21163.

173. This Board finds the placement of Mr. Howell back in charge of the Midland project is a step backward in terms of instilling a proper attitude toward QA and NRC regulatory requirements. We find that far from disavowing the problems and management failures of the past, Mr. Howell maintains a keen interest in defending these failures and blaming Midland's problems on the NRC and the intervenors.

D. Conclusion

174. We find the most probative evidence on Ms. Stamiris' Contention 3 is a frank assessment of the quality of the current management of the Midland project, including top management such as Mr. Howell and Mr. Cook; remedial soils managers, including Mr. Mooney, Mr. Schaub and Mr. Fisher; and QA management, including Mr. Wells and Mr. Meisenheimer.

Consumers has continued, as in the past, to place inexperienced individuals in these top management posts. In addition, we find that the quality of top management for the Midland project may have deteriorated since the last time we reviewed Consumers' reorganization in 1980, with the restoration of Mr. Howell to his former position.

175. We must agree with Dr. Landsman that given the critical problems in the remedial soils area, it is only with highly qualified managers, dedicated to high quality construction work and quality assurance principles, that Consumers will be able to complete the soils work in accordance with NRC regulatory requirements and in a manner to protect the public health and safety. We find the top management of Consumers, at this time, does not satisfy that requirement.

CONCLUSIONS OF LAW

Based upon the foregoing Findings of Fact and upon consideration of the entire evidentiary record in this proceeding, the Board makes the following Conclusions of Law:

(1) The quality assurance deficiencies set forth in Part II and in Appendix A of the NRC staff's December 6, 1979 Order Modifying Construction Permits ("Modification Order") were an adequate basis for the issuance of the Modification Order;

(2) Consumers made a material false statement in the FSAR in that the FSAR stated that "all fill and backfill were placed according to Table 2.5.9." This material false statement, standing alone, is an adequate basis for the issuance of the Modification Order;^{12/}

(3) We have no reasonable assurance that Consumers is able or willing to complete the soils work at Midland in accordance with regulatory requirements and in a manner to protect the public health and safety. Our lack of such assurance forms an adequate basis for issuance of the Modification Order;

(4) Consumers made material false statements to the NRC in statements made to the NRC staff on March 10, 1982 and March 12, 1982 concerning the status of installation of the

^{12/}See Joint Consumers and staff Exh. 6.

underpinning instrumentation. These material false statements form an adequate basis for issuance of the Modification Order;

(5) Consumers deliberately violated this Board's April 30, 1982 Order prohibiting soils work without prior explicit approval from the NRC staff in excavating beneath the deep Q duct bank and relocating a fireline without such prior explicit approval and in the face of express NRC staff prohibitions. These violations form an adequate basis for issuance of the Modification Order;

(6) Intervenor Barbara Stamiris has prevailed on all three contentions, including Contention Nos. 1, 2 and 3, which challenge Consumers' ability to complete the soils work in accordance with NRC regulatory standards and in a manner to ensure the public health and safety. Therefore, Consumers' failure to carry its burden on any one of the three contentions, in and of itself, forms an adequate basis for issuance of the

(7) The Modification Order is sustained and Consumers is hereby prohibited from conducting any construction activities enumerated in that Modification Order prior to:

(a) Consumers' submission of an amendment to its application for a construction permit seeking approval of the planned remedial actions; and

(b) Issuance by the NRC staff of an amendment to the construction permits authorizing such remedial actions.

ORDER

In accordance with the Atomic Energy Act, as amended, and 10 C.F.R. 2.760, 2.762, 2.764, 2.785, and 2.786, it is hereby ORDERED:

1. That the Modification Order dated December 6, 1979 be, and hereby is, sustained;

2. That this Board's April 30, 1982 Memorandum and Order Imposing Certain Interim Conditions Pending Issuance of Partial Initial Decision be, and hereby is, vacated.

It is FURTHER ORDERED that this Partial Initial Decision shall be immediately effective as of the date of issuance and shall constitute the final action of the Commission 45 days after issuance thereof, subject to any review pursuant to the above cited Rules of Practice.

Within ten days of service of this Partial Initial Decision, any party may take an appeal to the Commission. Each appellant must file a brief supporting its position on appeal within 30 days after filing its Notice of Appeal (40 days if the staff is the appellant). Within 30 days after the period has expired for the filing and service of the briefs of all appellants (40 days in the case of the staff), a party who is not an appellant may file a brief in support of, or in opposition to,

any such appeal(s). A responding party shall file a single, responsive brief only, regardless of the number of appellant's briefs filed.

THE ATOMIC SAFETY AND LICENSING
BOARD

Charles Bechhoefer, Chairman
Administrative Judge

Frederick P. Cowan
Administrative Judge

Jerry Harbour
Administrative Judge