10/29/82

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

TESTIMONY OF JAMES G. KEPPLER
WITH RESPECT TO QUALITY ASSURANCE

Q.1 Please state your name and position.

A.1 My name is James G. Keppler. I am the Regional Administrator of the NRC's Region III office. My professional qualifications have been previously submitted in this proceeding.

Q.2 Please state the purpose of your testimony.

A.2 In my testimony to the Board in July 1981, I testified on the more significant quality assurance problems that had been experienced in connection with the Midland project and the corrective actions taken by Consumers Power Company and its contractors. I stated that, while many significant quality assurance deficiencies have been identified, it was our conclusion that the problems experienced were not indicative of a breakdown in the implementation of the overall quality assurance program. I also noted that while deficiencies have occurred which should have been identified earlier, the licensee's QA program had been effective in the ultimate identification and subsequent correction of these deficiencies. Furthermore, I discussed the results of Region III's special quality

assurance inspection of May 18-22, 1981, which reflected favorably on the effectiveness of the Midland Project Quality Assurance Department, which was implemented in August 1980. The thrust of my testimony was that I had confidence that the licenseee's QA program both for the remedial soils work and for the remainder of construction would be implemented effectively.

It was not until April 1982 that I was made aware of additional problems with the effectiveness of implementation of the QA program. The problems came to my attention as a result of the April 1982 meeting between NRC and Consumers Power Company to discuss the Systematic Assessment of Licensee Performance (SALP) report for Midland and the discussions held within the Staff in preparation for that meeting. The SALP report addressed the Midland site activities for the period July 1, 1980 through June 30, 1981. During this period, the soils work activities were rated Category III, the lowest acceptable rating given by the SALP review process.

During the April 1982 public meeting on the SALP findings, Mr. Ronald J. Cook, NRC Senior Resident Inspector at Midland, stated that as of that date he would rate Consumers Power Company soils work Category III, the same rating as it received for the SALP period. He had similar comments on other work activities. Based on my July 1981 testimony, I expected Consumers Power Company would be rated a Category I or II in the soils area, as well as other areas, by April 1982, and I was certain that my July 1981 testimony had left that impression with the Board.

On the basis of the above, I decided it was appropriate to supplement my July 1981 testimony.

Q.3 What actions have been taken by Region III in response to the information contained in your previous answer?

A.3 I met with the NRC supervisors and inspectors who had been closely involved with Midland during the past year to get a better understanding of their concerns. As a result of these meetings, I concluded that the problems being experienced were ones of program implementation rather than problems with the QA program itself.

Because of my concerns, I requested the Region III Division Directors most actively involved with the Midland inspection effort to try to identify the fundamental problems and their causes and to provide me with their recommendations to resolve these problems. They provided me with an assessment of technical and communications problems experienced by the licensee and made recommendations with respect to the licensee's workload, institution of independent verification programs, and QA organization realignments. This response is included as Attachment A. (Memorandum from Norelius and Spessard to Keppler, dated June 21, 1982)

In July 1982 I recognized that more NRC resources were going to have to be provided in overseeing activities at Midland and created the Office of Special Cases (OSC) to manage NRC field activities at Midland (and Zimmer). Mr. Robert Warnick was assigned Acting Director. A Midland Section was formed comprised of a Section Chief, two regional based

inspectors, and two resident inspectors (the second resident inspector reported onsite in August 1982).

Before meeting with representatives of the Office of Nuclear Reactor Regulation (NRR) to discuss options for NRC action in connection with Midland, Mr. Warnick requested Senior Resident Inspector Cook to provide a summary of the indicators of questionable licensee performance. Mr. Cook provided a memorandum documenting a number of problems and concerns, which is included as Attachment B. (Memorandum R. J. Cook to R. F. Warnick, dated July 23, 1982)

Mr. Warnick and I met with representatives of NRR on July 26, 1982 to discuss Consumers Power Company's performance. This meeting resulted in recommended actions concerning third party reviews of past work and ongoing work which are described in Attachment C. (Memorandum, Warnick to Files, dated August 18, 1982)

Following the meeting with NRR, Mr. Warnick discussed with members of the Midland Section positions concerning third party reviews developed at the meeting with NRR. The members of the Midland Section were not convinced the recommended actions were the best solution, since the causes of the problems had not been clearly identified. Instead, they proposed a somewhat different approach consisting of an augmented NRC inspection effort coupled with other actions to strengthen the licensee's QA/QC organization and management. This proposal is documented in Attachment D. (Memorandum, Warnick to Keppler, dated August 18, 1982)

In response to these suggestions, Mr. Darrell Eisenhut, Director, Division of Licensing, NRR, and I met with top corporate management representatives from Consumers Power Company on August 26, 1982, and

again on September 2, 1982, to discuss NRC's concerns and possible recommended solutions. Because it was not clear to the NRC staff why Consumers Power was having difficulty implementing their QA program, we requested them to develop and propose to the NRC, actions which would be implemented to improve the QA program implementation and, at the same time, provide confidence that the program was being implemented properly.

Consumers Power subsequently presented its proposal for resolution of the identified problems in two letters dated September 17, 1982, which are included as Attachments E and F. (Letters Cook to Keppler and Denton, dated September 17, 1982)

These proposals were lacking in detail, particularly with respect to the plant independent review programs. Following a meeting between NRC staff members and Consumers Power Company in Midland on September 29, 1982, Consumers Power submitted a detailed plan to NRC on October 5, 1982 concerning the planned third party activities (Attachment G). Consumers Power Company's proposals (Attachments E, F, and G) are currently under review by NRC.

Q.4 Do you believe that soils remedial work at the Midland plant should be permitted to continue?

A.4 Yes. This portion of my testimony discusses what has been acommplished and what will be accomplished in the near future to provide a basis for continued construction at the Midland plant.

We expect that Consumers Power Company will have independent third party assessments of the Midland construction project. These assessments will include reviews of safety related work in progress and of completed

work activities. The scope of, and contractors for, the third party assessments are presently under review by the NRC staff.

Along with the independent third party reviews, the Office of Special Cases, Midland Section, has expanded its inspection effort and has taken actions to assure compliance with the Licensing Board's April 30, 1982 requirement that the remedial soils work activities receive prior staff approval. Specifically, the Midland Section has (1) established a procedure for staff authorization of work activities proposed by Consumers Power Company (Attachment H, Work Authorization Procedure, dated August 12, 1982), and (2) has caused a stop of the remedial soils work on two occasions once in August 1982 and again in September 1982 (Attachments I and J, Confirmatory Action Letters dated August 12, 1982, and September 24, 1982, respectively). The Section has also started an inspection of the work activities which have been accomplished by Consumers Power Company in the last twelve months in the diesel generator building, the service water building and other safety related areas. This inspection was started during October 1982 and is continuing as of the filing date of this testimony.

Based upon (1) the third party assessments of the plant which will be performed, (2) the increased NRC inspection effort, and (3) the work authorization controls by the NRC, I believe that soils remedial work at the Midland plant may continue. As demonstrated by the previous stop-work effected in the remedial soils area, the staff will take whatever action is necessary to assure that construction is in accordance with applicable reuqirements and standards.

Attachment A

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

(K-1)

June 21, 1982

MEMORANDUM FOR: James G. Keppler, Regional Administrator

FROM: C. E. Norelius, Director, Division of Engineering and Technical Programs
R. L. Spessard, Director, Division of Project and Resident Programs

SUBJECT: SUGGESTED CHANGES FOR THE MIDLAND PROJECT

Historically, the Midland Project has had periods of questionable quality assurance as related to construction activities and has had commensurate regulatory attention in the form of special inspections, special meetings, and orders. These problems have been given higher public visibility than most other construction sites in Region III. As questions arise regarding the adequacy of construction or the assurance of adequate construction, we are faced with determining what regulatory action we should take. We are again faced with such a situation.

Current Problem

The current problem was caused by a major breakdown in the adequacy of soils work during the late 1970's. Because of the increased regulatory attention given the site, we expect that exceptional attention would be given to this activity and that licensee performance would be better than other sites or areas which have not had such significant problems and therefore have not attracted this level of regulatory attention. However, that does not appear to be the case and Midland seems to continually have more than its share of regulatory problems. The following are some of the specific items which are troublesome to the staff.

Technical Issues

1. In the remedial soils area, the licensee has conducted safety related activities in an inadequate manner in several instances - removal of dirt around safety related structures, pulling of electrical cable, drilling into safety related utilities.

NOS 11/4/82
7B

2. In the electrical area, in trying to resolve a problem of the adequacy of selected QC inspectors' work conducted in 1980, the licensee completed only part of the reinspection even when problems were identified, and appears inclined to accept that 5% of electrical cables may be misrouted (their characterization of "misrouting" may imply greater significance than we would attach to similar findings).

3. In the pipe support area, in trying to resolve a problem of the adequacy of QC inspections conducted in 1980, the licensee has portrayed only a small percentage of defects of "characteristics" identified and has not addressed the findings in terms of a large percentage of snubbers which may be defective because of the characteristics within each snubber that may be defective (e.g., if only one characteristic was defective out of 50 reviewed on a single hanger, the percentage is small; but if the one defective characteristic makes the hanger defective the result would have a much greater significance level). The licensee had done a detailed statistical analysis in an attempt to show that the small percentage of characteristics were found rather than broadly approaching the problem with significant reinspections to determine whether or not construction was adequate.

Communications

Multiple misunderstandings, meetings, discussions, and communications seem to result in dealing with the Midland Project. Some examples are:

1. NRC staff attending a meeting in Washington on March 10, 1982, heard the Consumers Power Company staff say that electrical cable pulling related to soils remedial work was completed. It was determined to be ongoing the next day at the site.

2. When Region III attempted to issue a Confirmatory Action Letter, J. Cook informed W. Little of his understanding that both J. Keppler and H. Denton had agreed that the subject of the CAL was not a safety related item subject to NRC regulatory jurisdiction. Such agreements had not in fact occurred and following a meeting, Consumers Power Company issued their commitments in a letter to Region III.

3. In reviewing a licensee May 10, 1982 letter, responding to the Board Order, the NRR staff had an unsigned letter and Region III had a signed copy both dated the same date but differing in content.

4. Recently a Region III inspector in closing out and exiting from his inspection described the exit meeting as being the most hostile he had ever participated in.

5. The responses to any Region III enforcement letters issued to Midland are more lengthy and ~~are~~ more argumentative than are any other responses from any other licensee in Region III. This point was made in the SALP response provided by Midland, and the SALP response in itself from Midland is an example of the type of response which we commonly receive from the site. The length of the response is at least as long as the initial SALP report.

6. Multiple requests for briefing meetings and other statements by the utility to the effect that we should review procedures in developmental stages imply that Midland wants the NRC to be a part of their construction program rather than having us perform our normal regulatory function.

Staff Observations

1. With regard to corrective actions of identified noncompliances, the Midland response seems to lean towards doing a partial job and then writing up a detailed study to explain why what they have done is sufficient rather than doing a more complete job and assuring 100% corrective action has occurred. In the detailed writeups that are prepared, it is the staff's view that the licensee does not always represent the significance properly, and the analyses and studies often raise more questions than they solve; thus time appears to have been wasted in writing an analysis rather than in fixing the problem.

2. Midland site appears to be overly conscious with regard to whether or not something is an item of noncompliance and spends a lot of effort on defending whether or not something should be noncompliance as opposed to focussing on the issue being identified and taking corrective action. This appears in part to be due to their sensitivity of what appears in the public record as official items of noncompliance. This sensitivity may have resulted from the extended public visibility which has attended construction of the facility. The staff's view is that the Midland site would look better from the public standpoint and be more defendable from NRC's standpoint, if they concentrated on fixing identified problems rather than arguing as to the validity of citations. This type of view was expressed by the utility during a recent effort to clarify in detail that certain construction items on the soils remedial work should not be subject to NRC's regulatory action.

3. The Midland project is one of the most complex and complicated ever undertaken within Region III. The reason is that they are building two units of the site simultaneously and additionally have an underpinning construction effort which in itself is probably the equivalent of building a third reactor site. The massive construction effort and the various stages of construction activity which are involved make the site extremely complicated to manage. This activity appears to cause a lot of pressure on the licensee management.

4. Mr. J. Cook, the Vice President responsible for the Midland site is an extremely capable and dynamic individual. However, these characteristics in conjunction with the complexity and immenseness of operation as set forth in 3, above, may actually be contributing to some of the confusion which seems to exist. The staff views that (1) he is too much involved in detail of plant operations and there are times when the working level staff appears to agree and be ready to take action where Mr. Cook may argue details as to the necessity for such action or may argue as to the specific meaning of detailed work procedures, (2) this kind of push may lead to such things as letters both signed and unsigned appearing in NRR and causing confusion, (3) this push may lead to some animosity at the licensee's staff level if NRC activities are looked on as slowing progress of construction at the site.

Recommendations

It appears essential that some action be taken by NRC to improve the regulatory performance of the Midland facility. The following specific suggestions are made.

1. The company must be made aware and have emphasized to them again that their focus should be on correcting identified problems in a complete and timely manner.

2. We should question whether or not it is possible to adequately manage a construction program which is as complex and diverse as that which currently exists at Midland. We would suggest specifically that the following activities be considered:

   a. That the licensee cut back work and dedicate their efforts to getting one of the units on line in conjunction with doing the soils remedial work.

   b. That they have a separate management group all the way to a possible new Vice President level, one of which would manage the construction of the reactor to get it operational and the second to look solely after the remedial soils and underpinning activities.

3. Consumers Power Company should develop a design and construction verification program by an independent contractor. This would provide an important additional measure of credibility to the design and construction adequacy of the Midland facility.

We would be happy to discuss this with you.

C. E. Norelius

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

R. L. Spessard

R. L. Spessard, Director
Division of Project and
Resident Programs

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

Attachment B

(K-2)

July 23, 1982

MEMORANDUM FOR: R. F. Warnick, Director, Enforcement and Investigations Staff

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

SUBJECT: INDICATORS OF QUESTIONABLE LICENSEE PERFORMANCE - MIDLAND SITE

As per our conversation of July 21, 1982, the following is a list of those items that various inspectors consider to be indicative of questionable licensee performance:

1. One of the leading items is the over-inspection performed on electrical QC inspectors which was done in response to NRC concerns identified in the May 1981 team inspection. The licensee found weaknesses in the inspections performed by some electrical QC inspectors pertaining to not identifying the mis-routing of cables. This item culminated in an item of noncompliance. The licensee did not expand the overview activity to a degree necessary for an acceptable resolution to the identified weakness - even after a meeting in RIII. This item has not been resolved to the satisfaction of the NRC although our position has been clearly defined.

   As a partial response to the team inspection concern, the licensee presented the NRC with an audit report which would demonstrate a response to our concern of questionable electrical QC inspections. However, the audit report stated that it (the audit report) did not address the NRC concerns.

2. During the dialogue for the underpinning and remedial soils work, a large amount of emphasis has been placed on the settling data for the structures involved. During a meeting in HQ on March 10, 1982, the need for QC requirements on remedial soils instrumentation were explicitly delineated. However, one week later, the NRC inspectors found soils work instrumentation installation was started the day after the March 10, 1982 meeting without a QC/QA umbrella; that the licensee's QA Auditor and QA Engineering personnel were not approached pertaining to the need for QA coverage for this soils settlement instrumentation; that there were strong indications that the licensee had mislead the NRC in relating that the work was essentially complete when indeed it was not; and presently, the licensee management informs our inspector that items are ready for his review when in actuality they are not. Our conversations with licensee personnel - other than management - confirm that the items are not ready for review.

NOS 11/4/82

3. Historically, one of the NRC questions has been, "Who is running the job - Bechtel or Consumers?" The following example would allow one to believe it is Bechtel: As a part of the resolution to our findings in the soils settlement instrumentation installation, the NRC insisted that the licensee generate a Coordination/Installation Form to cover interface between different evolutions of instrumentation installation. The licensee would call our inspector for his concurrance on the adequacy of the form - the inspector would approve Consumers Power Company's form, but then would find out that Bechtel did not want to work to Consumer's form - the form that was generated to resolve regulatory concerns. This event has occurred twice and was considered as a deviation during a more recent inspection. The opinion of the staff is that if Consumers generates a form that will aid them in not incurring regulatory difficulty, and which has had NRC input, the licensee should demand that the contractor comply with these policies instead of the contractor dictating the regulatory environment under which they will work.

4. Deficiencies in material storage conditions has continually been a concern to the NRC and has resulted in items of noncompliance. To the inspectors, the ability to maintain quality storage is indicative of how rigorous or slipshod the constructor's attitude is towards construction. The licensee has attemted to entice the constructor to do better in maintaining the material storage conditions, but still the licensee's auditors and the NRC have negative findings in material storage conditions and negative discussions with the contractor about the validity of the finding.

5. At periodic intervals, the support of cables, particularly in the control room area, which are awaiting further routing or termination, has met with the disapproval of the NRC inspectors. These discrepancies also include cables without covered ends being on the floor in walk areas that are in a partially installed status. This is also another indicator of slipshod workmanship which has been brought to the constructor's attention at various times, but was last noted during a recent inspection.

6 In the area of instrumentation impulse line installation and marking, the licensee has had separability violations which has required removal of all installed impulse lines. Also, the NRC, because of this and significant adverse operational conditions, insisted that the installed impulse lines be identified. Although the licensee plans to mark the impulse lines, there was an inordinate amount of resistance to marking the lines - even though there had been instances of mis-matched channels because of identification confusion.

7. An example of reluctance in placing the responsibility for quality workmanship at the foreman and/or worker level has recently been identified. The NRC inspectors noted that some drop-in anchors were improperly installed and obviously did not adhere to the installation procedures. The licensee's attitude indicated this was not a valid finding because QC had not inspected the item. The NRC inspectors treat this as indicative that slipshod workmanship is tolerated in the hopes that QC will find the mistakes.

8. Late in 1981, the licensee decided to move the QA Site Superintendent into another position and cover this site function by sharing the site time between the QA Director and the QA Manager. After a January 1982 meeting with the NRC at RIII, the licensee opted to fill the QA Superintendent spot with another person. In the spring of the year, the NRC inspectors were following up on welding allegations and approached the QA Superintendent. The QA Superintendent was familiar with the alleged poor welding and had established what the NRC inspectors determined to be a responsive plan to resolve the questionable QC welding inspections. At the Exit Interview, the QA Director did not appear to back the QA Site Superintendent's proposed plan which had tacit NRC approval. The NRC inspector classified in writing and with just cause that the Exit Interview was the most hostile exit interview he had ever encountered.

9. During a recent inspection, it was noted by the NRC inspector that fill dirt was piled and being covered with a mud mat at a nominal 1:1½ horizontal to vertical slope when the specification called for a 1½:1 horizontal to vertical slope. A constructor Field Engineer witnessed the wrong slope being installed and justified and defended the slope after being informed of the specification requirement. This is another example of the constructor having an attitude which precludes quality workmanship.

10. At different times, NRC inspectors have experienced difficulty in getting information which is controlled by the contractor, such as supporting calculations and qualifying information to justify a given installation. A recent example is: the NRC inspector informed the licensee and the contractor he wanted to see resumes of persons involved in the remedial soils work. There is an obligation to the NRC to supply a precise number of "qualified" persons on the soils work. The inspector was informed he could not get these records as they were personal. The inspector ultimately did get the information after bringing it to the attention of licensee upper management. However, this indicates an implied unwillingness of the constructor to share information with the NRC and sometimes with the licensee.

11. The licensee oftentimes does not demonstrate a "heads up" approach to their activities. The following are examples of the licensee operating in an environment using tunnel vision - "blinders".

    a) During a recent NRC inspection, the inspector challenged the ability to maintain the proper mix ratio on high pressure grout. This was done after the inspector noted that the operator could never maintain the proper mix ratio without continual manual control - which was not available when the grout is applied. The licensee's apathetic attitude did not allow them to stop the grout application until the next day when this became an issue at the exit interview.

    b) At one point in time, the company doing drilling on site for the remedial soils work cut into a safety related duct bank between the diesel generator building and the service water building. The Consumers Power Site Manager's Office (the production people) stopped work because - from a quality standpoint conditions were so deplorable. However, the Site Manager's Office did not have responsibility in this area - the Midland Project QA Department had this responsibility and did not invoke their authority to prevent the drilling work from getting out of control - or to bring it back into control.

    c) The NRC inspector recently witnessed the licensee setting up to drill a well hole in safety related dirt using a technique which was not authorized. If the inspector had not brought this to the licensee's attention, the licensee would have violated an Order addressing remedial soils work and also the Construction Permit. When the licensee was queried as to the availability of the QC/QA personnel who would prevent such activity from happening, the NRC inspector was informed that this was (another) misunderstanding.

    The NRC inspectors have been informed by our contacts on site that there are memoes written to the effect that "peripheral vision" should be curtailed and communication with the NRC stiffled. The NRC has not read these memoes yet - but plans to in the near future, provided they really exist and infer what we have been informed.

12. The licensee seems to possess the unique ability to search all factions of the NRC until they have found one that is sympathetic to their point of view - irregardless of the impact on plant integrity. Some examples of this are:

    a) The NRC soils inspector informs the licensee that soils stabilization grout comes under the Q program. The licensee is not particularly happy with this position. Unknown to the inspector, the licensee argues his point with NRR to have the grout non-Q - using only those arguments which support his (the licensee's) position. The licensee

has the advantage of the NRC inspector's technical and regulatory basis for supporting his (the inspector's) position, and therefore avoids mention of this during the discussions with NRR. However, the licensee's QA program, which has already been approved by NRR, states that all the remedial soils work is Q unless RIII approves a relaxation on a case by case basis. It appears the licensee does not wish to acknowledge the prior agreements with the NRC.

b) Since the failure of auxiliary feedwater headers in B&W steam generators, discussions have transpired between the NRC inspectors and the site personnel. These discussions have indicated that the licensee was maintaining a conservative approach and were entertaining the concerns expressed by the NRC which were stimulated primarily by gross mistakes in attempting the modification at operating B&W plants. The licensee's corporate personnel were annoyed that the NRC inspectors would not give approval to start the modification until all the preparatory work had been accomplished as this would tend to impact the schedule and the modification to the steam generators could become a scheduling nuisance. The licensee corporate personnel contacted the NRC inspectors involved to "reason with them". However, the corporate personnel, (including a representative from B&W) were unable to answer the concerns of the NRC inspectors but did mention that the NRR Operational Project Manager indicated that it was alright to proceed with the modification. The licensee corporate personnel could not state what the position of the NRR Construction Project Manager was on this issue - only that they had found some form of approval from someone in the NRC.

c) At times, when Immediate Action Letters or other forms of escalated enforcement become imminent, the licensee attempts to "appeal" their case with individuals in the regional management who are removed from the particulars of the tentative enforcement action. The licensee attempts to get these persons to agree to specific portions of the issue which would indicate that the licensee is "really not all that bad". However, the "real" issues, as identified by the NRC inspectors are being masked.

d) During inspections of the remedial soils work, the NRC inspector has been informed by the licensee that certain findings and areas of inspection were not within the purview of his (the inspector's) inspection program because they were in essence considered non-Q and that by virtue of prior agreement with the Regional Administrator were excluded from enforcement action. However, the NRC inspectors would subsequently find that there was no such agreement between the Regional Administrator and the licensee - only a philosophical discussion as to what, in general terms, constituted an item of noncompliance.

The above indicators support the reputation the licensee has for being argumentative. Their apparent inability to accept an NRC position without diligently searching to find a "softened" position results in numerous hours of frustrated conversations between all parties involved to resubstantiate (usually the original position) a position based on technical and regulatory prudency.

13. The licensee has been classified publicly by the NRC as being argumentative. The licensee continues to exhibit this trend, as evidenced by the following examples:

    a) Essentially every item of noncompliance receives an argumentative answer which addresses only the specificity of the item of noncompliance and selectively avoids any concept which would support the essence for the item of noncompliance. For example - in the instance of the improperly installed drop-in anchor mentioned above, it was the fact that QC had not inspected the installation of the bolt which was important to the licensee. However, the real enforcement issue was that components were being improperly installed.

    b) The Cycle II SALP made critical evaluations of the licensee's performance in several areas. The licensee's response to this SALP report was argumentative over specific details and did not seem to acknowledge that the consensus of opinion of the NRC inspection staff was that there were areas where the licensee's performance was weak. The licensee's argumentative position is in the form of "we really are not all that bad" when the records, findings and observations of the NRC inspectors support just the opposite position.

    c) The "Q-ness" of the remedial soils work has continually been an argumentative topic of discussion which ultimately resulted in a HQ meeting on March 10, 1982. At this meeting, the "Q-ness" of the remedial soils work was specified and later documented with the meeting minutes. However, the licensee did not wish to abide by this position and a subsequent meeting was held in RIII to further clarify the NRC position. Still, the topic of "Q-ness" is being argued by the licensee, even though the ASLB has issued an Order further defining the "Q-ness" of the soils work. It might be noted that a hearing is in process over this soils issue and the NRC's position on "Q-ness" has been expressed during these testimonies.

14. During a recent episode, the licensee wanted to continue excavation of soils in proximity to the Feedwater Isolation Valve Pit (FIVP). However, the licensee wanted to perform this evolution without determining that the temporary supports of the FIVP were adequate. Making this determination would have an impact on scheduling, as stated by the licensee. The FIVP supports were installed without a Q umbrella and subsequent inspections did reveal several discrepancies in the installation of the support structure.

15. During the limited remedial soils work which has transpired, the licensee has managed to penetrate Q-electrical duct banks, a condenser header drain line, an abandoned sewer line, a non-Q electrical duct bank and a 72-inch circulating water line. All of these occurances have happened because of a lack of control and attention to details. Whenever approached by the NRC as to the adequacy of review prior to attempting to drill, the NRC receives responses which strongly suggest that the time was not taken to perform these reviews - perhaps taking this time would impact on the schedule.

16. By virtue of an earlier ALAB Order, the licensee is required to perform trend analyses for nonconforming conditions. These trend analyses have, in the past, masked the data such that obvious trends are not obvious and has resulted in negative findings by the NRC. This was addressed in one of the earlier SALP meetings. Recently, while performing a review of hanger welding data, the NRC inspector found that the statistical data had been diluted to the point that the number of unsatisfactory hangers could not be determined from the trend analyses or the type and degree of non-conforming conditions which were being identified pertinent to the hanger fabrication.

17. The licensee continually would use the NRC staff as consultants and classifies a regulator and enforcement position as counter productive. This is reflected by the licensee not wishing to perform Q-work without obtaining NRC prior approval and then addressing only those areas where the NRC has voiced a regulatory concern - provided it is convenient to the licensee. This attitude has particularly prevailed in the remedial soils issue and to a lesser degree in the electrical installation areas. The preferred NRC inspector mode would be for the licensee to generate his program to establish quality and then the NRC would approve or disapprove. However, the licensee requires consultation with the NRC to establish his level of quality requirements.

The above is not intended to be a complete list of all discrepancies which indicate questionable licensee performance as this would require a more extensive review of the records and inspection personnel involved than time permits. Also, there has been no attempt to systematically document the enforcement and unresolved items list as these are contained in other information sources. However, the listing is rather comprehensive of the types of situations and attitudes which prevail at the Midland Site as observed by the NRC inspector staff.

When considering the above listing of questionable licensee performance attributes, the most damning concept is the fact that the NRC inspection effort at Midland has been purely reactive in nature for approximately the last year, and that these indicators are what have been observed in approximately the last six months. If

these are the types of items that have become an NRC nuisance under a reactive inspection program, one can only wonder at what would be disclosed under a rigorous routine inspection and audit program.

Sincerely,

R. J. Cook

R. J. Cook
Senior Resident Inspector
Midland Site Resident Office

cc: W. D. Shafer
D. C. Boyd
R. N. Gardner
R. B. Landsman
B. L. Burgess

Enclosure 3

Attachment C.
(K-3)

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

August 18, 1982

MEMORANDUM FOR: Region III Files

FROM: Robert F. Warnick, Acting Director, Office of Special Cases

SUBJECT: MEETING BETWEEN NRR AND REGION III RE CONSUMERS POWER COMPANY PERFORMANCE AT MIDLAND (DN 50-329; 50-330)

On July 26, 1982, R. F. Warnick and James G. Keppler met with E. G. Case, D. G. Eisenhut, R. H. Vollmer, R. O. Tedesco, T. H. Novak, W. D. Paton, and J. Rutberg to discuss the performance of Consumers Power Company at the Midland site.

During the meeting reference was made to information contained in two memos from the RIII staff. The first memo dated June 21, 1982 is from C. E. Norelius and R. L. Spessard and concerns suggested changes for the Midland Project. The second memo dated July 23, 1982 is from R. J. Cook and concerns the licensee's performance at Midland. Copies of the memos are attached.

The meeting resulted in the following recommendations:

(1) Region III should obtain the results of the recent audit by KMC.

(2) Schedule a public meeting between NRC and CPC management in Midland, Michigan, to obtain licensee commitment to accomplish (3) and (4) below.

(3) The licensee should obtain an independent design review. (A vertical slice from design thru completion of construction.)

(4) The licensee should obtain an independent third party to continuously monitor the site QA implementation and provide periodic reports to the NRC. Region III is to provide a suggested outline for the continuous monitoring function.

Robert F Warnick
Robert F. Warnick, Acting Director
Office of Special Cases

Attachments: As stated

cc w/attachments: Meeting
participants

POS 11/4/82
RB

Attachment D
(K-4)

August 18, 1982

MEMORANDUM FOR: James G. Keppler, Regional Administrator

FROM: Robert F. Warnick, Acting Director, Office of Special Cases

SUBJECT: CONSUMERS POWER-MIDLAND (DN 50-329; 50-330)

When you created the Office of Special Cases and a special Midland Section staffed ith individuals assigned solely to that project, you indicated your concern with the Midland Project. You did this in spite of the favorable findings of the special team inspection conducted in May, 1981, and the favorable testimony you gave before the Atomic Safety and Licensing Board on July 13, 1981. You indicated your concern was based on the Systematic Assessment of Licensee Performante (SALP) report for the period July 1, 1980 to June 30, 1981, the inspection findings since those dates, and the memo of June 21, 1982, by C. E. Norelius and R. L. Spessard suggesting certain changes be made at the Midland Project (copy attached as Enclosure 1).

At my request R. J. Cook prepared a summary of indicators of questionable license performance at Midland. A copy of Cook's memo dated July 23, 1982 is attached as Enclosure 2.

Because of your expressed concerns, you and I met with representatives from NRR on J ly 26, 1982 to discuss Midland and Consumers Power Company (CPCo) performance. That meeting also resulted in recommended actions. A summary of the meeting is attached as Enclosure 3.

Following the meeting with NRR, I discussed the recommendations of that meeting with our Senior Resident Inspector, other members of the new Midland Section, and former Section and Branch Chiefs who are intimately familiar with Midland.

Later that week (July 30) I spent a day at the Midland site. I attended the exit meeting following Landsman's and Gardner's inspection, met with CPCo and Bechtel management to get acquainted with them, and toured the plant site.

On July 31, 1982, I expressed my opposition to the recommendations we had come u up with in the NRR meeting. My opposition was based on (1) opinions expressed by the Senior Resident Inspector, a Region III Branch Chief formerly responsible for the NRC inspection of Midland, and a Construction Section Chief who has been intimately associated with inspections of Midland regarding the proposed actions; (2) my visit to the site; and (3) the inability of Region III to articulate the problem(s) at Midland which the above referenced recommendations were supposed to solve. I indicated that we needed to better identify our concerns and the prescribe actions that would resolve these concerns.

OFFICE ▶	RIII	RIII	RIII	RIII
SURNAME ▶	Gardner	Landsman	Shafer/cg	Warnick
DATE ▶		RBK		

NRC FORM 318 (10-80) NRCM 0240 OFFICIAL RECORD COPY 1905 11/4/82

On August 3, 1982, members of the Midland Section met with you to discuss my opposition to the recommendations coming from the meeting with NRR. The pros and cons of the recommendations together with other alternatives were discussed. The meeting concluded with you agreeing to give the Section until August 11 to determine a better proposed course of action to resolve NRC concerns about Midland.

To this end the Midland Section met together on August 4 and again on August 5 following our public meeting with CPCo on the SALP II report. Several alternatives were discussed including stopping all work on one unit, have an independent third party monitor all past and current construction work, stopping work in selected areas, performing a construction appraisal team inspection, placing all site QC work under CPCo, and establishing an augmented NRC inspection effort.

Although some members of the Midland Section thought that stronger actions should be taken, all members of the Section agreed they could support an augmented NRC inspection effort coupled with other actions to strengthen the licensee's QC/QA organization and management. These recommended actions are attached as Enclosure 4.

It is recommended the proposed actions to improve the licensee's performance be discussed with NRR and then the licensee.

Robert F. Warnick, Acting Director
Office of Special Cases

Attachments: As stated

OFFICE ▶							
SURNAME ▶							
DATE ▶							

NRC FORM 318 (10-80) NRCM 0240 OFFICIAL RECORD COPY

Encl. 1

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

June 21, 1982

MEMORANDUM FOR: James G. Keppler, Regional Administrator

FROM: C. E. Norelius, Director, Division of Engineering and Technical Programs
R. L. Spessard, Director, Division of Project and Resident Programs

SUBJECT: SUGGESTED CHANGES FOR THE MIDLAND PROJECT

Historically, the Midland Project has had periods of questionable quality assurance as related to construction activities and has had commensurate regulatory attention in the form of special inspections, special meetings, and orders. These problems have been given higher public visibility than most other construction sites in Region III. As questions arise regarding the adequacy of construction or the assurance of adequate construction, we are faced with determining what regulatory action we should take. We are again faced with such a situation.

Current Problem

The current problem was caused by a major breakdown in the adequacy of soils work during the late 1970's. Because of the increased regulatory attention given the site, we expect that exceptional attention would be given to this activity and that licensee performance would be better than other sites or areas which have not had such significant problems and therefore have not attracted this level of regulatory attention. However, that does not appear to be the case and Midland seems to continually have more than its share of regulatory problems. The following are some of the specific items which are troublesome to the staff.

Technical Issues

1. In the remedial soils area, the licensee has conducted safety related activities in an inadequate manner in several instances - removal of dirt around safety related structures, pulling of electrical cable, drilling into safety related utilities.

2. In the electrical area, in trying to resolve a problem of the adequacy of selected QC inspectors' work conducted in 1980, the licensee completed only part of the reinspection even when problems were identified, and appears inclined to accept that 5% of electrical cables may be misrouted (their characterization of "misrouting" may imply greater significance than we would attach to similar findings).

3. In the pipe support area, in trying to resolve a problem of the adequacy of QC inspections conducted in 1980, the licensee has portrayed only a small percentage of defects of "characteristics" identified and has not addressed the findings in terms of a large percentage of snubbers which may be defective because of the characteristics within each snubber that may be defective (e.g., if only one characteristic was defective out of 50 reviewed on a single hanger, the percentage is small; but if the one defective characteristic makes the hanger defective the result would have a much greater significance level). The licensee had done a detailed statistical analysis in an attempt to show that the small percentage of characteristics were found rather than broadly approaching the problem with significant reinspections to determine whether or not construction was adequate.

Communications

Multiple misunderstandings, meetings, discussions, and communications seem to result in dealing with the Midland Project. Some examples are:

1. NRC staff attending a meeting in Washington on March 10, 1982, heard the Consumers Power Company staff say that electrical cable pulling related to soils remedial work was completed. It was determined to be ongoing the next day at the site.

2. When Region III attempted to issue a Confirmatory Action Letter, J. Cook informed W. Little of his understanding that both J. Keppler and H. Denton had agreed that the subject of the CAL was not a safety related item subject to NRC regulatory jurisdiction. Such agreements had not in fact occurred and following a meeting, Consumers Power Company issued their commitments in a letter to Region III.

3. In reviewing a licensee May 10, 1982 letter, responding to the Board Order, the NRR staff had an unsigned letter and Region III had a signed copy both dated the same date but differing in content.

4. Recently a Region III inspector in closing out and exiting from his inspection described the exit meeting as being the most hostile he had ever participated in.

5. The responses to any Region III enforcement letters issued to Midland are more lengthy and are argumentative than are any other responses from any other licensee in Region III. This point was made in the SALP response provided by Midland, and the SALP response in itself from Midland is an example of the type of response which we commonly receive from the site. The length of the response is at least as long as the initial SALP report.

6. Multiple requests for briefing meetings and other statements by the utility to the effect that we should review procedures in developmental stages imply that Midland wants the NRC to be a part of their construction program rather than having us perform our normal regulatory function.

Staff Observations

1. With regard to corrective actions of identified noncompliances, the Midland response seems to lean towards doing a partial job and then writing up a detailed study to explain why what they have done is sufficient rather than doing a more complete job and assuring 100% corrective action has occurred. In the detailed writeups that are prepared, it is the staff's view that the licensee does not always represent the significance properly, and the analyses and studies often raise more questions than they solve; thus time appears to have been wasted in writing an analysis rather than in fixing the problem.

2. Midland site appears to be overly conscious with regard to whether or not something is an item of noncompliance and spends a lot of effort on defending whether or not something should be noncompliance as opposed to focussing on the issue being identified and taking corrective action. This appears in part to be due to their sensitivity of what appears in the public record as official items of noncompliance. This sensitivity may have resulted from the extended public visibility which has attended construction of the facility. The staff's view is that the Midland site would look better from the public standpoint and be more defendable from NRC's standpoint, if they concentrated on fixing identified problems rather than arguing as to the validity of citations. This type of view was expressed by the utility during a recent effort to clarify in detail that certain construction items on the soils remedial work should not be subject to NRC's regulatory action.

3. The Midland project is one of the most complex and complicated ever undertaken within Region III. The reason is that they are building two units of the site simultaneously and additionally have an underpinning construction effort which in itself is probably the equivalent of building a third reactor site. The massive construction effort and the various stages of construction activity which are involved make the site extremely complicated to manage. This activity appears to cause a lot of pressure on the licensee management.

4. Mr. J. Cook, the Vice President responsible for the Midland site is an extremely capable and dynamic individual. However, these characteristics in conjunction with the complexity and immenseness of operation as set forth in 3, above, may actually be contributing to some of the confusion which seems to exist. The staff views that (1) he is too much involved in detail of plant operations and there are times when the working level staff appears to agree and be ready to take action where Mr. Cook may argue details as to the necessity for such action or may argue as to the specific meaning of detailed work procedures, (2) this kind of push may lead to such things as letters both signed and unsigned appearing in NRR and causing confusion, (3) this push may lead to some animosity at the licensee's staff level if NRC activities are looked on as slowing progress of construction at the site.

Recommendations

It appears essential that some action be taken by NRC to improve the regulatory performance of the Midland facility. The following specific suggestions are made.

1. The company must be made aware and have emphasized to them again that their focus should be on correcting identified problems in a complete and timely manner.

2. We should question whether or not it is possible to adequately manage a construction program which is as complex and diverse as that which currently exists at Midland. We would suggest specifically that the following activities be considered:

   a. That the licensee cut back work and dedicate their efforts to getting one of the units on line in conjunction with doing the soils remedial work.

   b. That they have a separate management group all the way to a possible new Vice President level, one of which would manage the construction of the reactor to get it operational and the second to look solely after the remedial soils and underpinning activities.

3. Consumers Power Company should develop a design and construction verification program by an independent contractor. This would provide an important additional measure of credibility to the design and construction adequacy of the Midland facility.

We would be happy to discuss this with you.

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

R. L. Spessard, Director
Division of Project and
Resident Programs

Encl. 2

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

July 23, 1982

MEMORANDUM FOR: R. F. Warnick, Director, Enforcement and Investigations Staff

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

SUBJECT: INDICATORS OF QUESTIONABLE LICENSEE PERFORMANCE - MIDLAND SITE

As per our conversation of July 21, 1982, the following is a list of those items that various inspectors consider to be indicative of questionable licensee performance:

1. One of the leading items is the over-inspection performed on electrical QC inspectors which was done in response to NRC concerns identified in the May 1981 team inspection. The licensee found weaknesses in the inspections performed by some electrical QC inspectors pertaining to not identifying the mis-routing of cables. This item culminated in an item of noncompliance. The licensee did not expand the overview activity to a degree necessary for an acceptable resolution to the identified weakness - even after a meeting in RIII. This item has not been resolved to the satisfaction of the NRC although our position has been clearly defined.

   As a partial response to the team inspection concern, the licensee presented the NRC with an audit report which would demonstrate a response to our concern of questionable electrical QC inspections. However, the audit report stated that it (the audit report) did not address the NRC concerns.

2. During the dialogue for the underpinning and remedial soils work, a large amount of emphasis has been placed on the settling data for the structures involved. During a meeting in HQ on March 10, 1982, the need for QC requirements on remedial soils instrumentation were explicitly delineated. However, one week later, the NRC inspectors found soils work instrumentation installation was started the day after the March 10, 1982 meeting without a QC/QA umbrella; that the licensee's QA Auditor and QA Engineering personnel were not approached pertaining to the need for QA coverage for this soils settlement instrumentation; that there were strong indications that the licensee had mislead the NRC in relating that the work was essentially complete when indeed it was not; and presently, the licensee management informs our inspector that items are ready for his review when in actuality they are not. Our conversations with licensee personnel - other than management - confirm that the items are not ready for review.

3. Historically, one of the NRC questions has been, "Who is running the job - Bechtel or Consumers?" The following example would allow one to believe it is Bechtel: As a part of the resolution to our findings in the soils settlement instrumentation installation, the NRC insisted that the licensee generate a Coordination/Installation Form to cover interface between different evolutions of instrumentation installation. The licensee would call our inspector for his concurrance on the adequacy of the form - the inspector would approve Consumers Power Company's form, but then would find out that Bechtel did not want to work to Consumer's form - the form that was generated to resolve regulatory concerns. This event has occurred twice and was considered as a deviation during a more recent inspection. The opinion of the staff is that if Consumers generates a form that will aid them in not incurring regulatory difficulty, and which has had NRC input, the licensee should demand that the contractor comply with these policies instead of the contractor dictating the regulatory environment under which they will work.

4. Deficiencies in material storage conditions has continually been a concern to the NRC and has resulted in items of noncompliance. To the inspectors, the ability to maintain quality storage is indicative of how rigorous or slipshod the constructor's attitude is towards construction. The licensee has attemted to entice the constructor to do better in maintaining the material storage conditions, but still the licensee's auditors and the NRC have negative findings in material storage conditions and negative discussions with the contractor about the validity of the finding.

5. At periodic intervals, the support of cables, particularly in the control room area, which are awaiting further routing or termination, has met with the disapproval of the NRC inspectors. These discrepancies also include cables without covered ends being on the floor in walk areas that are in a partially installed status. This is also another indicator of slipshod workmanship which has been brought to the constructor's attention at various times, but was last noted during a recent inspection.

6 In the area of instrumentation impulse line installation and marking, the licensee has had separability violations which has required removal of all installed impulse lines. Also, the NRC, because of this and significant adverse operational conditions, insisted that the installed impulse lines be identified. Although the licensee plans to mark the impulse lines, there was an inordinate amount of resistance to marking the lines - even though there had been instances of mis-matched channels because of identification confusion.

7. An example of reluctance in placing the responsibility for quality workmanship at the foreman and/or worker level has recently been identified. The NRC inspectors noted that some drop-in anchors were improperly installed and obviously did not adhere to the installation procedures. The licensee's attitude indicated this was not a valid finding because QC had not inspected the item. The NRC inspectors treat this as indicative that slipshod workmanship is tolerated in the hopes that QC will find the mistakes.

8. Late in 1981, the licensee decided to move the QA Site Superintendent into another position and cover this site function by sharing the site time between the QA Director and the QA Manager. After a January 1982 meeting with the NRC at RIII, the licensee opted to fill the QA Superintendent spot with another person. In the spring of the year, the NRC inspectors were following up on welding allegations and approached the QA Superintendent. The QA Superintendent was familiar with the alleged poor welding and had established what the NRC inspectors determined to be a responsive plan to resolve the questionable QC welding inspections. At the Exit Interview, the QA Director did not appear to back the QA Site Superintendent's proposed plan which had tacit NRC approval. The NRC inspector classified in writing and with just cause that the Exit Interview was the most hostile exit interview he had ever encountered.

9. During a recent inspection, it was noted by the NRC inspector that fill dirt was piled and being covered with a mud mat at a nominal 1:1½ horizontal to vertical slope when the specification called for a 1½:1 horizontal to vertical slope. A constructor Field Engineer witnessed the wrong slope being installed and justified and defended the slope after being informed of the specification requirement. This is another example of the constructor having an attitude which precludes quality workmanship.

10. At different times, NRC inspectors have experienced difficulty in getting information which is controlled by the contractor, such as supporting calculations and qualifying information to justify a given installation. A recent example is: the NRC inspector informed the licensee and the contractor he wanted to see resumes of persons involved in the remedial soils work. There is an obligation to the NRC to supply a precise number of "qualified" persons on the soils work. The inspector was informed he could not get these records as they were personal. The inspector ultimately did get the information after bringing it to the attention of licensee upper management. However, this indicates an implied unwillingness of the constructor to share information with the NRC and sometimes with the licensee.

11. The licensee oftentimes does not demonstrate a "heads up" approach to their activities. The following are examples of the licensee operating in an environment using tunnel vision - "blinders".

    a) During a recent NRC inspection, the inspector challenged the ability to maintain the proper mix ratio on high pressure grout. This was done after the inspector noted that the operator could never maintain the proper mix ratio without continual manual control - which was not available when the grout is applied. The licensee's apathetic attitude did not allow them to stop the grout application until the next day when this became an issue at the exit interview.

    b) At one point in time, the company doing drilling on site for the remedial soils work cut into a safety related duct bank between the diesel generator building and the service water building. The Consumers Power Site Manager's Office (the production people) stopped work because - from a quality standpoint conditions were so deplorable. However, the Site Manager's Office did not have responsibility in this area - the Midland Project QA Department had this responsibility and did not invoke their authority to prevent the drilling work from getting out of control - or to bring it back into control.

    c) The NRC inspector recently witnessed the licensee setting up to drill a well hole in safety related dirt using a technique which was not authorized. If the inspector had not brought this to the licensee's attention, the licensee would have violated an Order addressing remedial soils work and also the Construction Permit. When the licensee was queried as to the availability of the QC/QA personnel who would prevent such activity from happening, the NRC inspector was informed that this was (another) misunderstanding.

    The NRC inspectors have been informed by our contacts on site that there are memoes written to the effect that "peripheral vision" should be curtailed and communication with the NRC stiffled. The NRC has not read these memoes yet - but plans to in the near future, provided they really exist and infer what we have been informed.

12. The licensee seems to possess the unique ability to search all factions of the NRC until they have found one that is sympathetic to their point of view - irregardless of the impact on plant integrity. Some examples of this are:

    a) The NRC soils inspector informs the licensee that soils stabilization grout comes under the Q program. The licensee is not particularly happy with this position. Unknown to the inspector, the licensee argues his point with NRR to have the grout non-Q - using only those arguments which support his (the licensee's) position. The licensee

has the advantage of the NRC inspector's technical and regulatory basis for supporting his (the inspector's) position, and therefore avoids mention of this during the discussions with NRR. However, the licensee's QA program, which has already been approved by NRR, states that all the remedial soils work is Q unless RIII approves a relaxation on a case by case basis. It appears the licensee does not wish to acknowledge the prior agreements with the NRC.

b) Since the failure of auxiliary feedwater headers in B&W steam generators, discussions have transpired between the NRC inspectors and the site personnel. These discussions have indicated that the licensee was maintaining a conservative approach and were entertaining the concerns expressed by the NRC which were stimulated primarily by gross mistakes in attempting the modification at operating B&W plants. The licensee's corporate personnel were annoyed that the NRC inspectors would not give approval to start the modification until all the preparatory work had been accomplished as this would tend to impact the schedule and the modification to the steam generators could become a scheduling nuisance. The licensee corporate personnel contacted the NRC inspectors involved to "reason with them". However, the corporate personnel, (including a representative from B&W) were unable to answer the concerns of the NRC inspectors but did mention that the NRR Operational Project Manager indicated that it was alright to proceed with the modification. The licensee corporate personnel could not state what the position of the NRR Construction Project Manager was on this issue - only that they had found some form of approval from someone in the NRC.

c) At times, when Immediate Action Letters or other forms of escalated enforcement become imminent, the licensee attempts to "appeal" their case with individuals in the regional management who are removed from the particulars of the tentative enforcement action. The licensee attempts to get these persons to agree to specific portions of the issue which would indicate that the licensee is "really not all that bad". However, the "real" issues, as identified by the NRC inspectors are being masked.

d) During inspections of the remedial soils work, the NRC inspector has been informed by the licensee that certain findings and areas of inspection were not within the purview of his (the inspector's) inspection program because they were in essence considered non-Q and that by virtue of prior agreement with the Regional Administrator were excluded from enforcement action. However, the NRC inspectors would subsequently find that there was no such agreement between the Regional Administrator and the licensee - only a philosophical discussion as to what, in general terms, constituted an item of noncompliance.

The above indicators support the reputation the licensee has for being argumentative. Their apparent inability to accept an NRC position without diligently searching to find a "softened" position results in numerous hours of frustrated conversations between all parties involved to resubstantiate (usually the original position) a position based on technical and regulatory prudency.

13. The licensee has been classified publicly by the NRC as being argumentative. The licensee continues to exhibit this trend, as evidenced by the following examples:

    a) Essentially every item of noncompliance receives an argumentative answer which addresses only the specificity of the item of noncompliance and selectively avoids any concept which would support the essence for the item of noncompliance. For example - in the instance of the improperly installed drop-in anchor mentioned above, it was the fact that QC had not inspected the installation of the bolt which was important to the licensee. However, the real enforcement issue was that components were being improperly installed.

    b) The Cycle II SALP made critical evaluations of the licensee's performance in several areas. The licensee's response to this SALP report was argumentative over specific details and did not seem to acknowledge that the consensus of opinion of the NRC inspection staff was that there were areas where the licensee's performance was weak. The licensee's argumentative position is in the form of "we really are not all that bad" when the records, findings and observations of the NRC inspectors support just the opposite position.

    c) The "Q-ness" of the remedial soils work has continually been an argumentative topic of discussion which ultimately resulted in a HQ meeting on March 10, 1982. At this meeting, the "Q-ness" of the remedial soils work was specified and later documented with the meeting minutes. However, the licensee did not wish to abide by this position and a subsequent meeting was held in RIII to further clarify the NRC position. Still, the topic of "Q-ness" is being argued by the licensee, even though the ASLB has issued an Order further defining the "Q-ness" of the soils work. It might be noted that a hearing is in process over this soils issue and the NRC's position on "Q-ness" has been expressed during these testimonies.

14. During a recent episode, the licensee wanted to continue excavation of soils in proximity to the Feedwater Isolation Valve Pit (FIVP). However, the licensee wanted to perform this evolution without determining that the temporary supports of the FIVP were adequate. Making this determination would have an impact on scheduling, as stated by the licensee. The FIVP supports were installed without a Q umbrella and subsequent inspections did reveal several discrepancies in the installation of the support structure.

15. During the limited remedial soils work which has transpired, the licensee has managed to penetrate Q-electrical duct banks, a condenser header drain line, an abandoned sewer line, a non-Q electrical duct bank and a 72-inch circulating water line. All of these occurances have happened because of a lack of control and attention to details. Whenever approached by the NRC as to the adequacy of review prior to attempting to drill, the NRC receives responses which strongly suggest that the time was not taken to perform these reviews - perhaps taking this time would impact on the schedule.

16. By virtue of an earlier ALAB Order, the licensee is required to perform trend analyses for nonconforming conditions. These trend analyses have, in the past, masked the data such that obvious trends are not obvious and has resulted in negative findings by the NRC. This was addressed in one of the earlier SALP meetings. Recently, while performing a review of hanger welding data, the NRC inspector found that the statistical data had been diluted to the point that the number of unsatisfactory hangers could not be determined from the trend analyses or the type and degree of non-conforming conditions which were being identified pertinent to the hanger fabrication.

17. The licensee continually would use the NRC staff as consultants and classifies a regulatory and enforcement position as counter productive. This is reflected by the licensee not wishing to perform Q-work without obtaining NRC prior approval and then addressing only those areas where the NRC has voiced a regulatory concern - provided it is convenient to the licensee. This attitude has particularly prevailed in the remedial soils issue and to a lesser degree in the electrical installation areas. The preferred NRC inspector mode would be for the licensee to generate his program to establish quality and then the NRC would approve or disapprove. However, the licensee requires consultation with the NRC to establish his level of quality requirements.

The above is not intended to be a complete list of <u>all</u> discrepancies which indicate questionable licensee performance as this would require a more extensive review of the records and inspection personnel involved than time permits. Also, there has been no attempt to systematically document the enforcement and unresolved items list as these are contained in other information sources. However, the listing is rather comprehensive of the types of situations and attitudes which prevail at the Midland Site as observed by the NRC inspector staff.

When considering the above listing of questionable licensee performance attributes, the most damning concept is the fact that the NRC inspection effort at Midland has been purely reactive in nature for approximately the last year, and that these indicators are what have been observed in approximately the last six months. If

these are the types of items that have become an NRC nuisance under a reactive inspection program, one can only wonder at what would be disclosed under a rigorous routine inspection and audit program.

Sincerely,

R. J. Cook

R. J. Cook
Senior Resident Inspector
Midland Site Resident Office

cc: W. D. Shafer
D. C. Boyd
R. N. Gardner
R. B. Landsman
B. L. Burgess

Enclosure 3

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

August 18, 1982

MEMORANDUM FOR: Region III Files

FROM: Robert F. Warnick, Acting Director, Office of Special Cases

SUBJECT: MEETING BETWEEN NRR AND REGION III RE CONSUMERS POWER COMPANY PERFORMANCE AT MIDLAND (DN 50-329; 50-330)

On July 26, 1982, R. F. Warnick and James G. Keppler met with E. G. Case, D. G. Eisenhut, R. H. Vollmer, R. O. Tedesco, T. H. Novak, W. D. Paton, and J. Rutberg to discuss the performance of Consumers Power Company at the Midland site.

During the meeting reference was made to information contained in two memos from the RIII staff. The first memo dated June 21, 1982 is from C. E. Norelius and R. L. Spessard and concerns suggested changes for the Midland Project. The second memo dated July 23, 1982 is from R. J. Cook and concerns the licensee's performance at Midland. Copies of the memos are attached.

The meeting resulted in the following recommendations:

(1) Region III should obtain the results of the recent audit by KMC.

(2) Schedule a public meeting between NRC and CPC management in Midland, Michigan, to obtain licensee commitment to accomplish (3) and (4) below.

(3) The licensee should obtain an independent design review. (A vertical slice from design thru completion of construction.)

(4) The licensee should obtain an independent third party to continuously monitor the site QA implementation and provide periodic reports to the NRC. Region III is to provide a suggested outline for the continuous monitoring function.

Robert F Warnick

Robert F. Warnick, Acting Director
Office of Special Cases

Attachments: As stated

cc w/attachments: Meeting
participants

Enclosure 4

"MIDLAND-ACTIONS RECOMMENDED BY THE MIDLAND SECTION, OFFICE OF SPECIAL CASES"

1. Establish an augmented inspection effort by the NRC.

   a. Inspections should be concentrated in the following ten areas:

      (1) Soils
      (2) Electrical
      (3) I&C
      (4) High Pressure Piping
      (5) Hangers and Supports
      (6) Corrective Action System - including identification documentation, resolution, and prevention of future events.
      (7) Receipt, Storage, and Handling
      (8) Structural Steel
      (9) Subcontractor Welder Qualification
      (10) Management Overview System

   b. The effort as initially conceived will last from 6 to 12 months but it could last longer.

   c. It is proposed that the inspections be performed by the Midland Section and 5 contract inspectors assigned fulltime to the Midland Section and located onsite. The Midland Section would be as follows:

      (1) W. D. Shafer, Chief, Midland Section
      (2) R. N. Gardner, Project Manager
      (3) R. B. Landsman, Inspector
      (4) R. J. Cook, Senior Resident Inspector
      (5) B. L. Burgess, Resident Inspector
      (6) Welding & NDT-Contracted
      (7) Mechanical-Contracted
      (8) Electrical-Contracted
      (9) I & C - Contracted
      (10) Startup & Test-Contracted
      (11) Secretary (Fulltime)

2. Require the licensee to have an independent third party look at a vertical slice of a safety-related system from design through completion of construction.

3. Require that all QC inspectors be independent of Bechtel, reporting only to CPCo.

4. Conduct NRC exits with Construction Manager.

5. NRC should get commitments in writing and should give release on hold points in writing.

6. It is proposed that Mr. Keppler and Mr. Denton meet with Consumers Power Company and Bechtel top management to ensure that steps are taken to correct the following:

a. The Site QA Superintendent is not being given the latitude and senior management support needed to perform his job effectively.

b. Senior management is not being made aware of or is not dealing with QA problems.

c. We are convinced that Bechtel has cost and scheduling as their foremost consideration. Quality is taking a back-seat with management.

Attachment E
(K-5)

Consumers Power Company

James W Cook
Vice President - Projects, Engineering and Construction

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

September 17, 1982

PRINCIPAL STAFF

✓			
			✓
OL		FILE	

Encl 3

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

James G Keppler
Regional Administrator
US Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND NUCLEAR COGENERATION PLANT
MIDLAND DOCKET NOS 50-329, 50-330
QUALITY ASSURANCE PROGRAM IMPLEMENTATION
FILE: 0485.16 SERIAL: 18850

REFERENCE: CPCo Letter Serial 18845, 9/17/82, "Quality Assurance Program Implementation for Soils Remedial Work"

The referenced letter summarized Consumers Power Company's discussions with the NRC management regarding the implementation of the Quality Assurance Program for the Midland soils remedial work. In addition to the discussions specifically related to soils, the total Midland Quality Assurance Program implementation was reviewed and areas were identified where additional efforts should be directed to insure successful overall project implementation and the performance of the primary inspection function (QC) on site. In response to these concerns Consumers Power made two significant new commitments which are conceptually described in the following paragraphs. Additional documentation will be provided as the details of these commitments are worked out.

Quality Control Function

In order to improve the performance of the Quality Control function and to make it more responsive to direction from the Quality Assurance organization, the responsibility for directing the entire Quality Control function will be assumed by Consumers Power. The Quality Control group will functionally report to MPQAD. The programmatic aspects now in place will continue to be used and the combined inspection resources of both Bechtel and CPCo will be integrated. This reorganization will be fully implemented as soon as the appropriate procedural changes are finalized. The integration of the QC resources for soils into MPQAD has already been accomplished as a separate action.

oc0982-4024a-66-100

SEP 22 1982

NOS 11/4/82

Independent Verification - Total Project

Consumers Power proposes a new and expanded approach for verifying the overall quality of the project. This approach will give a broader overview than the assessments currently being recommended by the NRC for other NTOL plants. The assessment which is suggested for Midland is to combine an INPO type construction project evaluation, which is a broad "horizontal" type review of many aspects of current project operations with the detailed "vertical slice" review of all aspects, current and historical of a critical plant system or subsystem. The entire review will be performed by one or more independent contractors who are currently being selected. With the assistance of the selected contractors, the detailed plans for this extensive independent assessment will be finalized and presented to NRC management shortly for their concurrence prior to initiating the major work activities.

The INPO portion of the program will be initiated immediately at least through the planning phase to comply with the INPO schedule and industry commitments to the NRC. The INPO construction program evaluation for Midland will differ from the majority of the industry's self-initiated evaluations in that an independent contractor rather than utility personnel will carry out the INPO evaluation. The results will then be overviewed by the INPO staff to assure adequacy and consistency with other evaluations.

Additional Assessment Programs

In addition to the above, Consumers Power has proposed to retain a qualified third party for an assessment of the underpinning activities as detailed in the referenced letter.

Consumers Power Company has also initiated other appraisals to assess the adequacy of the Quality Assurance Program. Two major recent examples of this practice that have occured are as follows.

In 1981, Management Analysis Company (MAC) conducted an assessment which focused on performance in three major areas as follows:

1. Adequacy and timeliness of both part and process corrective actions taken on a sample of the historical hardware problems that have been identified at Midland over its lifetime.

2. The degree to which the physical characteristics of selected supplied components and parts meet their respective quality requirements.

3. The overall adequacy of the Quality Assurance Program with particular emphasis in corrective actions, effectiveness of the supplier documentation review efforts and personnel qualifications.

This assessment has been completed, the results were positive and all open items have been resolved and closed. The final report has been previously submitted to the NRC.

A Bechtel Corporate Staff project evaluation was initiated in April 1982. A report on the results of this assessment is being finalized at this time. The

purpose of this evaluation was to review the Midland engineering activities to determine if design criteria have been implemented and if the design assumptions, design methods, and the design processes are satisfactory. Bechtel Corporate Management was asked to initiate this assessment in order to certify that the Midland project met all the standards expected of any Bechtel project. To carry out this assignment the assessment team was specifically chosen to be independent from the Bechtel Ann Arbor Power Division. The team consisted of senior experienced personnel with appropriate expertise having previously performed similar work on other projects. A Consumers Power representative was a direct participant on the assessment team. The final report will be sent to the NRC upon completion and whatever other documentation or discussion as may be requested will be provided.

Conclusion

Based on the discussion outlined above and in the reference letter, Consumers Power believes that steps have been taken to insure both the successful implementation of the remaining work to complete the plant and a verification program, including quality records, test program results, and third party assessments, that will certify the adequacy of the plant as constructed.

James W. Cook

JWC/JAM/bjw

oc0982-4024a-66-164

CC Atomic Safety and Licensing Appeal Board
CBechhoefer, ASLB
MMCherry, Esq
FPCowan, ASLB
RJCook, Midland Resident Inspector
RSDecker, ASLB
SGadler
JHarbour, ASLB
GHarstead, Harstead Engineering
DSHood, NRC (2)
DFJudd, B&W
JDKane, NRC
FJKelley, Esq
RBLandsman, NRC Region III
WHMarshall
JPMatra, Naval Surface Weapons Center
WOtto, Army Corps of Engineers
WDPatton, Esq
SJPoulos, Geotechnical Engineers
FRinaldi, NRC
HSingh, Army Corps of Engineers
BStamiris

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

Letter Serial 18850 Dated September 17, 1982

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits information regarding the implementation of the Consumers Power Company Quality Program for the Midland Plant.

CONSUMERS POWER COMPANY

By J W Cook
J W Cook, Vice President
Projects, Engineering and Construction

Sworn and subscribed before me this ___ day of _____.

_____
Notary Public
Bay County, Michigan

My Commission Expires _____

mi0982-0000a100-164

Attachment 2
(K-6)

Consumers Power Company

James W Cook
Vice President - Projects, Engineering and Construction

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

September 17, 1982

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

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

MIDLAND NUCLEAR COGENERATION PLANT
MIDLAND DOCKET NOS 50-329, 50-330
QUALITY ASSURANCE PROGRAM IMPLEMENTATION FOR SOILS REMEDIAL WORK
FILE: 0485.16 SERIAL: 18845

This letter summarizes recent discussions with NRC management regarding implementation of soils remedial construction and presents the Company's documentation of those discussions.

BACKGROUND

The 1980/1981 SALP Report, presented to Consumers in late April of this year, indicated that activities in the soils area should receive more inspection effort on the part of both the NRC and CP Co. Follow-up discussions with the NRR staff and Region III Inspectors led to the conclusion that the Quality Assurance Program and its definition was adequate; however, there was concern that certain aspects were not being or might not be satisfactorily implemented.

Consumers Power has performed an in-depth review of the implementation plans for the Midland soils work activities. This review included the areas of design and construction requirements and plans, organization and personnel, project controls and management involvement. The results of this review and the proposed steps to assure the successful implementation of all aspects of the work were discussed with the NRC management in a meeting held in Chicago on September 2, 1982.

oc0982-0232a100-164

NOS 4/4/82

STEPS TO IMPROVE IMPLEMENTATION

A number of new steps have or are being taken by Consumers Power Co to enhance the implementation of the quality program with regard to the soils remedial work. These measures touch upon all aspects of the work, from design to post-construction verification and include the following:

(1) Retaining a third party to independently assess the implementation of the auxiliary building underpinning work;

(2) Integrating the soils QA and QC functions under the direction of MPQAD;

(3) Creating a "Soils" project organization with dedicated employees and single-point accountability to accomplish all work covered by the ASLB order;

(4) Establishing new and upgraded training activities, including a special quality indoctrination program, specific training in underpinning activities, and the use of a mock-up test pit for underpinning construction training;

(5) Developing a quality improvement program (QIP), specifically for soils remedial work;

(6) Increasing senior management involvement in the soils remedial project through weekly, on-site management meetings wherein both work progress and quality activities are reviewed;

(7) Improving systems for tracking of and accounting for design commitments.

What follows is a description of the soils implementation plan, as it will be carried out using the new approaches outlined above, together with other specific aspects which we believe will be criticial to the successful performance of the job. The discussion is limited to the implementation features specific to soils, is divided into areas roughly describing the progression of the job from design to completion and ends with a description of organizations, management involvement and NRC overview.

DESIGN ADEQUACY AND IMPLEMENTATION

The design for the required remedial activities is in an advanced state; design details and adequacy have been reviewed by numerous organizations. A special ACRS Subcommittee reviewed the soils activities and commented favorably on the thoroughness and conservatism of the review and remedial approaches. Numerous submittals to the NRC have been presented to clarify the design intent. It is our understanding that the Staff is completing its detailed review of all design aspects and is in the process of issuing an SSER. This advanced state of design has permitted the early development of a thorough planning effort and assisted in the organization and development of a detailed training effort. Following-up on design activities, the Project has assigned to the site a design team comprised of experienced structural and geotechnical engineers under the Resident Engineer. This team will monitor

and review the field implementation as specified in design documents, resolve on a timely basis routine construction questions requiring engineering response and administer the specific contingency plans immediately if any problem should arise during the underpinning work. Additional engineering resources for the soils work will continue to be located in Ann Arbor.

IMPLEMENTATION OF DESIGN FEATURES AND COMMITMENTS

All soils activities covered by the ASLB Order of April 30, 1982 are covered under soils-specific QA plans. These plans require that appropriate procedures are in place to accomplish the work in a quality manner and that detailed inspection plans be developed and utilized. Additionally, a Work Authorization Procedure and Work Permit System insure that the NRC and CP Co have specifically authorized and released the work. Under this system, the NRC reviews proposed work details, asks for additional information when necessary and authorizes construction activities in advance. CPCo then authorizes the work to proceed.

To further assure that commitments made to the NRC are properly accounted for in design documents, Consumers Power and Bechtel review the written records of commitments and insure that they are being incorporated into design documents. The Project is currently undertaking an additional review of past correspondence to create a computer listing of commitments. This computer list will be periodically reviewed to insure that commitments are incorporated in design or construction documents in a timely fashion.

PERFORMANCE OF PROJECT CONSTRUCTION, QUALITY ASSURANCE AND QUALITY CONTROL ACTIVITIES

To assure that project construction, quality assurance and quality control personnel correctly carry out their appointed tasks, a number of measures have been taken, including a reorganization of quality control, upgraded training programs, direct Company involvement in construction scheduling and control, and utilization of a contract format to minimize any cutting of corners by contractors. These elements of enhanced performance are described more specifically below.

First, the project has reorganized the Soils QA-QC effort, creating an integrated organization with single-point quality accountability under the MPQAD. This new organization is expected to improve QC performance, increase CPCo involvement in the management of the quality control function and improve QA-QC interfaces.

Second, extensive training programs for the soils underpinning work have been developed. This overall training program, which includes the major Construction and Quality organizations involved in soils work, covers both general training in quality and specific training relative to the construction procedures.

The majority of the personnel associated with Remedial Soils work have attended a special Quality Assurance Indoctrination Session. The QA indoctrination has been provided to Bechtel Remedial Soils Group, CPCo

Construction, QC, QA, Mergentime and Spencer, White and Prentis (SW&P) personnel down to the craft foreman level. This training consists of one three-hour session covering Federal Nuclear Regulations, the NRC, Quality Programs in general and the Remedial Soils Quality Plan in detail.

With regard to the work procedures, a requirement on both Mergentime and SW&P is that specific training on the procedures be provided prior to initiating any quality related construction activity. The identification of individuals to receive this training is spelled out in each procedure pertaining to a specific construction activity. Completion of the specific training requirements is a QA hold point which must be satisfied before work can proceed.

In further recognition of the importance of training to the underpinning work, the Company is utilizing a mock-up test pit as part of its training program for underpinning construction. The purpose of this test pit is to provide specific training in the construction of a pier, bell and grillage assembly from initial issuance of design drawings through completion of construction. This allows supervisory and craft personnel to perform work under the conditions, requirements and restraints which will be encountered when the actual underpinning starts. It also allows the various quality organizations to inspect the work and insure that their concerns and requirements are properly reflected in the procedures.

Third, to further enhance the performance of key project organizations, Consumers Power will maintain control over scheduling, both through the construction authorization process and by frequent meetings with the involved contractors and subcontractors. Each week, underpinning subcontractors will present proposed construction work to the Company. In addition, to assure the best quality work, the major subcontracts were entered into on a time-material basis. This should improve subcontractor attention to detail and acceptance of owner direction in the performance of specific construction activities.

Last, the Company is establishing a separate Quality Improvement Program (QIP) for the soils project. Although not part of the formal Quality Assurance program, the QIP is a management system that should be helpful in communicating and reinforcing project policies and expectations to all project participants. To launch this effort, an indoctrination program will be presented to all individuals, stressing the absolutes of Quality and the concept of "Doing it right the first time." Measurements specific to soils will be developed for those critical areas which are indicative of a "quality product". Tracking these activities will provide an indication of the effectiveness of the program. The QIP will provide mechanisms for individual "feedback" from all individuals involved, including the craft personnel.

INDEPENDENT ASSESSMENT

A third party will be retained to independently appraise the initial phases of the construction of the auxiliary building underpinning. This consultant will be mobilized as soon as possible and, after familiarizing itself with the design, will evaluate the auxiliary building underpinning construction work at

the site. If significant problems or adverse trends are observed, the third party assessment program will be extended in both scope and duration until a satisfactory conclusion can be drawn. The initial evaluation will be carried out over a three-month period.

The independent assessment will be conducted by a team of nuclear plant construction and quality assurance experts. This team will be supplemented by the additon of an underpinning consultant who will review the soils design documents, construction plans and construction itself to assure not only that the design intent is being implemented but also that the construction is consistent with industry standards. The assessment will further assure that the QA Program is being implemented satisfactorily and that the construction is being implemented in accordance with the construction documents. Arrangements are being made with Stone and Webster Engineering Corp to assume the lead role in this appraisal. They will be assisted by Parsons, Brinkerhoff, Quade and Douglas, Inc who will provide underpinning expertise. The NRC will be apprised of all findings of this independent assessment in a timely manner.

ORGANIZATION, MANAGEMENT INVOLVEMENT AND NRC OVERVIEW

The project organization formed for the performance of the soils remedial work incorporates single-point accountability, dedicated personnel to the extent practical, minimum interfaces-particularly at the working level, and a quality organization integrating QA and QC. The soils project organization is tailored to the task at hand. The entire organization, including quality assurance and quality control are staffed with well qualified, experienced personnel, augmented by design consultants and construction subcontractors nationally recognized in the underpinning field.

The soils remedial effort will also include a high level of senior management involvement. Project senior management will conduct weekly in-depth reviews on site of all aspects of the work including quality and implementation of commitments. In addition, the reporting chains to the senior project personnel have been shortened. The Company's CEO is briefed on a regular basis and schedules bi-monthly briefings on all aspects of the project including soils. During the bi-monthly briefings, the CEO normally tours the Midland site.

Complementing the CPCo management role, NRC Region Management overview of the construction process will be enhanced by monthly meetings, agreed upon by the Region, to overview the results of the quality program and the progress of the soils project. These meetings will cover any or all aspects of the project of general or special interest to the NRC management.

CONCLUSION

Based on the discussion outlined above, CP Co believes that the soils program has been thoroughly and critically evaluated and that all prerequisites for successful implementation have been or are being accomplished. The Company's program, with the initial overview from the independent implementation assessment, and the continuing overview by the NRC staff and management should

provide adequate assurance that the remedial soils activities will be successfully completed.

James W. Cook

JWC/JAM/bjw

CC Atomic Safety and Licensing Appeal Board
CBechhoefer, ASLB
MMCherry, Esq
FPCowan, ASLB
RJCook, Midland Resident Inspector
RSDecker, ASLB
SGadler
JHarbour, ASLB
GHarstead, Harstead Engineering
DSHood, NRC (2)
DFJudd, B&W
JDKane, NRC
FJKelley, Esq
RBLandsman, NRC Region III
WHMarshall
JPMatra, Naval Surface Weapons Center
WOtto, Army Corps of Engineers
WDPatton, Esq
SJPoulos, Geotechnical Engineers
FRinaldi, NRC
HSingh, Army Corps of Engineers
BStamiris

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

Letter Serial 18845 Dated September 17, 1982

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits information regarding the implementation of the Consumers Power Company Quality Program for the Midland Plant soils remedial work.

CONSUMERS POWER COMPANY

By J W Cook
J W Cook, Vice President
Projects, Engineering and Construction

Sworn and subscribed before me this 17th day of Sept 1982.

Patricia A Fuller
Notary Public
Bay County, Michigan

My Commission Expires 5-4-86

mi0982-0000b100-164

Attachment 6
(K-8)

Consumers Power Company

James W Cook
Vice President - Projects, Engineering and Construction

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

October 5, 1982

PRINCIPAL STAFF			
PA		OL	
D/RA		ENF	
A/RA		EP	3
DD&PP		PAO	
[illegible]		SLO	
[illegible]			
ML			
DL		FILE	nas

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

J G Keppler
Administration, Region III
US Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND NUCLEAR COGENERATION PLANT
MIDLAND DOCKET NOS 50-329, 50-330
MIDLAND PLANT INDEPENDENT REVIEW PROGRAM
FILE: 0485.16 SERIAL: 18879

REFERENCES: (1) R L TEDESCO LETTER TO J W COOK DATED JULY 9, 1982.
(2) J W COOK LETTER TO H R DENTON, SERIAL 18850 DATED SEPTEMBER 17, 1982.

ENCLOSURES: (1) MIDLAND PLANT INDEPENDENT REVIEW PROGRAM
(2) PERFORMANCE OBJECTIVES AND CRITERIA FOR CONSTRUCTION PROJECT EVALUATION INPO, SEPTEMBER 1982

The ACRS interim report on the Midland Plant, dated June 8, 1982, contained a recommendation for a broader assessment of Midland's design adequacy and construction quality. In its correspondence of July 9, 1982, which is Reference 1 above, the NRC endorsed this ACRS recommendation and requested our proposal for performing an independent design adequacy review.

We briefly outlined several assessment activities for the Midland Project in our correspondence of September 17, 1982, identified above as Reference 2. Additional details of the program referred to in Reference 2 are enclosed for the NRC's review.

We have contacted our NRC Project Manager, Darl Hood, to arrange a meeting with the NRC Staff to discuss our Independent Review Program and to receive your concurrence or redirection of our plans. We will complete the planning phase, including team orientation and training, for the INPO program by

NOS 11/4/82 OCT 7 1982

October 29, 1982. We wish to initiate the implementation phase of the INPO program by November 8, 1982, in order to support our own and industry commitments to NRC.

James W. Cook

JWC/GSK/RLT/bjw

CC Atomic Safety and Licensing Appeal Board, w/a 1
CBechhoefer, ASLB, w/a 1
MMCherry, Esq, w/a 1
FPCowan, ASLB, w/a 1
RJCook, Midland Resident Inspector, w/a 1 & 2
RSDecker, ASLB, w/a 1
SGadler, Esq, w/a 1
JHarbour, ASLB, w/a 1
GHarstead, Harstead Engineering, w/a 1
DSHood, NRC, w/a 1 & 2 (2)
FJKelley, Esq, w/a 1
WHMarshall, w/a 1
WDPatton, Esq, w/a 1
WDShafer, NRC, w/a 1 & 2
BStamiris, w/a 1
MSinclair, w/a 1
LLBishop, Esq, w/a 1

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

Letter Serial 18879 Dated October 5, 1982

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits Midland Plant Independent Review Program.

CONSUMERS POWER COMPANY

By J W Cook
J W Cook, Vice President
Projects, Engineering and Construction

Sworn and subscribed before me this 5 day of Oct, 1982.

Barbara R Townsend
Notary Public
Jackson County, Michigan

My Commission Expires September 8, 1984

oc0982-0249a100

MIDLAND PLANT INDEPENDENT REVIEW

1. INTRODUCTION & SUMMARY
2. BIENNIAL QUALITY AUDITS
3. INPO CONSTRUCTION EVALUATION
4. INDEPENDENT DESIGN VERIFICATION
5. APPENDIX: PREVIOUS ASSESSMENTS

1. INTRODUCTION AND SUMMARY

The ACRS report dated June 8, 1982 on Midland Units 1 and 2 stated that "the NRC should arrange for a broader assessment of Midland's design adequacy and construction quality with emphasis on installed electrical, control, and mechanical equipment as well as piping and foundations."

On July 9, 1982, the Staff issued a letter to Consumers Power Company requesting a report on Midland Design Adequacy and Construction Quality. In this letter, the Staff stated that "With respect to assessment of Midland's design adequacy, such assessment would represent a significant contribution to the licensing review process if performed by a qualified, independent source following procedures utilized by some operating plants for Independent Design Verifications."

On September 17, 1982, the Company issued a letter to Mr Harold R Denton and Mr J G Keppler outlining the approach Consumers Power Company proposed for an Independent Review of the Midland Project and indicated that there had also been a Bechtel Corporate Staff project evaluation performed (described in more detail in attached appendix). It was stated that Consumers Power Company believes that the approach we are proposing for the forthcoming Independent Review will give a broader overview than assessments currently being recommended by the NRC for other NTOL plants.

The overall Independent Review Program described herein consists of three specific evaluations combined into a single program. The INPO type construction evaluation (horizontal type review), will examine the current

overall project against the criteria developed by INPO for this program (a copy of the INPO Performance Objectives and Criteria for Construction Project Evaluations is attached). As indicated in the September 17, 1982 letter to Mr Denton and Mr Keppler, the INPO program for Midland will be different from most of industry's self-initiated evaluations in that an independent contractor rather than utility personnel will carry out the INPO evaluation. The second part of the Program described is the Biennial QA Audit which has been a requirement of the Company's QA Program for several years. The third part of the Program described in more detail is the Independent Design Verification (Vertical slice) of all aspects, historical and current, of a critical plant system or subsystem.

Consumers Power Company received proposals from several potential contractors to perform the complete program described above. With respect to the INPO type construction evaluation and Biennial QA Audit, we have selected Management Analysis Company (MAC) to perform these activities based on our evaluation of their technical capabilities and experience.

MAC has many years of experience in the Nuclear Industry and has performed Biennial QA Audits in addition to other type reviews of Company activities. MAC has previously consulted extensively at nuclear construction sites with identifed QA problems. MAC was also a major participant in the development and implementation of the Palisades Regulatory Performance Improvement Program which has resulted in significant improvement to date at that facility. A description of other MAC assessments of Midland activities is included in the Appendix to this document.

The MAC Team will be under the direction of Mr L J Kube who has over 20 years experience in project management, engineering management, marketing, planning/scheduling, and design engineering having been employed by General Atomic and A O Smith Corporation prior to his employment with MAC. Mr Kube has been involved in the development of the INPO evaluation criteria, has participated in the three INPO Pilot evaluations and is the Project Manager for MAC for conducting an INPO evaluation on River Bend. The INPO type evaluation will be independent in that no Consumers Power Company or Bechtel personnel will be involved and MAC has never performed a direct line engineering or construction activity for Consumers Power Company.

For performance of the Independent Design Verification, we have selected Tera Corporation based on our evaluation of their technical capabilities and experience. Tera has many years of varied experience in the nuclear industry including independent design reviews, FSAR preparation, initial design of certain systems, and engineering, construction, operation and administration planning. Tera personnel are experienced in system design in the areas of mechanical, electrical, structural, and thermal hydraulic evaluations. Mr John W Beck, Vice President of Tera will be Project Manager for the Tera team. Mr Beck previously worked for Vermont Yankee Nuclear Power Corp as Executive Vice President serving as Chief Operating Officer. Prior to that he was Director of Engineering for Yankee Atomic Electric Co responsible for supervision and management of the plant, reactor, and environmental engineering departments. Prior to employment with Yankee, he was a Scientist at Bettis involved in Shippingport core design.

Individuals taking part in any of the three specific evaluations which make up the overall Independent Review Program will meet the "Independency Criteria" of Chairman Palladino's February 1, 1982 letter to Representative John Dingell and which are described as follows:

1. No individuals on the Project team will have been previously utilized by Consumers Power Company to perform design or construction work.

2. No individual involved will have been previously employed by Consumers Power Company.

3. No individual owns or controls significant amounts of Consumers Power Company stock.

4. No members of the present household of individuals involved are employed by Consumers Power Company.

5. No relatives of individuals involved are employed by Consumers Power Company in a management capacity.

MAC will be responsible for integrating an overall evaluation report made up of the three inputs.

The major objective of the overall evaluation report is to provide the NRC, ACRS, and the Consumers Power Company Chief Executive Officer with an assessment of the overall quality of the Midland Project. We believe that this assessment will adequately address the NRC, ACRS, and public's questions regarding the adequacy and construction quality of the plant.

The final report will be submitted to the NRC and an auditable record will be maintained of all comments on any draft or final reports, any changes made as a result of such comments, and the reasons for such changes.

2. BIENNIAL QUALITY AUDITS

Background Of Biennial Quality Audit Requirements

The Consumers Power Company Quality Assurance Program Manual For The Midland Nuclear Plant, Topical Report CPC-1-A, requires the review of the Consumers Power Corporate Nuclear Quality Assurance Program to be performed at least once every 24 months or once every second calendar year by a Quality Assurance Program Audit (referred to as the Biennial Quality Audit).

This audit may be accomplished by a team consisting of Environmental & Quality Assurance personnel, selected employees from other Consumers Power Company departments or by an audit team of Quality Assurance personnel under contract to Consumers Power Company.

Plans For The 1982 Biennial Quality Audit

The scope of the 1982 Biennial Quality Audit will be similar to the audits conducted in 1976, 1978 and 1980. The audit will evaluate the Quality Assurance Program being utilized by Consumers Power Company and by Bechtel and will evaluate on a sampling basis, the degree of compliance with the Program by Consumers Power Company and by Bechtel. Specifically, the 1982 Biennial Quality Audit will be conducted by Management Analysis Company (MAC) and will comply with the requirements of NRC Regulatory Guides 1.144 (9/80, Rev 1) and 1.146 (8/80, Rev 0).

3. INPO CONSTRUCTION EVALUATION

General

In early 1982, utility nuclear power plant construction problems stimulated industry initiative and action to ensure that programs in effect nationwide meet performance goals as intended. Accordingly, the Institute of Nuclear Power Operations (INPO) was tasked by the Utility Industry to develop and manage a construction project evaluation program. The first effort was to define Performance Objectives and Criteria for project evaluations. Use of these criteria for an overall evaluation is intended to provide considerably more depth than an audit, for an audit generally does not go beyond conformance to program requirements. The evaluations include some assessment of administrative and quality records, but more important, focus on evaluating the success and efficiency of the project organization, systems and procedures in achieving the desired end results.

Following the drafting of the Performance Objectives, three pilot evaluations were conducted by INPO on plants under construction ie, Vogtle, Shearon Harris, and Hope Creek. During the last pilot a representative from NRC was present during data collection, evaluation and exit interview with utility personnel.

Following the pilot evaluations, the Performance Objectives and associated Criteria were modified to reflect experiences gained. A copy of the criteria to be used for the INPO evaluation is attached.

The performance objectives are broad in scope; each generally covers a single, well-defined area. The supporting criteria are more narrowly focused statements of activities that support or help meet the performance objectives. Several criteria are listed under each performance objective.

There are five Performance Objectives and associated Criteria which specifically address design effort. These are:

DC.1 Design Input

Process for defining and controlling design input

DC.2 Design Interfaces

The identification and coordination of interfaces to ensure input requirements are satisfied

DC.3 Design Process

Process followed to ensure safe, reliable and verifiable designs in compliance with requirements

DC.4 Design Output

Development of designs which are complete, accurate, understandable and constructable

DC.5 Design Changes

Control of changes to ensure compliance with design requirements

In addition there are numerous Performance Objectives which support evaluating design control. These include: Construction Engineering, Project Planning, Training, Independent Assessments, etc.

The above INPO Performance Objectives and associated Criteria will be utilized for planning the Independent Design Verification.

The INPO type self evaluation is aimed at achieving a level of performance above that required to meet Regulatory Requirements. Members of 35 Utilities (including Consumers Power) met, drafted and reviewed performance objectives and criteria to support the performance objectives of seven areas including design. A complete list of the areas whose objectives are intended to define optimum performance is:

Organization and Administration

Design Control

Construction Control

Process Support

Training

Quality Programs

Test Control

The thrust of this type of evaluation is that if utilities attempt to meet standards above those normally required to achieve quality, there will be greater assurance that Regulatory Requirements are met. The program was then applied during three pilot evaluations and modified based on the experience gained during the pilot evaluations. It essentially looks at all aspects of work in progress. This program has been developed during the calendar year 1982 and industry has made a commitment to the NRC to initiate INPO type evaluation on nuclear plants under construction by the end of 1982. The only exceptions will include those plants very close to fuel load.

Consumers Power Company selected MAC to perform the INPO Construction Evaluation primarily because of MAC's involvement in the development of the Performance Objectives and participation in all three pilot evaluations. The team supplied by MAC will be individuals experienced in multi-discipline activities associated with nuclear power plant engineering and construction. In addition, team members will be experienced in interviewing and evaluating ie, the type of activity MAC has been performing for the nuclear industry over the past seven years.

PREPARATION FOR INPO TYPE EVALUATION

The evaluation team leader will review the job status, select work areas to be evaluated and select team members based on the above. A request will then be made to CP Co for background documents. The team will then review the documents and prepare a schedule. Individual assignments will also be made. Three Tera members of the team organization representing Civil, Mechanical, and Electrical disciplines will be part of the MAC INPO type evaluation team. Prior to actually performing the evaluation, all team members will receive training in plant orientation, procedures and INPO evaluation techniques.

PERFORMING THE EVALUATION

The entire evaluation team will initially meet at the Site to review the work in progress. Sections of the team will then move to the Designer's and Owner's Offices. Team members will then begin the task of collecting pertinant facts relative to various aspects of the job via observations, inspections, discussions and review of documents. These facts will be assigned to the appropriate performance objective and reviewed against that

objective. As findings develop, additional investigations may take place. During this time, the team will communicate with the project personnel to assure validity of findings and draft evaluation summaries will be prepared.

REPORTING

At the conclusion of the evaluation, the team will verbally communicate their findings to the project. A formal report will then be prepared and presented to CP Co management. CP Co will acknowledge the findings and transmit the findings with their plans for corrective action concurrently to the NRC and INPO. INPO will assimilate various utilities reports into a comprehensive summary document and report the overall program progress to the NRC.

4. INDEPENDENT DESIGN VERIFICATION

Goals and Objectives

The independent design review is directed at verifying the quality of design engineering for the Midland Plant. The approach selected is a review and evaluation of a detailed "vertical slice" of the project design by a technically competent, independent organization. The design and as-built configuration of a selected safety system will be reviewed to assure its adequacy to function in accordance with its safety design bases and to assure applicable licensing commitments have been properly implemented.

Summary and Scope of Effort

The independent design verification (IDV) will consist of an independent design review of the Unit 2 auxiliary feedwater system (AFW) as an applicable sample of the design engineering effort at Midland Plant. This system was selected based upon system selection criteria discussed below. The review will be conducted by Tera Corporation and will utilize a multidisciplinary team of senior staff personnel to assure that the design and as-built configuration of the AFW conforms to its safety design bases and Consumers Power Company's licensing commitments as a benchmark for its acceptability. The design process, from concept to installation, will be identified and interfaces between design engineers evaluated to assure sufficient controls were placed on the transfer and specification of important design information. Although the review will focus on the AFW, the interfacing systems will be reviewed to determine that appropriate design constraints were imposed to

assure functionability of the AFW. Initially, important design elements for AFW will be outlined to assure the IDV includes an appropriate sample of the design interfaces between Consumers Power, B&W the nuclear steam supply system (NSSS) vendor, Bechtel the architect engineer, and other service related contractors. Design elements such as environmental qualification envelopes, seismic analysis, hydraulics and system control requirements will be selected to allow a diverse review of the various engineering disciplines (eg, Mechanical, Civil, Electrical). The design reviews in each area will evaluate the design approach used and, where appropriate, independent analytical techniques will be used to confirm questionable approaches or to permit assessment of the significance of any identified discrepancies.

To assure that the installed equipment reflects system design requirements, design specifications and drawings will be reviewed and in-field inspection of selected sections of the AFW conducted. The in-field inspection will confirm that the AFW is configured as specified in the design documents.

Throughout the IDV, all findings will be documented by each reviewer. Each finding will then be evaluated by the team leaders and more significant findings forwarded to a senior review team. At the conclusion of the effort, a preliminary report will be provided to Consumers Power and the original designers for review and provision of additional documentation that could have an impact on the final report findings. An auditable record of comments and additional information provided will be maintained. The final report will summarize the work accomplished, procedures used and a complete list and description of all findings from the review.

System Selection Criteria

The selection of a system to be reviewed by the independent contractor was based on the six criteria which follow.

- Importance to Safety - The system should have a relatively high level of importance to the overall safety of the Midland Plant.

- Inclusion of Design Interfaces - The system should be one which involves multiple design interfaces among engineering disciplines as well as design organizations, such as the NSSS vendor, architect engineer and sub-tier contractors. The system should also be one where design changes have occured and thus provide the ability to test the effectiveness of the design process exercised by principal internal and external organizations or disciplines in areas of design change.

- Ability to Extrapolate Results - The system should be sufficiently representative of other safety systems such that the design criteria, design control process and the design change process are similar so that extrapolation of findings to other systems can be undertaken with confidence.

- Diverse in Content - The major engineering disciplines should all have input to the design of the system.

- Sensitive to Previous Experience - The system should be one which includes design disciplines or interfaces which have previously exhibited problems and thus a test of the system should be indicative of any generic condition.

Ability to Test As-Built Installation - The system construction should be sufficiently completed that the as-built configuration can be verified against design.

The auxiliary feedwater system was selected for the independent design review after consideration of a number of other candidate systems. The auxiliary feedwater system had a sufficiently high profile for each of the criterion to justify its selection. Specifically, it involves interface with the NSSS vendor criteria, with containment design criteria, interface with design organizations, and the methodology of determining a water system's mechanical, electrical, and control component design criteria.

Technical Approach

The independent design verification (IDV) effort is comprised of three phases; Program Development, Review and Reporting.

The Program Development Phase includes the preparation of an IDV work plan and the development of a detailed review scope. The IDV work plan will include procedures and instructions for the work to be performed by Tera Corporation, the IDV contractor. An initial identification of the specific verification methods and depth of review to be utilized in addressing system design elements will also be completed as part of this phase.

The Review phase is the major activity of the IDV. This phase includes a design review of the systems as well as a field installation/as-built review to assure conformance of the design and the constructed facility. Initial efforts of the system design review will focus on the identification of the design process (chain) for the selected system. Emphasis will be placed on identifying design organizations and their subelements who contributed to the design and understanding the design practices and interactions between the design engineers. Paralleling this effort, the design and licensing criteria will be reviewed. It is anticipated that system design criteria information will include utility, B&W and Bechtel design requirements, licensing commitments, as well as other sub-tier documents.

The methods to be utilized in the review of system design elements will vary in depth. Depending upon the design area, the specific method may be a review of design criteria, a review of design calculations, a "blind" confirmatory

evaluation (eg alternative calculation or computer analysis by the IDV contractor) or a combination. Where appropriate, independent analytical techniques will be used to confirm design calculations or to permit assessment of the significance of any identified discrepencies. It is anticipated that the primary review method will be a review of calculations. Ultimately, the choice of review method will depend upon the nature of the design area and the type of verification method which is most effective in enabling the IDV reviews to reach a judgement as to the design adequacy in that design area.

This review will concentrate on each major step in the design process, for example:

- Design input information (transfer among designers, conformance with design criteria and commitments).
- Analyses and Calculations (selected review of inputs, assumptions, methodology, validation and usage of computer programs and reasonableness of certain analytical outputs).
- Drawings and Specifications (selected reviews for conformance with system design criteria, commitments, and incorporation of results of analyses and calculations).
- Field Verification (audit to assure that the as-built configuration reflects design requirements and pre-operational tests verify design analyses).

Findings from the INPO review as well as input from other sources such as, audit reports, 50.55e reports, design change reports and other documents will

also be considered to concentrate review in more depth in any areas where the design process may be suspect by historical evidence.

The IDV review scope will be broad enough in terms of design elements to include samples from each significant design organization, design interface and major engineering discipline.

The design elements to be evaluated include:

- Civil/Structural design of structures housing the AFW (eg, external or internal flooding, wind or tornado loads, seismic analysis, foundation design or missile protection).

- Mechanical/Electrical design of AFW systems and components (eg, pipe rupture protection, swismic subsystem evaluation, ASME code considerations, equipment qualification, penetration design, cable routing and separation, instrumentation and control system, system interlocks, fire protection, seismic and quality group classification or use of appropriate codes and standards).

- System performance requirements (requirements for accident mitigation, design transients and normal operation, hydraulic design, over-pressure protection, reliability, NPSH for pumps).

The installation/as-built verification review will include a walkdown of the selected system and inspection of system components. This review is intended to confirm system geometry and component nameplate data. Input from this evaluation will be assessed for its compatability with design documents such as specifications and drawings.

The IDV will be conducted under project instructions and procedures that will require apparent discrepancies to be documented throughout the review. Initially, these findings will be categorized based upon the lead reviewer's judgement as to status as follows:

1) Open- The finding has the potential for becoming a confirmed error, but additional investigation or confirmatory analysis is necessary to make a final judgement;

2) Confirmed - The finding is judged to be an apparent error by the review team and will require corrective action, such as additional documentation not utilized by the team that documents the resolution of the findings or additional analysis, design or construction changes or procedural changes that may be necessary to resolve the finding;

3) Resolved - Sufficient additional information was available in the ongoing review to resolve the findings and to completely close out any additional concern about the findings.

Additionally, findings will be categorized as to whether or not they affect the AFWs safety function or licensing criteria. Additional design information will be solicited to allow the lead reviewers to reach disposition of each finding. As the reviews of each major design element reach a suitable stage, the individual findings will be evaluated in an integrated manner by the project team to further define or resolve the findings and to assure the classification is proper. After the team has completed its review, each finding will be submitted to a senior level review team to provide additional professional opinion regarding the classification of the finding.

Reporting will be in two stages, preliminary and final. The preliminary report, including the findings, as modified by the senior review team, will be provided to Consumers Power Company for review by the original designers. The preliminary report will provide an opportunity for additional information to be supplied which could have an impact on the findings but was not known to the IDV project team. All comments, additional information and changes to the findings will be maintained in an auditable manner. The final report will summarize the work accomplished, procedures used and include a complete description of all findings.

APPENDIX

PREVIOUS ASSESSMENTS OF DESIGN AND CONSTRUCTION QUALITY AT MIDLAND

Historically, Consumers Power Company and its contractors have been committed to perform their work using QA programs which respond to all 10CFR50 Appendix B Quality Assurance criteria.

In addition to the Consumers Power Company audits in the areas of design and construction, the Company has utilized outside consultants to conduct Biennial Quality Audits. The Consumers Power Company Biennial Quality Audits were first instituted in 1976 and were subsequently conducted during 1978 and 1980. These audits were conducted to determine the Program's adequacy and to determine, on a sampling basis, the degree of compliance with the program. A summary of those audits are as follows:

A. 1976 Biennial Quality Audit

In 1976, the Biennial Quality Audit was conducted by the Nuclear Audit and Testing Company (NATCO) and included approximately 24 man-days of audit effort. The audit involved auditing for adequacy and implementation of the Consumers Power Company QA Program Procedures at the Consumers Power Company General Office in Jackson, Michigan and at the Midland Site. In addition, the audit involved auditing for adequacy and implementation of the Bechtel Nuclear Quality Assurance Manual at the Midland Site. Audit findings resulting from this audit have been closed out.

NO Conclusions?

B. 1978 Biennial Quality Audit

In 1978, the Biennial Quality Audit was conducted by the Management Analysis Company (MAC) and included approximately 70 man-days of audit effort. The audit involved auditing for adequacy and implementation of the Consumers Power Company QA Program Procedures at the Consumers Power Company General Office in Jackson, Michigan and at the Midland Site. In addition, the audit involved auditing for adequacy and implementation of the Bechtel Nuclear Quality Assurance Manual at the Bechtel Ann Arbor, Michigan offices (engineering) and at the Midland Site. Audit findings resulting from this audit have been closed out.

C. 1980 Biennial Quality Audit

In 1980, the Biennial Quality Audit was conducted by the Management Analysis Company (MAC) and included approximately 46 man-days of audit effort. The audit involved auditing for adequacy and implementation of the Consumers Power Company QA Program Procedures at the Consumers Power Company General Office in Jackson, Michigan and at the Midland Site. In addition, the audit involved auditing for adequacy and implemenation of the Bechtel Nuclear Quality Assurance Manual at the Bechtel Ann Arbor, Michigan offices and at the Midland Site. Audit findings resulting from this audit have been closed out.

MAC also performed a special Assessment of Midland in 1981 which covered the following areas: Corrective actions resulting from 50.55e items including adequacy of corrective action, hardware inspection and system walkdown, corrective action status closeout of 1980 biennial Corporate Audit, assessment

of adequacy of Midland QA program (based on first two items), review of documentation (supplier quality verification records, radiographic records, certificates of compliance, and Bechtel FLAGS program), and assessment of Bechtel and Consumers personnel (Bechtel QC and auditors, Consumers auditors, and Bechtel welders' qualification).

d/N justify

Starting in 1976 upon the discovery of missing rebar in three areas of the auxiliary building (later this was determined to not be a safety problem), Consumers instigated a surveillance of construction activities by Consumers QA personnel. /Consumers Power surveillance provides formalized quality control inspections beyond those quality control inspections performed by the Bechtel Quality Control group. / after the fact!

In August 1980 the Quality Assurance Organizations of Consumers Power Company and Bechtel were integrated into one group with Consumers having the responsibility for direction and management. Consumers Power at this time set up a Design QA Engineering (DQAE) group at the Bechtel Ann Arbor offices to conduct day to day monitoring of engineering activities of Bechtel. The Consumers Power DQAE provides design and procurement quality/reliability services of problem prevention and early problem detection, resolution, and corrective action. DQAE personnel are degreed and have had direct design related experience in the areas of nuclear, mechanical, electrical, electronics and civil engineering. The DQAE functions consist of:

1. Technical reviews of Design and Procurement documents (engineering procedures/instruction, selected design and procurement documents, and supplier design deviation requests).

2. Monitors that requirements of controlling documents are being implemented (FSAR, engineering procedures, Appendix B, codes and standards) into specifications, drawings, material requisitions, supplier documentation and design calculations.

3. Audits of engineering, supplier QA Department, Bechtel Quality Engineering and Document Control.

Starting in January 1979, NRC Region IV Vendor Inspection Branch has conducted seven inspections of the Bechtel Ann Arbor Office. The latest inspections were in May and July 1982. In three of these inspections, there were no findings. Corrective action has been completed on all of the findings from inspections prior to 1982. There were no findings from the May 1982 inspection and the one finding from the July 1982 inspection has not been closed out as yet.

Although not requested by the NRC, Consumers Power Company decided in early 1982 that based on occurrences at Diablo Canyon and other plants, an Independent Design Audit or Review was prudent. The Company did not know what NRC staff requirements would be applied to an independent audit for plants that are in the construction and licensing stage similar to Midland. It was decided that this particular Independent Design Review would be undertaken as soon as possible in order to provide timely identification of problems so that corrective action could be taken consistent with overall project schedules. The purpose was to review Bechtel Project Engineering activities to determine if design criteria are being correctly implemented and if design assumptions, design methods and the design processes are satisfactory. It was also decided that the review could be optimized by using people who were knowledgeable

about the Bechtel design process but were not working on Midland design such as Bechtel personnel located in offices other than Ann Arbor or Consumers personnel that have not been directly involved in Midland.

The review team consisted of six Bechtel and one Consumers Power Company employees with disciplines represented in the areas of mechanical, nuclear, electrical, civil/structural, plant design, control systems and technical support for plant operations. Short term assistance was provided by specialists and consultants from other Bechtel offices in specific areas such as piping design and seismic analysis. The general approach of the review was to conduct a broad review of important design methods and then to review in-depth, including field walkdowns, four features of the plant. Emphasis was on engineering and factors important to safety, calculations, and design features which will not be demonstrated by tests during construction and start-up. Interfaces within Bechtel and between Bechtel and B&W were also reviewed. The basic criteria and commitments used by the review team were the FSAR, Bechtel Topical Reports, project procedures, and industry guides and standards. Design methods selected for review included piping analysis, equipment qualification, separation hazards, instrumentation, structural and seismic analysis, and various nuclear analyses. The piping review included independent computer analysis of selected stress problems and hanger designs and a review of unique computer programs developed for the Midland Project. The four features of the plant for an in-depth review were: reactor cavity design, on-site electrical systems, decay heat removal system and piping for the high pressure safety injection system outside containment. The review has been completed with findings issued and replied to. The final report as well

as other design review information will be submitted to MAC and Tera for use in the performance of their activities.

September 1982
Criteria
Preliminary

Performance Objectives and Criteria for Construction Project Evaluations

INPO

PERFORMANCE OBJECTIVES

AND CRITERIA

FOR CONSTRUCTION

PROJECT EVALUATIONS

INSTITUTE OF NUCLEAR POWER OPERATIONS

September 1982

PRELIMINARY
For Use In
SELF-INITIATED EVALUATIONS

FOREWORD

In early 1982, utility nuclear power plant construction problems stimulated industry initiative and action to ensure that programs in effect nationwide meet performance goals as intended. Accordingly, the Institute of Nuclear Power Operations (INPO) was tasked to develop and manage a construction project evaluation program. The first effort was to define performance objectives and criteria for project evaluations. Use of the criteria is intended to provide considerably more depth than an audit, for an audit generally is regarded to be no more than a check of the paper trail. An evaluation includes some assessment of administrative records, but more important it focuses on evaluating the quality of the end result of implementing the project systems and procedures. It also includes assisting the utility by transferring technology, management systems, and procedural systems when the utility is not as strong as has been observed elsewhere in the industry. Such an evaluation can result in an uplifting, or upgrading, by specific recommendations on how to achieve a higher level of excellence.

This program is not intended to evaluate whether or not the design is adequate. Rather, the program will evaluate if the design documents are controlled and if the plant is being constructed as the design specifies; therefore, design control and quality of construction are the key objectives being evaluated.

These performance objectives and criteria are intended for use by INPO member utilities and third parties in the evaluation of the quality of engineering and construction of nuclear power plants. The scope of this document addresses the phase of the project beginning with the plant design process and extending through design, construction, and testing to issuance of the Nuclear Regulatory Commission operating license.

The performance objectives are broad in scope; each generally covers a single, well-defined area. The supporting criteria are more narrowly focused statements of activities that support or help meet the performance objectives. Several criteria are listed under each performance objective.

Corporate and project organizations among INPO member utilities vary widely. Accordingly, no specific organization has been assumed in developing this document. The areas addressed represent those relevant to achieving the highest standards in construction of a nuclear power plant. Rather than addressing a specific organizational structure, the program is designed to evaluate the systematic control of functions and approaches that are necessary to produce the desired results for project completion. The performance objectives and criteria emphasize management involvement in the design and construction of a nuclear power plant, since monitoring and control at the management level are essential to the achievement of an optimum end product.

This document is intended to provide a basis for INPO and INPO member utilities to assess the quality of utility management in select areas related to nuclear plant design and construction. Since the performance objectives and criteria are intended for use in evaluating the results, they do not necessarily prescribe or establish methods of achieving those results.

PERFORMANCE OBJECTIVES AND CRITERIA
FOR
CONSTRUCTION PROJECT EVALUATIONS

INDEX

ORGANIZATION AND ADMINISTRATION

OA.1 ORGANIZATIONAL STRUCTURE

PERFORMANCE OBJECTIVE

The owner's corporate organization and all other project organizations responsible for the design, engineering, planning, scheduling, licensing, construction, quality assurance, and testing of a nuclear plant should provide an organizational structure that ensures effective project management control.

CRITERIA

A. The project organizational structure is defined clearly and establishes an effective relationship among the owner's and contractors' responsible executives and managers for design, construction, procurement, planning, testing, quality assurance, and licensing of a nuclear power plant to support the success of the project.

B. Managers associated with the project, either owner's, nuclear steam system vendors', architect/engineering firms', or contractors', at the executive, corporate, project, design, procurement, construction, start-up, operations, and quality assurance levels, understand clearly their relationships regarding the project, including their authorities, responsibilities, and accountabilities.

C. An owner's manager is assigned responsibility for the project activities (hereafter referred to as project manager). This is his primary responsibility and preferably his sole responsibility. Also, he has the authority to direct the project.

D. The owner's project-level managers are assigned responsibility for the following listed functional areas in support of the nuclear project activities. Sufficient authority is held by each individual to carry out assigned responsibilities.

1. project control, including planning, scheduling, and cost control
2. engineering, analysis, and design control
3. procurement control
4. construction control
5. management information systems
6. training and qualifications
7. construction testing and turnover control
8. quality assurance
9. material receipt, handling, storage, and maintenance
10. record and document management
11. legal and licensing requirements
12. staffing, personnel policy, and salary administration

E. The project manager exercises control in those functional areas assigned to managers who do not report to him to ensure that the plant is engineered, designed, constructed, and licensed in a manner resulting in a safe and reliable plant.

F. The project manager's relationship to higher corporate management and ultimately to the chief executive officer is defined clearly and documented.

G. Clearly defined access to the project manager is provided to other managers having responsibility for the functional areas under Criterion D.

H. Corporate administration of contracts is delegated clearly with contractual obligations well-understood and enforced. Responsibility and appropriate authority for prompt action on contract changes, renegotiations, or violations of contracts have been assigned.

I. Staffing for all project organizations is adequate for the authorities and responsibilities assigned.

QA.2 MANAGEMENT INVOLVEMENT AND COMMITMENT TO QUALITY

PERFORMANCE OBJECTIVE

Senior and middle managers in the owner's corporate office, designer's office, and at the construction site who are assigned functional responsibility for matters relating to the nuclear project should exhibit, through personal interest, awareness, and knowledge, a direct involvement in significant decisions that could affect their responsibilities.

CRITERIA

A. Procedures or written statements of policy address subjects relating to the engineering, design, and construction of nuclear projects. They include policies related to project quality, such as workmanship, problem identification and correction, action item tracking, reporting, and procedural compliance.

B. Project personnel in the corporate office and at the construction site and designer's offices are aware of these procedures and policy statements and have them readily available for reference. They are able to explain how they are put into practice.

C. Project personnel demonstrate compliance with these policy statements and the statements have a high degree credibility

D. Both vertical and horizontal communication of significant problems and corrective actions are effective and coordinated to provide an accurate representation of conditions.

E. Meetings involving corporate and project management personnel result in the regular review of key aspects of the nuclear project.

F. Corporate managers are made aware of and utilize appropriate design and construction progress data and trends in setting goals and objectives and in management decisions involving the project.

G. Methods are established that permit data and trends to be compared with results at other utilities with similar construction projects.

H. Corporate managers responsible for the nuclear project are familiar with activities and reports that affect design and construction. They are cognizant of and sensitive to problems and external factors that might affect progress or quality. Examples of such involvement include the following:

1. review of applicable audit, evaluation, and inspection results conducted by internal and external organizations
2. personal interface with the engineering, design, and construction organizations and personal observations of their activities
3. review of industry's engineering, design, and construction experience and trends
4. review of project plans and schedules and reports of actual progress versus planned progress
5. review of worker performance indicators such as rework and reject rates

I. Management support and actions reflect appropriate attention to areas such as project management, scheduling, planning, staffing, training, personnel relations, and owner-contractor relations that affect project quality.

J. Corporate managers responsible for nuclear matters are committed to seek out and employ methods and information systems for identifying problem areas and their underlying causes and for taking coordinated, corrective action to eliminate these problems.

K. Designated managers associated with the project have responsibility and authority, by policy and practice, to stop or delay engineering, design, or construction activities when their judgement indicates that continuation will result in a failure to meet the project objectives.

L. Management accountability for the project is consistent with the project structure and extends to the contractors, architect/engineering firm, and nuclear steam supply system supplier contractor.

M. A complementary relationship is evident between management and quality assurance that supports implementation of a strong corporate commitment to quality.

N. Decisions are made known to appropriate individuals for implementation.

QA.3 THE ROLE OF FIRST-LINE SUPERVISORS AND MIDDLE MANAGERS

PERFORMANCE OBJECTIVE

The project first line supervisors and middle managers should be qualified by verified background and experience and have the necessary authority to carry out their functional area responsibilities.

CRITERIA

A. Position descriptions or the equivalent are employed for each key management and supervisory position.

B. Minimum qualification, experience, and training requirements are defined for project first-line supervisors and middle managers.

C. Authorities and responsibilities are defined clearly. Personnel clearly understand and accept their relationship in the organization and their authorities, responsibilities, and accountabilities.

D. The first-line and middle managers are actively and personally involved in the nuclear project functional activities. Functions that could be performed include the following:

   1. approval of qualification requirements for positions that report directly to them
   2. provisions for input to and understanding of project policies governing each functional area covered in this document
   3. assessment of selected programs and activities relating to project activities, including follow-up on corrective actions
   4. close involvement with safety review groups performing independent reviews of matters affecting safety and reliability
   5. assurance that effective actions are taken on reports of significant and unusual project deficiencies in the managers' areas of responsibility

6. regular review of project status and current problems
7. review of selected data and trends discussed in the functional sections of this document
8. monitoring of organization's performance against established goals and objectives
9. involvement in and understanding of trending programs and corrective actions related to developing adverse trends
10. active involvement in ensuring that construction practices and procedures are followed in a manner that enhances the quality of the end product
11. responsibility for ensuring that workers are qualified for their individual assignments and that they perform their work to project standards

E. The project middle managers are sensitive to the need to control work assignments to ensure that project-related effort is not diluted.

F. Appropriate supervisory, technical, and procedural training is conducted for first-line and middle managers having responsibilities for functional areas in support of project activities. Appropriate records of attendance, material presented, and test results (if given) are retained to document this training.

DESIGN CONTROL

DC.1 DESIGN INPUTS

PERFORMANCE OBJECTIVE

Inputs to the design process should be defined and controlled to achieve complete and quality designs.

CRITERIA

A. Design inputs such as codes, standards, regulatory commitments and requirements, criteria, and other design bases are identified, defined clearly, documented, evaluated, approved, and their scope of applicability is defined prior to their use in the design process.

B. The design inputs include consideration of all of the requirements necessary to produce a quality design including feedback from pertinent industry engineering, design, and construction experience.

C. Plant constructability, operability, inspectability and maintainability are considered in plant designs.

D. The design inputs are provided at a level of detail and clarity necessary to be useable and understandable by all persons using these inputs.

E. A systems, components, and materials experience information base, to the extent available, is a key element in the design process. Specifications for key safety-related equipment that does not have a substantial service history contain a requirement for supplier acceptance tests.

F. The issuance and use of design inputs is controlled by the use of complete and understandable procedures.

G. All changes to the approved design inputs are documented and approved prior to their use.

H. Design personnel utilize supplier expertise as applicable in the design process.

I. Design and design control information is readily available for use by all design personnel.

H. Design personnel utilize supplier expertise as applicable in the design process.

I. Design and design control information is readily available for use by all design personnel.

DC.2 DESIGN INTERFACES

PERFORMANCE OBJECTIVE

Design organization external and internal interfaces should be identified and coordinated to ensure a final design that satisfies all input requirements.

CRITERIA

A. Design organization engineering authority is documented, and limits of responsibility and authority are defined clearly.

B. The flow of design information between both external and internal organizations is controlled and timely.

C. The external and internal interfaces and responsibilities are defined and controlled by procedures.

D. Oral and other informal means of communication, including letters and memos, which provide significant design information, are confirmed and promptly made a part of the design input by a controlled document.

E. System interaction is considered in system design and analysis.

F. Systematic and effective lines of communication are established.

G. Design and design change information are coordinated effectively with all affected disciplines and operating personnel.

H. Transfer of design responsibilities and documents from one organization to another is planned and implemented in a controlled manner.

DC.3 DESIGN PROCESS

PERFORMANCE OBJECTIVE

The management of the design process should result in designs that are safe, reliable, verifiable, and in compliance with the design requirements.

CRITERIA

A. The design process is documented, planned, and scheduled to ensure an orderly, sequenced process for completing design.

B. Responsibility for controlling each function of the design process, including the preparation, review, and approval of input, in process, and output documents, is defined clearly, documented, and understood.

C. The overall design review process includes system design reviews; verifications of calculations, methods, and computer runs; and validations of computer codes and models. The reviews or verifications are performed by individuals or groups other than those who performed the original design.

D. Design documents include scope and applicability as well as the identity of the originator and checker.

E. Calculations and analyses clearly specify information such as applicability, assumptions, design inputs, references, methods, and results in a manner that allows a technically qualified person to understand the calculations or analyses.

F. When an independent check of calculations and analyses is required, it is performed by a technically qualified person, and the method of checking is noted on the documents.

G. Design process problems are identified, and decisions are made to resolve the problems in a timely and effective manner.

H. Supervisory and management involvement in the design process is evident by the quality and timeliness of the output information and resolution of design problems.

I. Design personnel provide timely technical support and follow-up on systems they have designed.

J. Design processes are monitored for compliance with design commitments.

K. Design control measures, such as procedures and checklists, are used to ensure that design inputs, such as design criteria, design bases, regulatory requirements, codes, and standards, are translated correctly into design documents, including specifications, calculations, drawings, procedures, instructions, and other documents needed to build a plant.

L. Drawings, specifications, and other design documents are prepared under a controlled process that establishes standards for pertinent items such as format, content, status, and revision.

DC.4 DESIGN OUTPUT

PERFORMANCE OBJECTIVE

Project design documents should specify constructable designs in terms of complete, accurate, and understandable design requirements.

CRITERIA

A. The purpose of each type of design document is defined clearly.

B. Design output documents reflect a constructable, operable and maintainable design that meets the design input requirements.

C. The total design package is complete and understandable without the need for extensive coordination or interpretation by construction or vendor personnel.

D. The design organization is aware of the capabilities and requirements of the supplier and the construction organization.

E. Sufficient detail, legibility, and clarity for interpretation and reproduction are provided in design output documents to facilitate correct implementation of the design.

F. The design organization is responsive to the need for clarification of design output documents where these needs are identified.

G. Design output documents are issued and kept current using a controlled process.

DC.5 DESIGN CHANGES

PERFORMANCE OBJECTIVE

Changes to released project design documents should be controlled to ensure that constructed designs comply with the most recent design requirements.

CRITERIA

A. The design organization's response is timely and effective regarding identified changes.

B. Reasons for the change are identified, evaluated, and, if necessary, actions taken to avoid future problems.

C. The responsible design organization considers inputs to the original design before a change is issued.

D. Design changes are coordinated with any affected discipline and/or organization in a timely manner.

E. Appropriate procedures and methods are revised if design changes make these revisions necessary.

F. Prior to the approval of the design change, consideration is given to quality, safety, cost, and schedule.

G. Changes are subject to control measures commensurate with those of the original design.

H. A system is utilized to determine whether or not the change being made impacts other parts of the system being changed, other areas of the plant, or other plants under construction.

I. Methods are in place to ensure that changes are implemented in a timely manner.

J. All changes, including those initiated by regulation, construction, vendor, or design, are properly reviewed by the design organization and, if approved, incorporated into the design documents.

K. Appropriate design changes are evaluated promptly by each affected discipline, and necessary corrective action is taken and documented in a timely manner.

L. Design change review considers the change impact on items such as calculations, system functional requirements, original safety analysis assumptions, inspectability, maintainability, and selection of equipment and material.

CONSTRUCTION CONTROL

CC.1 CONSTRUCTION ENGINEERING

PERFORMANCE OBJECTIVE

Engineering and design performed under the authority of the construction organization should be controlled as to consistency with the basic design criteria to ensure compliance with applicable codes, standards, and regulatory commitments.

CRITERIA

A. Construction engineering authority is documented, and limits of responsibility and authority are defined clearly.

B. Procedures are effective in controlling the engineering and design processes of the construction engineering organization.

C. Guidelines are issued to ensure that the basic design criteria used by the construction engineering organization is consistent with that used in the original plant design.

D. Interface links between architect/engineering home office and the construction engineering group are efficient, effective, and defined clearly.

E. Interface links among major vendors and subcontractors and the construction engineering group are efficient, effective, and defined clearly.

F. Construction engineering field change control is maintained effectively as required to support the construction effort and to ensure final as-built conditions are defined.

G. Construction engineering supports major construction equipment processes (e.g., special rigging studies and transportation studies) with calculations and design prior to important field construction effort.

H. State-of-the-art engineering and design verification exists for construction engineering processes.

I. Adequate engineering and design issuance procedures are in effect to support the engineering and construction process and to ensure management awareness of generic design or constructability problems.

J. Field detail sketches and drawings for fabrication and installation accurately reflect basic design drawings and documents.

K. Linkage to the document control system exists to ensure engineering and design documents are handled properly.

CC.2 CONSTRUCTION FACILITIES AND EQUIPMENT

PERFORMANCE OBJECTIVE

Construction facilities and equipment should be planned for, acquired, installed, and maintained consistent with project needs to support quality construction.

CRITERIA

A. A site plan has provided for key location of facilities such as warehouses, craft shops, equipment storage, and production facilities.

B. Construction equipment is acquired in a manner to support the construction schedule and is maintained in optimum condition to support quality work.

C. Facilities and equipment, both temporary and permanent, meet the project needs and specifications, and are maintained in accordance with established requirements.

D. Periodic inspections or surveillances of the work areas and activities are performed to ensure that facilities and equipment support construction needs.

CC.3 MATERIAL CONTROL

PERFORMANCE OBJECTIVE

Material and equipment should be inspected, controlled, and maintained to ensure the final as-built condition meets design and operational requirements.

CRITERIA

A. The receiving process ensures that receiving inspections include evaluations of incoming materials and equipment against the procurement specifications. This process results in proper and timely disposition of deviations.

B. Materials and equipment are identified properly to control installation and use.

C. Quality documentation for received material is accounted for, reviewed, accepted, filed, and retrievable.

D. Items received are processed in a timely manner to allow early identification of those items requiring special handling, storage, and preventive maintenance.

E. Nonconforming items are identified and controlled to prevent unapproved use.

F. Material and equipment storage, handling, and security are controlled effectively in accordance with specified requirements.

G. The warehousing facility has an accurate inventory control system that provides for the effective location of items.

H. The issuance process ensures that correct material is issued in accordance with engineering requirements.

I. Effective preventive maintenance, including maintenance of cleanliness standards, is initiated at the appropriate time and continues throughout the construction process.

J. Environmentally sensitive equipment is protected adequately from the degrading effects of temperature, humidity, and dirt.

CC.4 CONTROL OF CONSTRUCTION PROCESSES

PERFORMANCE OBJECTIVE

The construction organization should monitor and control all construction processes to ensure the project is completed to design requirements and that a high level of quality is achieved.

CRITERIA

A. Construction activities are identified in advance to allow for development of procedures and selection, training, and qualification of personnel.

B. Work procedures and instructions have sufficient detail to ensure that construction activities are in accordance with engineering requirements.

C. Construction activities are performed in accordance with work procedures, instructions, and current revisions of drawings approved for construction.

D. Rework activities are performed in accordance with established procedures and are subject to required inspections.

E. Work is performed by and under the supervision of qualified personnel who recognize and accept a responsibility for quality.

F. Proper tools are available and are used correctly.

CC.5 CONSTRUCTION QUALITY INSPECTIONS

PERFORMANCE OBJECTIVE

Construction inspections should verify and document that the final product meets the design and quality requirements.

CRITERIA

A. The inspection process is defined accurately prior to the start of the work and is controlled to meet the requirements of the project.

B. An effective system is in place to encourage the reporting of degraded quality.

C. Inspection procedures are clear, define the inspection process in detail, and reference appropriate acceptance criteria.

D. Inspections are integrated into the construction processes and work schedules.

E. Inspections are performed using written procedures.

F. Calibrated equipment used in inspections is of the proper type, range, and accuracy.

G. The quality control inspectors are separate from the production function.

H. The records clearly indicate the scope of the inspections, the inspector, and the results.

I. Records are reviewed for completeness and accuracy prior to their storage in accordance with project requirements.

CC.6 CONSTRUCTION CORRECTIVE ACTIONS

PERFORMANCE OBJECTIVE

The construction organization should evaluate audits, inspections, and surveillances; process replies and follow-up; and take corrective action to prevent recurrence of similar problems.

CRITERIA

A. The construction organization tracks construction audits and surveillances, prepares well-researched replies that address the deficiencies, and takes prompt and effective corrective action.

B. The construction organization evaluates audits for generic problems and trends and takes appropriate action to prevent recurrence.

C. Nonconformances are identified, tracked, and closed out in a timely manner.

D. The construction organization reviews nonconformances to ensure corrective actions have been taken, evaluates for trends, and reports problem areas to upper management.

CC.7 TEST EQUIPMENT CONTROL

PERFORMANCE OBJECTIVE

Measuring and test equipment should be controlled to support construction testing effectively.

CRITERIA

A. Measuring and test equipment utilized for testing is identified uniquely.

B. Measuring and test equipment is controlled to ensure that only properly calibrated equipment is used for testing.

C. Specific programs are implemented to provide regular calibration of instrumentation and to track status and calibration of each instrument used for testing.

D. Special procedures are implemented to identify retest requirements when instrumentation is found to be defective.

E. The construction organization tracks equipment out-of-tolerance reports and work performed to correct work previously done incorrectly.

F. The construction organization establishes regular maintenance and calibration intervals for all equipment and ensures timely calibration for each device.

G. Calibration is accomplished correctly using certified equipment traceable to recognized standards or methods. Calibration records are retained and retrievable.

PROJECT SUPPORT

PS.1 INDUSTRIAL SAFETY

PERFORMANCE OBJECTIVE

The construction site industrial safety program should achieve a high degree of personnel safety.

CRITERIA

A. An effective industrial safety program with clearly defined policies, procedures, scheduled training requirements, and individual responsibilities is implemented with the full support of managers and supervisors.

B. Selected data and trends of industrial safety activities are monitored, including the following:
   1. summary analysis of first aid treatments
   2. analysis of accidents requiring doctor's care
   3. incidence of lost-time accidents
   4. frequency of safety violations identified

C. General housekeeping practices prevent the accumulation of debris and trash.

D. A safe and orderly job site working environment exists.

E. Lifting and rigging equipment is checked regularly.

F. A fire protection program is defined, organized, and well-publicized.

G. The site controls hazardous materials effectively.

H. A safety tagging program exists and is implemented effectively to protect equipment, personnel, and material.

PS.2 PROJECT PLANNING

PERFORMANCE OBJECTIVE

Project plans should ensure completion of the project to the highest industry standards by identifying, interrelating, and sequencing the tasks of the project organizations.

CRITERIA

A. The project master plan presents the interrelationships of tasks within and among the plans for the various elements of the project.

B. The project plans are documented and approved by the appropriate level of management.

C. The project plans are updated to reflect changing conditions.

D. The project plans are communicated to the responsible project members.

E. Clear lines of authority and responsibility exist between the individual assigned responsibility for plan development and those responsible for plan implementation.

F. Individuals assigned responsibility for planning for each functional area of the project are provided the necessary data.

PS.3 PROJECT CONTROL

PERFORMANCE OBJECTIVE

Project scheduling and work planning and coordination should ensure that the objectives of the project plan are met through effective and efficient use of project resources.

CRITERIA

A. Individuals responsible for functional areas demonstrate an awareness of the need for and knowledge of project controls and utilize these controls as required.

B. Elements of work are defined into manageable segments that can be accomplished by a typical work unit on a definite schedule.

C. Elements of work are defined in a way that identifies clearly the construction unit or discipline responsible for the work.

D. Based on input and feedback from responsible project personnel, a controlling construction schedule exists that provides a plan for completion of work elements and commitments and that provides management with a clear, concise, and understandable method of tracking project milestone completion.

E. Elements of work are recorded in a tracking system that is established prior to the work being performed and that allows project construction completion to be monitored based on installed quantities.

F. Work elements are integrated into the construction schedule in a manner that facilitates construction erection sequence, mimimizes interferences and rework, and optimizes project resources.

G. Deviations from the project schedule and plan, caused by regulatory, productivity, design and other changes and interferences, are communicated to the proper level

of management and analyzed for trends. Corrective actions are taken to modify the schedule and plan.

H. Quality control hold point inspections are integrated with the work activities.

I. The work activities address support requirements for the segments of work to be accomplished.

J. Work plans provide for a smooth transition from bulk scheduling to system completion scheduling.

PS.4 PROJECT PROCUREMENT PROCESS

PERFORMANCE OBJECTIVE

The project procurement process should ensure that equipment, materials, and services furnished by suppliers or contractors meet project requirements.

CRITERIA

A. Procurement documents provide clear and adequate technical, quality assurance, commercial, and administrative requirements necessary to define the scope and requirements of the contract.

B. The preparation, review, and approval of procurement documents are controlled in accordance with established procedures.

C. A list of qualified suppliers or contractors is used to identify sources of quality products and services.

D. Only those suppliers or contractors who are listed as qualified are requested to furnish bids or proposals.

E. Proposals and bids are evaluated for compliance with the requirements and scope defined in the procurement documents. These evaluations are performed by the personnel responsible for the preparation of the procurement specifications.

F. The recommendation and contract award are conducted in accordance with established procedures.

G. Subtier suppliers or contractors are contractually bound to adhere to related portions of the contract.

H. Supplier and contractor performance histories are used to improve the procurement process.

I. Purchasing and contract documents are reviewed to ensure inclusion of requirements to achieve quality.

PS.5 CONTRACT ADMINISTRATION

PERFORMANCE OBJECTIVE

Methods for administering and controlling contractors and suppliers and for managing changes to their contracts should ensure effective control of performance.

CRITERIA

A. Changes are prepared, reviewed, and approved in a manner consistent with the original requirements.

B. Changes are justified with respect to quality, safety, cost, and schedule and are approved by an appropriate level of management.

C. All verbal or informal changes are approved and confirmed promptly in writing within the guidelines of the change procedures.

D. Performance is monitored, and corrective action is implemented as required.

PS.6 DOCUMENTATION MANAGEMENT

PERFORMANCE OBJECTIVE

The management of project documentation should support the effective control and coordination of project activities and provide a strong foundation for the documentation/ information requirements of the plant's operational phase.

CRITERIA

A. A comprehensive records mangement plan and schedule exists to do the following:
   1. identify the documents and records required by regulations, purchase specifications, corporate requirements, and standards
   2. specify the minimum content and format requirements and acceptance criteria for each record/document type
   3. clearly designate responsibility for receipt, review of acceptability, resolution of deficiencies, and control of documents during construction
   4. contain proper methods for declaring appropriate documents "as-built" during construction
   5. determine what, when, how, to whom, by whom, and in what format records will be turned over to the plant's oeprational staff

B. The records management plan is effective in identifying the current status of project documents such as the following:
   1. design drawings
   2. specifications
   3. structure/system descriptions
   4. vendor drawings and manuals
   5. design criteria and procedures

C. The records management plan effectively incorporates approved changes or revisions into the project documents within an acceptable time frame.

D. The distribution system is defined and ensures timely distribution of current project documents to engineering, construction, and project support personnel within the project organization and to appropriate contractors and vendors.

E. The project maintains master files of the latest revision of project documents that are correct and accessible.

F. Storage facilities provide secure maintenance of permanent and nonpermanent records.

TRAINING

[illegible] SUPPORT

[illegible] OBJECTIVE

[illegible] program assist[illegible] [illegible] of perso[illegible] involved in the projec[illegible].

CRITERIA

[illegible] interes[illegible] [illegible] training progra[illegible]. [illegible] knowledge i[illegible] [illegible] role in the design and co[illegible] [illegible] of safe and reliable plan[illegible]. [illegible] or ma[illegible] [illegible] should routinely are[illegible] training or other activities.

[illegible] actively i[illegible] [illegible] need of [illegible] assigned task[illegible] [illegible] improv[illegible] [illegible] training progra[illegible]. [illegible] training or [illegible] [illegible] basis.

TN.2 TRAINING ORGANIZATION AND ADMINISTRATION

PERFORMANCE OBJECTIVE

The training organization and administration should ensure effective control and implementation of training activities.

CRITERIA

A. The training organization is defined clearly.

B. Training and qualification goals and objectives are established.

C. Training and qualification efforts are governed by procedures that outline responsibilities of the training organization.

D. Training personnel are provided training and opportunities to enhance their performance as instructors.

E. Training programs address organizational needs at appropriate levels.

F. Technical and nontechnical training requirements for individuals are defined clearly and documented.

G. An active program exists to acquire feedback for the purpose of developing, modifying, and improving the training programs.

H. Training activities are conducted regularly, and results are documented.

TN.4 TRAINING FACILITIES, EQUIPMENT, AND MATERIAL

PERFORMANCE OBJECTIVE

The training facilities, equipment, and material should support and enhance training activities.

CRITERIA

A. Classroom facilities are provided for group instruction.

B. Reference materials are up-to-date and readily accessible.

C. Equipment is available as needed to support training material development.

D. Training aids and material are provided to support the program.

E. Test and certification records are available and are updated regularly, and a follow-up system for required recertification of personnel is utilized.

QP.2 PROGRAM IMPLEMENTATION

PERFORMANCE OBJECTIVE

Quality assurance and quality control functions should be performed in a manner to support and control the quality of the project activities.

CRITERIA

A. The relationship of the quality assurance and quality control organizations with other organizations and individuals is defined clearly to ensure their independence.

B. Quality assurance and quality control personnel experience a cooperative relationship with other project personnel and are free of harrassment and intimidation.

C. Quality assurance and quality control areas function in a manner that supports management.

D. The quality assurance programs of vendors and contractors include measures to achieve quality and are implemented in an effective manner.

E. Project organizations utilize technical specialists in the implementation of the quality requirements.

QP.4 CORRECTIVE ACTIONS

PERFORMANCE OBJECTIVE

Conditions requiring corrections or improvements should be resolved in an effective and timely manner.

CRITERIA

A. Conditions adverse to quality are reported promptly and accurately.

B. The responsible organization assumes its responsibility for and its management is involved in and supports the correction of adverse quality.

C. The senior levels of management are apprised of adverse quality conditions and hold the responsible supervisors accountable.

D. Corrective action resolves not only the reported item, but also the basic cause in a manner that ensures the quality of future activities.

E. Effective corrective action is taken in a timely manner.

F. The quality assurance, quality control, and project organizations cooperate in identifying and solving problems effectively.

G. Quality performance trends are developed and analyzed to effectively address generic problems and basic causes of degraded quality.

TEST CONTROL

TC.1 TEST PROGRAM

PERFORMANCE OBJECTIVE

The test program should verify the plant's full capability to operate as intended by testing the plant's systems functionally.

CRITERIA

A. A clear policy is developed and endorsed by top management that describes the test organization's responsibility for component, system, and preoperational testing.

B. The principal design organization is involved in formulating test objectives and acceptance criteria.

C. The test program describes the scope of system testing, provides detailed guidance for conduct of testing, and includes methods for evaluation of completed tests.

D. Nonconforming conditions and discrepancies are identified and tracked, and appropriate resolution or corrective action is achieved.

E. Adequacy of plant operating and maintenance procedures is demonstrated.

F. The test program describes the quality assurance program under which it functions.

TC.2 TEST GROUP ORGANIZATION AND STAFFING

PERFORMANCE OBJECTIVE

The test group organization and staffing should ensure effective implementation of the test program.

CRITERIA

A. The test group organizational structure and organizational relationship to interfacing organizations are defined clearly.

B. The staff build-up accommodates the early requirements for testing procedure and schedule preparation.

C. The staff size is sufficient to accomplish the assigned tasks as dictated by the test schedule.

D. Permanent plant personnel are utilized during testing, to the maximum extent practical, in order to enhance their experience and training.

E. Key management, supervisory, and professional positions are described in writing.

F. Personnel who are assigned to perform testing meet the experience and qualification requirements as delineated in the written position descriptions.

G. Qualifications of test personnel are maintained.

TC.3 TEST PLAN

PERFORMANCE OBJECTIVE

The test organization should prepare a plan and a schedule that describe the sequence of system or component testing to support major schedule milestones.

CRITERIA

A. The plan and schedule are developed by personnel experienced in test and start-up operations.

B. The plan and schedule are coordinated with the engineering and construction schedules so restraints are identified for project management action.

C. The plant systems are scoped into logical, bounded, well-defined subsystems that can be tested as units.

D. The schedule for individual system or component testing describes the required elements of testing, including those systems required to support individual system testing.

E. The status of testing is monitored by a tracking system.

TC.4 SYSTEM TURNOVER FOR TEST

PERFORMANCE OBJECTIVE

The construction testing and turnover process should be controlled effectively to ensure that program objectives are met.

CRITERIA

A. Jurisdiction is delineated for organizations responsible for the conduct of tests, acceptance of results, and turnover to succeeding test programs.

B. Tests are performed and results evaluated for conformance to design requirements.

C. Retests are performed when necessary and are controlled to ensure completeness of verification.

D. System walk-downs are conducted by appropriate and qualified individuals and entities who effectively identify engineering, maintenance, and construction deficiencies.

E. System turnover procedures identify clearly participants, duties, responsibilities, and documentation necessary for the turnover process.

F. Turnover documents identify boundaries, material, equipment, deficiencies, and exceptions existing at the time of turnover.

G. Turnover exceptions are tracked effectively and are corrected in a timely manner.

H. The lead design, construction, quality control, and testing organizations integrate project needs effectively and accomplish the turnover process in a timely manner.

I. System and area cleanliness and maintenance programs are continued during the test phase.

TC.5 TEST PROCEDURES AND TEST DOCUMENTS

PERFORMANCE OBJECTIVE

Test procedures and test documents should provide appropriate direction and should be used effectively to verify operational and design features of respective systems.

CRITERIA

A. The necessary technical data are used in test procedure preparation.

B. Approved test procedures are available in advance of their intended use to allow adequate test preparation and training.

C. The test procedures describe clearly the objectives, prerequisites, system boundaries, and acceptance criteria for tests.

D. Test procedures receive the prescribed review before approval.

E. Tests are performed in accordance with approved procedures.

F. Necessary retesting is conducted when design changes occur during or after completion of the test phase.

G. The results of the test program receive an independent review and approval.

TC.6 SYSTEM STATUS CONTROLS

PERFORMANCE OBJECTIVE

A method should exist to identify the status of each system or component and the organization holding control or jurisdiction over that system or component to prevent interference and ensure equipment and personnel safety.

CRITERIA

A. Policies and procedures for plant status controls are implemented during testing.

B. A system is implemented to ensure current knowledge of the status of systems.

C. Activities affecting the status of systems and changes of status are authorized by designated personnel and are appropriately documented.

D. Tagging systems are coordinated among the various groups involved in the project to ensure control of status and of equipment and personnel safety.

E. Procedures are implemented to install, control, remove, and review periodically temporary field modifications.

F. Jurisdiction and control of construction work on systems after initial turnover are defined clearly and implemented.

G. Complete and current system documentation packages, including all changes and revisions resulting from the testing program, are provided to the plant operating staff in a timely manner.

INPO

Institute of
Nuclear Power
Operations

1820 Water Place
Atlanta, Georgia 30339
Telephone 404 953-3600
TWX 810-756-0467

3

Attachment 4
(K-9)

NRC AND CPCO

WORK AUTHORIZATION PROCEDURE

Effective Date August 12, 1982

APPROVED J.A. Mooney
Midland Project Office

APPROVED W.D. Shafer
Chief, Midland Section OSC

NOS 11/4/82

NRC AND CPCO WORK AUTHORIZATION PROCEDURE

SCOPE

To review all construction work covered by the ASLB Order of April 30, 1982.

PURPOSE

To provide a mechanism for NRC Region 3 review and authorization of activities to be implemented at the Midland site as described in the ASLB Order.

To designate appropriate NRC and CPCO responsible individuals.

REFERENCES

1) ASLB Memorandum and Order dated April 30, 1982.
2) ASLB Memorandum and Order dated May 7, 1982.
3) Letter to J W Cook from D G Eisenhut dated May 25, 1982, "Completion of Soils Remedial Activities Review".

PROCEDURE

1.0 CPCo Project Management Organization will provide, at the beginning of the month a detailed list of all work activities to be implemented. This list will cover the construction activities anticipated to be in progress for the next 60-day period.

2.0 Upon receipt of the list the NRC will review the list and designate those activities as critical or non critical and advise CPCo Construction in writing of this designation.

2.1 For those activities designated non critical, CPCo is authorized to proceed with the work. This work shall be accomplished in accordance with the staff approved Quality Assurance Plan.

2.2 For those activities designated critical, the NRC will advise CPCo Construction of the required details essential for further staff review to determine the specifics of the work. CPCo is not authorized to proceed with work prior to receiving written authorization from the NRC.

2.2.1 CPCo Construction will provide the work details as requested by the Region.

2.2.2 After review by the Region, CPCo will be provided with specific written authorization to conduct the identified work activities.

2.3 Should these authorized activities not start within 90 days, these activities will be resubmitted for authorization.

3.0 Changes may be required for authorized critical and non critical activities. These changes shall be processed as follows:

3.1 Changes that alter the description of a previously submitted activity, in 1.0 above, shall be submitted to the Region for review. The review and authorization process will be as in 2.0 above.

3.2 Changes which do not alter the description of a previously submitted activity, in 1.0 above, are not required to be submitted to the NRC but, shall be accomplished in accordance with the staff approved Quality Assurance Plan.

4.0 Work activities not previously identified on the work list, in 1.0 above, shall be identified and authorized as in 1.0 and 2.0 above. Approval of these work activities may be given verbally by the NRC responsible individual to the NRC Senior or Resident Inspector, who will then issue written authorization.

5.0 Emergency work activities may be performed to mitigate conditions which could affect personnel safety or could result in damage to facilities and equipment.

These activities shall require immediate notification of the Senior Resident Inspector.

6.0 Responsible individuals

6.1 The NRC representative shall be the Chief, Midland Section Office of Special Cases or his designee.

6.2 The CPCo designated representative shall be the Site Manager or his designee.

7.0 Changes to this procedure shall be approved the the Chief, Midland Section Office of Special Cases and the Site Manager.

WORK ACTIVITY LIST
FOR SEVEN DAYS FROM LIFTING OF STOP WORK ORDER

Aux Bldg	1.	Operate all instruments in seven day "baseline"
	2.	Test all instrumentation systems per C-1493
	3.	Adjust set and finalize covers on all instruments
	4.	Verify post tension systems on control tower
	5.	Maintain instrument system
Freeze Wall	6.	Continue monitoring utility protection pits (4)
	7.	Install clay to below duct bank (pit 4) (details attached)
	8.	Add additional wells (up to 5) on west perimeter (outside C-45)
	9.	Continue operation of systems and wells
FIVP	10.	Install and grout bolts and plates
	11.	Lift off test on bolts (and hardness tests)
	12.	Tension bolts
Crack Mapping	13.	Clean FIVP to crack map
	14.	Crack map FIVP's
	15.	Crack map EPA's
	16.	Crack map remainder Aux Bldg
Underpinning	17.	Drift to piers 12 E/W
	18.	Dig piers 12 E/W
	19.	Install piers
	20.	Drift to piers 9 E/W
	21.	Implement C-200 if needed
	22.	Install bumpers, handrails, stairs, etc in access shaft
SWPS	23.	Complete fireline relocation
	24.	Install 6 deep seated benchmarks
	25.	Install ejector wells
	26.	Install soldier piles
	27.	Excavate 36" service water pipe (train A)
BWST	28.	Construct new ring beams
Other	29.	Finish 72" line repair
	30.	Approval of Quality Assurance Plans

JRSchaub
8-12-82

CONFIRMATORY ACTION LETTER

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

I
Attachment I
(K-10)

AUG 12 1982

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

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

Gentlemen:

Based on discussions between you and Mr. W. Shafer on August 11, 1982, we understand that you have stopped work in the remedial soils area in accordance with Stop Work Order FSW-24.

Prior to lifting this stop work order in whole or in part you will obtain prior Region III approval. Such approval will be based on a clear understanding and approval by Region III of the work activities to be undertaken.

If your understanding is different than the above, please contact this office immediately.

Sincerely,

A Bert Davis

for James G. Keppler
Regional Administrator

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

8208160393

J

Attachment 5
(K-11)

SEP 2 4 1982

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

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

Gentlemen:

This letter confirms the telephone discussion on September 24, 1982, between Messrs. Warnick and Shafer of this office and Mr. D. Miller and others of your staff regarding the problems in the remedial soils QC requalification program identified by Messrs. Gardner and Landsman.

The purpose of this letter is to document our understanding of the actions you have taken or plan to take.

As a result of our discussion, we understand that you have initiated or plan to initiate the following actions:

(1) All work on remedial soils has been stopped with the exception of those continuous activities such as maintaining the freeze wall and well pumping.

(2) All examinations related to remedial soils QC requalification have stopped and all QC personnel previously certified have been decertified.

(3) A retraining program will be established and conducted for all QC personnel who failed and for future failures.

(4) A written examination will be developed for all QC requalification examinations in the area of remedial soils.

8209300285

OFFICE ▶							
SURNAME ▶							
DATE ▶							

We also understand that you will meet with our staff on September 29, 1982, to describe what measures you will establish to accelerate the requalification and certification of the QC personnel involved in the balance of plant quality program.

If our understanding of your actions is not in accordance with the above, please contact this office immediately.

Sincerely,

James G. Keppler
Regional Administrator

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

OFFICE	RIII	RIII	RIII	RIII			
SURNAME	Shafer/ls	Warnick	Davis	Keppler			
DATE	9/24/82	9/24/82	9/24	9/24			