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10/29/82

(1) Wainick
(2) File - updated testimony
Missing Attachments
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

Docket Nos. 50-329 OM & OL
50-330 OM & OL

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 discuss

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 --- implemented in August 1980. The thrust of my testimony was that I had confidence that the licensee's overall QA program for the remedial soils work and the remainder of construction would be implemented effectively.

It wasn't 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, Midland Senior Resident Inspector, 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 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 Norellis 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 submit 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 construction of the Midland Plant should be permitted to continue?

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

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. Stone and Webster has been selected by Consumers Power Company to perform the assessment of the remedial soils work. The scope of, and contractors for, the remaining 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 established a procedure for staff authorization of work activities proposed by Consumers Power Company (Attachment H, Work Authorization Procedure, dated August 12, 1982); and has caused a stop of the remedial soils work on two occasions: August, 1982 and 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 work on 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 requirements and standards.



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

Attachment A

(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.

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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 ^{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 defensible 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.

James G. Keppler

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6/2/1/82

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
795 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.

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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 concurrence 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 attempted 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 1:1 $\frac{1}{2}$ horizontal to vertical slope when the specification called for a 1 $\frac{1}{2}$: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.

July 23, 1982

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 - "blindness".
- 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.

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The NRC inspectors have been informed by our contacts on site that there are memos written to the effect that "peripheral vision" should be curtailed and communication with the NRC stifled. The NRC has not read these memos 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 proficiency.

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 ASLE 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 occurrences 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 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

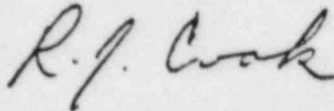
R. F. Warnick

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July 23, 1982

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
Senior Resident Inspector
Midland Site Resident Office

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



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

Attachment C
 (K-3)

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

8307010295

Shafer

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 ^{with} created the Office of Special Cases and a special Midland Section staffed ~~with~~ 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 Performance (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 July 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 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.

6-103-210501
2pp

OFFICE	RIII	RIII	RIII	RIII			
SURNAME	Gardner	Landsman	Shafer	Warnick			
DATE							

August 18, 1982

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 ▶							
USERNAME ▶							
DATE ▶							

"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.

Renumber as Attachment F.



**Consumers
Power
Company**

Attachment E2
(K-6)

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 20355

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

PRINCIPAL STAFF	
✓	lee
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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 NRC 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.

~~8209240272~~

SEP 22 1982

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 critical 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 addition 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 B. Puffer
Notary Public
Bay County, Michigan

My Commission Expires 3-4-86



**Consumers
Power
Company**

Attachment 6
(K-8)

James W Cook
Vice President - Projects, Engineering
and Construction

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

October 5, 1982

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

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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

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 Townsend
Notary Public
Jackson County, Michigan

My Commission Expires September 8, 1984

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 identified 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.

Can these people really be independent

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 pertinent 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 occurred 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 discrepancies. 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, seismic 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 compatibility 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

E. 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 implementation 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).

cl/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.

PERFORMANCE OBJECTIVES AND CRITERIA
FOR
CONSTRUCTION PROJECT EVALUATIONS

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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.

OA.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 of 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.

- 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.

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.

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.

- 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.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.

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.

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.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.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.

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.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, minimizes 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

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.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 management 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 operational 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

TRAINING

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.3 GENERAL TRAINING AND QUALIFICATION

PERFORMANCE OBJECTIVE

The training program should ensure that all employees receive indoctrination and training required to perform effectively, and that employees are qualified as appropriate to their assigned responsibilities.

CRITERIA

- A. Initial selection, training and indoctrination enable individuals to perform assigned responsibilities effectively.
- B. The previous qualification and training of new hires and transfers are verified.
- C. Individuals are qualified as appropriate for their assigned responsibilities.
- D. Training on a continuing basis, both formal and on-the-job, maintains the employee's ability to perform consistently and effectively.
- E. Continuing training provides an effective means of keeping employees up-to-date regarding changes to policies, procedures, processes, instructions, and commitments.
- F. Individuals are requalified or recertified as required to keep their qualifications current.
- G. Feedback is acquired and used to modify and improve training methods and content.

QUALITY PROGRAMS

QP.1 QUALITY PROGRAMS

PERFORMANCE OBJECTIVE

The quality assurance program scope, content, and applicability should be appropriate, defined clearly, and understood.

CRITERIA

- A. The quality assurance and quality control programs include all necessary program elements.
- B. Day-to-day activities are observed and monitored under a continuing program designed to ensure the highest quality of personnel performance, workmanship and attention to detail.
- C. The quality assurance program is applied to the project in an appropriately graduated way.
- D. The relationship between manuals and the applicability of procedures is defined clearly and understood.
- E. Audit and surveillance schedules are modified as appropriate to verify the effectiveness of program implementation and to reflect the need for increased monitoring.
- F. The utility conducts evaluations of contractors' quality assurance program with sufficient regularity and in sufficient depth to ensure program effectiveness.
- G. The programs provide for indoctrination and training of personnel as necessary to ensure that suitable proficiency is achieved and maintained.
- H. The "stop process" and "stop work" authority is understood clearly and implemented effectively.

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.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.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.

Attachment H
(K-9)

NRC AND CPCO
WORK AUTHORIZATION PROCEDURE

Effective Date August 12, 1982

APPROVED *J. Amcooney*
Midland Project Office

APPROVED *W.D. Shales*
Chief, Midland Section OSC

~~8208240309~~

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



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

Attachment ⁵
(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,

Albert Davis

f 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~~

CONFIRMATORY ACTION LETTER

J
Attachment Ie
(K-11)

SEP 24 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.

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OFFICE						
NAME						
DATE						
CONFIRMATORY ACTION LETTER						

CONFIRMATORY ACTION LETTER

Consumers Power Company

- 2 -

SEP 24 1982

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	RFW	Davis	Keppeler			
NAME	Shafiq	Warnick	Davis	Keppeler			
DATE	9/24/82	9/24/82	9/24	9/24			

~~Warrick~~
~~Hester~~
~~Landman~~
~~Shaffer~~
 Return to Warrick

March 25, 1983

Charles Bechhoefer, Esq.
 Administrative Judge
 Atomic Safety and Licensing Board
 U.S. Nuclear Regulatory Commission
 Washington, D. C. 20555

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

Dr. Frederick P. Cowan
 Administrative Judge
 6152 N. Verde Trail
 Apt. B-125
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CL	FILE

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

Dear Administrative Judges:

Enclosed are the following: (1) Supplemental Testimony of James G. Keppler with Respect to Quality Assurance, (2) Supplemental testimony of R.J. Cook, R.N. Gardner, R.B. Landsman and W.D. Shafer with Respect to Quality Assurance and (3) Supplemental Testimony of John W. Gilray, Ross Landsman and Wayne Shafer with Respect to the Quality Assurance Program for the Underpinning Activities of the Service Water Pump Structure and Auxiliary Building.

This testimony is to be presented at hearings scheduled to begin on April 26, 1983.

Sincerely,

Michael N. Wilcove
 Counsel for the NRC Staff

Enclosures: As stated

cc w/enclosures: See page 2

DESIGNATED ORIGINAL
 Certified By Michael N. Wilcove

0507

CC:

Frank J. Kelley
 Ms. Mary Sinclair
 Ronald G. Zamarin, Esq.
 James E. Brunner, Esq.
 James R. Katès
 Wayne Hearn
 Myron M. Cherry
 T. J. Creswell
 Steve J. Gadler
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 Michael I. Miller, Esq.
 Alan S. Farnell, Esq.
 Ms. Barbara Stamiris
 Wendell H. Marshall
 Paul C. Rau
 Peter Flynn
 Atomic Safety & Licensing Board
 Atomic Safety & Licensing Appeal Panel
 Docketing & Service Section

DISTRIBUTION:

w/attachments:

FF (2)
 R. Fraley (2)
 J. Keppler
 S. Lewis
 R. Landsman
 R. Gardner
 W. Shafer
 R. Cook
 J. Gilray
 D. Hood
 Wilcove
 Wright
 Paton
 Chron

w/o attachments:

Murray
 EChristenbury/Scinto
 Lieberman
 JRutberg
 LChandler
 BVogler
 EAdensam
 J. Fisher
 J. Sniezek
 J. Stone

OFC	: OELD	: OELD	:	:	:	:	:
NAME	: MWilcove/rb	: J. Rutberg	:	:	:	:	:
DATE	: 3/25/83	: 3/25/83	:	:	:	:	:

Harrison (last)
Harrison
Andrew
Henderson

3/25/83

PRINCIPAL STAFF	
RA	ENF
D/RA	✓ ECS
A/RA	✓ FAO
DPRP	ISLO
DRMA	✓ AC
DRMSP	
DE	
ML	
OL	FILE/PIL

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

Docket Nos. 50-329 OM & OL
50-330 OM & OL

SUPPLEMENTAL TESTIMONY OF JAMES G. KEPPLER
WITH RESPECT TO QUALITY ASSURANCE

- Q1. Please state your name and position with the NRC.
- A1. My name is James G. Keppler. I am the Regional Administrator of the NRC's Region III office. My professional qualifications have already been submitted in this proceeding.
- Q2. Please state the purpose of this testimony.
- A2. This testimony supplements the "Testimony of James G. Keppler with respect to Quality Assurance" filed with this Board on October 29, 1982. (October 1982 testimony). It serves to advise the Board of the current status of CPC's implementation of quality assurance at Midland.
- Q3. In your October 1982 testimony, you discuss certain proposals submitted by Consumers Power Company to resolve its problems with implementing quality assurance. Please discuss the status of those proposals.
- A3. CPC submitted three separate documents describing how they intended to resolve their problems with implementing quality assurance. (Attachments E, F, G, October 1982 testimony). The documents follow two

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ED ORIGINAL

Certified By *[Signature]*

tracks; soils (Attachment F) and balance of safety-related work. (Attachments E&G).

The proposals contained in Attachment E & G have been integrated into a Construction Completion Program submitted by Consumers Power Company on January 10, 1982. Hence, the Staff review of those proposals will be encompassed in the review of the Construction Completion Program. Further discussion of the Construction Completion Program is contained in my response to Question 8.

Attachment F is a letter from James Cook to Harold Denton and me, dated September 17, 1982. It describes steps which either had been or would be taken to ensure that quality assurance would be adequately implemented for remedial soils work. In particular, seven steps to improve quality assurance implementation are listed at the top of the second page of that letter.

The Staff has reviewed the commitments in Attachment F and finds them acceptable. The most significant step is the retention of a third party to independently assess the implementation of remedial soils work. For the last twenty-three weeks Stone & Webster has been on site to assess the remedial soils work the Staff has permitted CPC to perform. (Further discussion of the extent to which the Staff has authorized remedial soils work is contained in my response to the next question.) The Staff has determined that Stone & Webster satisfies the Commission's criteria for the competence and independence of third party reviewers set forth in the Chairman's letter of February 1, 1982 to Congressmen Ottinger and

Dingell. (The Staff's approval letter (with attachments) is enclosed as Attachment 1. The Ottinger/Dingell letter is enclosed as Attachment 2.)

- Q4. Since the initiation of the work authorization procedure in August 1982 (Attachment H, October 1982 testimony), please discuss the nature of the remedial soils work which the Staff has authorized.
- A4. From the time the work authorization procedure was instituted until December 9, 1982, the only type of work authorized was preliminary steps to prepare for the underpinning of the auxiliary building. On December 9, 1982, the Staff authorized CPC to go beyond preliminary work and permitted the performance of actual excavation work. In particular, the Staff authorized CPC to begin certain work relating to the drift, excavation and installation of piers W12 and E12 under the turbine building. It was the Staff's intent that this initial excavation work not be excessively complex, yet be sufficient to permit us to assess whether we should allow further remedial soils work to be done.
- Q5. Has the work authorized by the Staff on December 9, 1982 been satisfactorily performed?
- A5. Yes. NRC Region III inspections and Stone & Webster surveillances found no major problems with the work performed by CPC. (See Attachments D and E to Attachment 1, Memorandum for R. F. Warnick from R. B. Landsman, dated February 15, 1983 and letter from A. S. Lucks to J. G. Keppler dated February 14, 1983.)
- Q6. Does Region III intend to permit further remedial soils work to proceed?

- A6. Yes. Based on the following factors, the Staff has concluded that further underpinning work may proceed: (1) CPC's satisfactory performance of work on piers W12 and E12; (2) the acceptability of Stone & Webster as a third party reviewer; and (3) CPC's commitment to make the four changes to Stone & Webster's contract listed at the top of the second page of the letter from James Keppler to James Cook, dated February 24, 1983. (Attachment 1).
- Q7. In your October 1982 testimony, you state that the Midland Section of the Office of Special Cases had begun an inspection of certain work done by CPC. Please discuss the results of that inspection.
- A7. From October 12 through November 29, 1982, Region III conducted a thorough inspection primarily of work accomplished in the diesel generator building. (Attachments 3 and 4). The results of this inspection indicated a significant breakdown in the implementation of Consumers Power Company's quality assurance program.
- Q8. As a result of the inspection findings described in your response to the previous question, what action did CPC take?
- A8. On November 25, 1982 the Staff presented the inspection findings to CPC. On December 2, 1982, CPC informed the Office of Special Cases that it planned to stop all safety-related work, except for the following activities: (1) NSSS installation work, performed by Babcock & Wilcox; (2) HVAC installation work performed by Zack Company; (3) post system turnover work; (4) hanger and cable reinspection; (5) design engineering; (6) system layup activities and (7) remedial soils work (which can only be performed according to the work authorization procedure).

As documented in a letter from James Keppler to James Cook, dated December 30, 1982, Consumers Power Company also presented a proposal for a Construction Completion Program. (Attachment 5.) On January 10, 1983, CPC submitted its Construction Completion Program to the NRC.

(Attachment 6.) The Program was discussed at a public meeting held on February 8, 1983. The Program covers all safety-related activities except for remedial soils work and includes proposals for third party assessments of safety related work other than remedial soils work.

- Q9. What action did the NRC staff take as a result of the inspection findings on the diesel generator building?
- A9. In view of the actions by CPC to suspend most safety-related construction activities, it was not necessary for the NRC Staff to take any stop-work actions. However, pursuant to the Commission's Enforcement Policy (Appendix C to 10 CFR Part 2) and 10 CFR § 2.205, a civil penalty in the amount of \$120,000 was proposed by the NRC Staff.
- Q10. Has CPC submitted a response to the "Notice of Violation and Proposed Imposition of Civil Penalties" (Attachment 3)?
- A10. Yes. CPC submitted their response on March 10, 1983 (Attachment 7). The Staff's review of that response is in progress.
- Q11. What confidence do you now have with respect to CPC's capability to satisfactorily complete the Midland plant consistent with the NRC's regulatory requirements?
- A11. While the steps taken by CPC to improve its quality assurance program are encouraging, I am not prepared to place confidence in that program alone to provide reasonable assurance that CPC can complete the plant

consistent with regulatory requirements. As a result, the NRC believes the following actions need to be taken to provide reasonable assurance that the Midland plant can be completed consistent with regulatory requirements:

1. An independent overview by a qualified outside organization of safety related work, as CPC commits in its Construction Completion Program. This overview should continue until such time as CPC's implementation of its quality assurance program has been demonstrated to the NRC Staff - by sustained good performance - to be adequate;
2. An independent design and construction verification (ID-CV) review of completed work on selected safety-related systems by an outside organization other than the one selected to conduct the overview described in the preceding paragraph; and
3. NRC oversight of the construction activities and the implementation of CPC's QA program through its inspection program.



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

~~SECRET~~
Attachment 1

FEB 24 1983

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

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

Gentlemen:

We have reviewed your proposal to have the Stone and Webster Corporation (S&W) perform the third party independent assessment of the soils remedial work activities.

The staff has received sworn statements from the S&W Corporation and from the key S&W personnel (Attachments A and B respectively) attesting to corporate and individual independence.

The staff has also reviewed a letter, J. E. Brunner to W. D. Paton, dated November 15, 1982 (Attachment C) which describes the contracts undertaken by S&W for the Consumers Power Company and indicates that S&W or its subsidiaries have no holdings of Consumers Power Company stocks. The attachments to this letter have been subsequently notarized.

The staff has considered the qualifications of both the S&W organization and the individuals proposed as team members to conduct the independent review of Consumers Power Company's management of the Midland soil project. Inputs to this review included the information supplied in the above submittals, the staff's existing knowledge of S&W performance at other nuclear power plants and information as to S&W personnel competence.

Our evaluation of these documents revealed that the competence and independence criteria have been met as set forth in Chairman Palladino's letter to Congressmen Ottinger and Dingell of February 1, 1982.

Based on our reviews we have determined that the S&W Corporation is an acceptable organization to perform the third party assessment of the soils remedial work; however, the scope of the S&W assessment should be broadened to include the following:

Cruse

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- (1) Provide a QA overview and assessment of the design work packages to ensure accuracy and adequacy.
- (2) Provide a QA overview and assessment of the QC inspector requalification and certification program.
- (3) Provide a QA overview and assessment of the training conducted for all personnel in the soils remedial work effort.
- (4) Expand the work contract to include an assessment of all underpinning work on safety-related structures on which underpinning work is done while your contract with Stone and Webster is in effect.

In addition, the Midland Section has reviewed Consumers Power Company's performance regarding the installation of Piers W12 and E12 and has concluded that no major discrepancies were identified during this work (Memorandum, R. Landsman to R. F. Warnick, dated 2/15/83, Attachment D).

Stone and Webster in their letter dated February 14, 1983 (Attachment E) also indicated that no major performance problems have been identified. They have stated that in their opinion additional underpinning work could be released for construction.

Based on the inclusion of the previously described contract changes, your performance record regarding Piers W12 and E12, and the acceptability of the Stone and Webster Corporation as the third party independent reviewer, we conclude that underpinning activities of safety-related structures may proceed. Please submit documentation of the expansion of the third party assessment to include the four areas identified above. The work activities will be authorized in accordance with the approved NRC/CPCo Work Authorization Procedure.

Should you have any questions regarding this letter please contact Mr. R. F. Warnick of my staff.

Sincerely,

Original signed by
A. Bert Davis

James G. Keppler
Regional Administrator

Enclosures: As stated

cc w/encl:
See attached distribution list

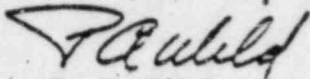
OFFICE	RIII						<i>concurrent by telephone</i>
NAME	Shaffer	Warnick	Lewis	Davis	Keppler	Eisenhut	E. Eisenhut
DATE	2/22/83		2/22	2/22	2/22/83	2/23/83	

cc w/encl:

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

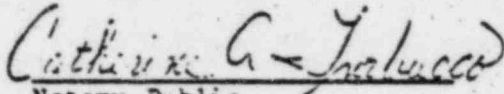
February 14, 1983

Under separate cover we are sending signed affidavits for each member of the Assessment Team. If you have any questions, please contact Mr. A. Stanley Lucks at (617) 589-2067.



P. A. Wild
Vice President

Sworn and subscribed to before me on this 14th day of February, 1983.



Notary Public
Suffolk County Massachusetts
My Commission Expires November 8, 1985.

Catherine Trabucco

NOTARY PUBLIC

For the Commonwealth of Massachusetts
My Commission Expires Nov. 8, 1985

PRINCIPAL STAFF	
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STONE & WEBSTER MICHIGAN, INC.

P.O. Box 2325, BOSTON, MASSACHUSETTS 02107

Mr. J. G. Keppler
 Administrator, Region III
 U.S. Nuclear Regulatory Commission
 799 Roosevelt Road
 Glen Ellyn, IL 60137

February 15, 1983
 J.O. NO. 14358
 MPS-9

RE: DOCKET NO. 50-329/330
 MIDLAND PLANT - UNITS 1 AND 2
 INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
 ASSESSMENT OF WORK ON PIERS W12 AND E12
TEAM MEMBER AFFIDAVITS

Enclosed with this letter are signed affidavits for the Stone & Webster and Parsons Brinckerhoff Assessment Team members.

If you have any questions with respect to these affidavits please call me at (617) 589-2067.

A.S. Lucks
 Project Manager

ASL:PJC

Dupe

~~8302230165~~

FEB 16 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

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

Docket No. 50-329 OM
50-330 OM
Docket No. 50-329 OL
50-330 OL

February 14, 1983

AFFIDAVIT OF *A.S. Lucks*

My name is A.S. Lucks. I am employed by Stone & Webster Engineering Corporation as Project Manager.

I am currently assigned to the team which is conducting an independent assessment of soils work at the Midland Nuclear Plant site. Prior to being given this assignment, I have never worked on any job or task associated with the Midland Project, or any job or task for or on behalf of Consumers Power Company, Bechtel, or the Mergentime Company relating to soils of underpinning. I have never been employed by Consumers Power Company, Bechtel, or Mergentime Company. I do not own any shares of Consumers Power Company, Bechtel, or Mergentime stock. Mutual funds or other funds in which I may have a beneficial interest, but over which I have no control, may own shares of Consumers Power Company, Bechtel, or Mergentime stock, of which I am unaware. A list of such funds in which I have an interest are attached. I have no relatives which are or have been employed by Consumers Power Company, Bechtel, or Mergentime Company.

Sworn and Subscribed Before Me This 14th Day of February 1983

Catherine A. Trabucco

Notary Public
Suffolk County, Massachusetts

My Commission Expires November 8, 1985

Catherine Trabucco
NOTARY PUBLIC

For the Commonwealth of Massachusetts
My Commission Expires Nov. 8, 1985

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

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

Docket No. 50-329 OM
50-330 OM
Docket No. 50-329 OL
50-330 OL

February 14, 1983

AFFIDAVIT OF

W. E. Kilker

My name is W. E. Kilker. I am employed by Stone & Webster Engineering Corporation as Project Engineer.

I am currently assigned to the team which is conducting an independent assessment of soils work at the Midland Nuclear Plant site. Prior to being given this assignment, I have never worked on any job or task associated with the Midland Project, or any job or task for or on behalf of Consumers Power Company, Bechtel, or the Mergentime Company relating to soils of underpinning. I have never been employed by Consumers Power Company, Bechtel, or Mergentime Company. I do not own any shares of Consumers Power Company, Bechtel, or Mergentime stock. Mutual funds or other funds in which I may have a beneficial interest, but over which I have no control, may own shares of Consumers Power Company, Bechtel, or Mergentime stock, of which I am unaware. A list of such funds in which I have an interest are attached. I have no relatives which are or have been employed by Consumers Power Company, Bechtel, or Mergentime Company.

Sworn and Subscribed Before Me This 14th Day of February 1983

Catherine A. Trabucco

Notary Public
Suffolk County, Massachusetts

My Commission Expires November 8, 1985

Catherine Trabucco
NOTARY PUBLIC

For the Commonwealth of Massachusetts
My Commission Expires Nov. 8, 1985

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

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

Docket No 50-329 OM
50-330 OM
Docket No 50-329 OL
50-330 OL

February 11, 1983

AFFIDAVIT OF

Paul F Barry

My name is PAUL F BARRY. I am employed by STONE + WEBSTER ENGINEERING CO
as a STRUCTURAL ENGINEER

I am currently assigned to the team which is conducting an independent assessment of soils work at the Midland Nuclear Plant site. Prior to being given this assignment, I have never worked on any job or task associated with the Midland Project, or any job or task for or on behalf of Consumers Power Company, Bechtel, or the Mergentime Company relating to soils or underpinning. I have never been employed by Consumers Power Company, Bechtel, or Mergentime Company. I do not own any shares of Consumers Power Company, Bechtel, or Mergentime stock. Mutual funds or other funds in which I may have a beneficial interest, but over which I have no control, may own shares of Consumers Power Company, Bechtel, or Mergentime stock, of which I am unaware. A list of such funds in which I have an interest are attached. I have no relatives which are or have been employed by Consumers Power Company, Bechtel, or Mergentime Company.

Sworn and Subscribed Before Me This 11th Day of Feb 1983
1982 PP

Patricia A. Luffen

Notary Public

Jackson County, Michigan

Bay

My Commission Expires 3-4-86

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

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

Docket No 50-329 OM
50-330 OM
Docket No 50-329 OL
50-330 OL

February 11, 1983

AFFIDAVIT OF A.B. Scott

My name is A.B. Scott. I am employed by Stone & Webster
as Engineer.

I am currently assigned to the team which is conducting an independent assessment of soils work at the Midland Nuclear Plant site. Prior to being given this assignment, I have never worked on any job or task associated with the Midland Project, or any job or task for or on behalf of Consumers Power Company, Bechtel, or the Mergentime Company relating to soils or underpinning. I have never been employed by Consumers Power Company, Bechtel, or Mergentime Company. I do not own any shares of Consumers Power Company, Bechtel, or Mergentime stock. Mutual funds or other funds in which I may have a beneficial interest, but over which I have no control, may own shares of Consumers Power Company, Bechtel, or Mergentime stock, of which I am unaware. A list of such funds in which I have an interest are attached. I have no relatives which are or have been employed by Consumers Power Company, Bechtel, or Mergentime Company.

Sworn and Subscribed Before Me This 14th Day of Feb 1983

Patricia A. Puffer
Notary Public

Bay
Jackson County, Michigan

My Commission Expires 3-4-86

I was employed by Bechtel Corporation from March 1951 to July 1968 and from June 1972 to September 1976. AS.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

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

Docket No 50-329 OM
50-330 OM
Docket No 50-329 OL
50-330 OL

February 11, 1983

AFFIDAVIT OF Lawrence T. Rouan

My name is Lawrence T. Rouan I am employed by Stone and Webster Engr' Corp.
as Senior Quality Assurance Engineer.

I am currently assigned to the team which is conducting an independent assessment of soils work at the Midland Nuclear Plant site. Prior to being given this assignment, I have never worked on any job or task associated with the Midland Project, or any job or task for or on behalf of Consumers Power Company, Bechtel, or the Mergentime Company relating to soils or underpinning. I have never been employed by Consumers Power Company, Bechtel, or Mergentime Company. I do not own any shares of Consumers Power Company, Bechtel, or Mergentime stock. Mutual funds or other funds in which I may have a beneficial interest, but over which I have no control, may own shares of Consumers Power Company, Bechtel, or Mergentime stock, of which I am unaware. A list of such funds in which I have an interest are attached. I have no relatives which are or have been employed by Consumers Power Company, Bechtel, or Mergentime Company.

Sworn and Subscribed Before Me This 11th Day of Feb. 1983

Patricia A. Luffer

Notary Public

Washtenaw County, Michigan

My Commission Expires 3-4-86

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

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

Docket No. 50-329 OM
50-330 OM
Docket No. 50-329 OL
50-330 OL

February 11, 1983

AFFIDAVIT OF _____

Barry L. Holsinger
My name is Barry L. Holsinger. I am employed by Stone & Webster
as QA Engineer.

I am currently assigned to the team which is conducting an independent assessment of soils work at the Midland Nuclear Plant site. Prior to being given this assignment, I have never worked on any job or task associated with the Midland Project, or any job or task for or on behalf of Consumers Power Company, Bechtel, or the Mergentime Company relating to soils or underpinning. I have never been employed by Consumers Power Company, Bechtel, or Mergentime Company. I do not own any shares of Consumers Power Company, Bechtel, or Mergentime stock. Mutual funds or other funds in which I may have a beneficial interest, but over which I have no control, may own shares of Consumers Power Company, Bechtel, or Mergentime stock, of which I am unaware. A list of such funds in which I have an interest are attached. I have no relatives which are or have been employed by Consumers Power Company, Bechtel, or Mergentime Company.

Sworn and Subscribed Before Me This 11th Day of February 1983

Nancy S. Noble
Notary Public

NANCY S. NOBLE
Notary Public in the State of New York
Qualified in Onondaga Co. No. 34-2297730
My Commission Expires March 30, 1984

My Commission Expires _____

TRK

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

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

Docket No 50-329 OM
50-330 OM
Docket No 50-329 OL
50-330 OL

February 11, 1983

AFFIDAVIT OF Thomas R. Kuesel

My name is Thomas R. Kuesel. I am employed by Parsons Brinckerhoff Quade & Douglas, Inc.
as Senior Vice President.

I am currently assigned to the team which is conducting an independent assessment of soils work at the Midland Nuclear Plant site. Prior to being given this assignment, I have never worked on any job or task associated with the Midland Project, or any job or task for or on behalf of Consumers Power Company, Bechtel, or the Mergentime Company relating to soils or underpinning. I have never been employed by Consumers Power Company, Bechtel, or Mergentime Company. I do not own any shares of Consumers Power Company, Bechtel, or Mergentime stock. Mutual funds or other funds in which I may have a beneficial interest, but over which I have no control, may own shares of Consumers Power Company, Bechtel, or Mergentime stock, of which I am unaware. A list of such funds in which I have an interest are attached. I have no relatives which are or have been employed by Consumers Power Company, Bechtel, or Mergentime Company.

Sworn and Subscribed Before Me This 14 Day of Feb ¹⁹⁸³ 1983

Jan 2 Bayl
Notary Public
Jackson County, Michigan
NOTARY PUBLIC
No. 31-40
Commission Expires 1983

* From 1963 to 1967 I was employed by Parsons Brinckerhoff-Tudor-Bechtel, General Engineering Consultants for design and construction management of the San Francisco Bay Area Rapid Transit System, in the capacity of Assistant Manager of Engineering.

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

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

Docket No 50-329 CM
50-330 CM
Docket No 50-329 OL
50-330 OL

February 11, 1983

AFFIDAVIT OF

Louis G. Silano

My name is Louis G. Silano I am employed by Parsons Brinckerhoff Quade & Douglas, Inc. as Technical Director.

Major Structures

I am currently assigned to the team which is conducting an independent assessment of soils work at the Midland Nuclear Plant site. Prior to being given this assignment, I have never worked on any job or task associated with the Midland Project, or any job or task for or on behalf of Consumers Power Company, Bechtel, or the Mergentime Company relating to soils or underpinning. I have never been employed by Consumers Power Company, Bechtel, or Mergentime Company. I do not own any shares of Consumers Power Company, Bechtel, or Mergentime stock. Mutual funds or other funds in which I may have a beneficial interest, but over which I have no control, may own shares of Consumers Power Company, Bechtel, or Mergentime stock, of which I am unaware. A list of such funds in which I have an interest are attached. I have no relatives which are or have been employed by Consumers Power Company, Bechtel, or Mergentime Company.

Sworn and Subscribed Before Me This 14 Day of Feb 1983

James G. Boyd

Notary Public

~~Jackson County, Michigan~~

My Commission Expires

JAMES G. BOYD
NOTARY PUBLIC, STATE OF NEW YORK

Qualified on 11/15/82 at NY
Commission Expires March 20, 1983

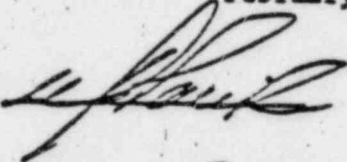
UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

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

Docket No 50-329 OM
50-330 OM
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50-330 OL

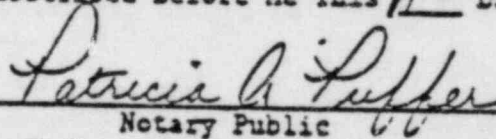
February 11, 1983

AFFIDAVIT OF 

My name is W.C. PARISH. I am employed by Parsons Brinckerhoff Associates
as Structural Engineer.

I am currently assigned to the team which is conducting an independent assessment of soils work at the Midland Nuclear Plant site. Prior to being given this assignment, I have never worked on any job or task associated with the Midland Project, or any job or task for or on behalf of Consumers Power Company, Bechtel, or the Mergentime Company relating to soils or underpinning. I have never been employed by Consumers Power Company, Bechtel, or Mergentime Company. I do not own any shares of Consumers Power Company, Bechtel, or Mergentime stock. Mutual funds or other funds in which I may have a beneficial interest, but over which I have no control, may own shares of Consumers Power Company, Bechtel, or Mergentime stock, of which I am unaware. A list of such funds in which I have an interest are attached. I have no relatives which are or have been employed by Consumers Power Company, Bechtel, or Mergentime Company.

Sworn and Subscribed Before Me This 11th Day of Feb 1983



Notary Public

Jackson County, Michigan

My Commission Expires 3-4-86

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

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

Docket No 50-329 OM
50-330 OM
Docket No 50-329 OL
50-330 OL

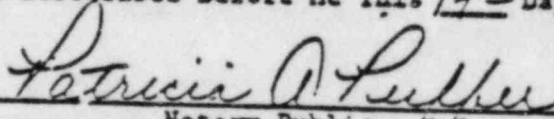
February 11, 1983

AFFIDAVIT OF 

My name is Jerrold Ratner. I am employed by Parsons Brinckerhoff, Quade and Douglas
as Manager, Construction.

I am currently assigned to the team which is conducting an independent assessment of soils work at the Midland Nuclear Plant site. Prior to being given this assignment, I have never worked on any job or task associated with the Midland Project, or any job or task for or on behalf of Consumers Power Company, Bechtel, or the Mergentime Company relating to soils or underpinning. I have never been employed by Consumers Power Company, Bechtel, or Mergentime Company. I do not own any shares of Consumers Power Company, Bechtel, or Mergentime stock. Mutual funds or other funds in which I may have a beneficial interest, but over which I have no control, may own shares of Consumers Power Company, Bechtel, or Mergentime stock, of which I am unaware. A list of such funds in which I have an interest are attached. I have no relatives which are or have been employed by Consumers Power Company, Bechtel, or Mergentime Company.

Sworn and Subscribed Before Me This 14th Day of Feb 1983


Notary Public

Bay County, Michigan

My Commission Expires 3-4-86

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

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

Docket No 50-329 CM
50-330 CM
Docket No 50-329 OL
50-330 OL

February 11, 1983

AFFIDAVIT OF

Vincent J. Madill

My name is Vincent J. Madill I am employed by Parsons Brinckerhoff Quade & Douglas, Inc.
as Senior Engineer.

I am currently assigned to the team which is conducting an independent assessment of soils work at the Midland Nuclear Plant site. Prior to being given this assignment, I have never worked on any job or task associated with the Midland Project, or any job or task for or on behalf of Consumers Power Company, Bechtel, or the Mergentime Company relating to soils or underpinning. I have never been employed by Consumers Power Company, Bechtel, or Mergentime Company. I do not own any shares of Consumers Power Company, Bechtel, or Mergentime stock. Mutual funds or other funds in which I may have a beneficial interest, but over which I have no control, may own shares of Consumers Power Company, Bechtel, or Mergentime stock, of which I am unaware. A list of such funds in which I have an interest are attached. I have no relatives which are or have been employed by Consumers Power Company, Bechtel, or Mergentime Company.

Sworn and Subscribed Before Me This 14 Day of Feb ¹⁹⁸³ 1983

James R. Boyd

Notary Public
~~Jackson County, Michigan~~

My Commission Expires

JAMES R. BOYD
Notary Public, State of New York
No. 314710
Qualified in New York County
Commission Expires March 30, 1983



Lawrence B. Lindner
Vice President
and General Counsel

Judd L. Eaton
Allen S. Ross
D. K. Freeman
William E. Warner
Managing Attorneys

Robert J. Byers
Howard E. Clark
Bernard E. Hagan
Senior Attorneys

Francis X. Breen
J. E. Brunner
John A. Cannon
H. Richard Chan
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James H. Dwyer
John P. Dwyer
Kevin P. Duffy
George F. Hill
Laurence H. Harter
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David R. Ross
Gregory A. Sandoz
Jack D. Shuman
Walter Scott Sizer
A. T. Lofsky
Dennis L. Vigneri
Theodore J. Voss
Michael G. Wilson
Attorneys

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

November 15, 1982

William D. Paton
Counsel for the NRC Staff
U S Nuclear Regulatory Commission
Washington, DC 20555

PRINCIPAL STAFF			
PA		CL	
SA		SWF	
			<i>6/13</i>
		SLO	
CE			
		FILE	<i>11/15/82</i>

MIDLAND NUCLEAR COGENERATION PLANT
MIDLAND DOCKET NOS 50-329, 50-330
STONE & WEBSTER (S&W)

Recently, questions have been raised concerning the use of the Stone and Webster Company (S&W) to conduct an appraisal of underpinning of the Midland auxiliary building. A public meeting regarding these issues, among others, was conducted in Washington on November 5, 1982.

During that meeting, representatives of the NRC Staff asked certain questions touching upon the independence of the Stone and Webster Company. To respond more fully to these questions, Consumers asked Stone & Webster to describe jobs undertaken by S&W on behalf of Consumers Power Company and to determine S&W's holdings of Consumers' securities. The attached letter is S&W's response to those questions.

According to the attached letter, Stone & Webster has carried out, and is carrying out, no work for Consumers Power Company in relation to the soils remedial project, other than the present audit. S&W has undertaken two relatively limited assignments not related to soils on behalf of the Midland Project. The letter also indicates that Stone & Webster's or its subsidiaries have no holdings of Consumers Power Company stocks.

James E Brunner
James E Brunner

BOO1

CC DSHood, NRC
Billie Gardie
CM/CL Service List

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PDR ADCCK 03000329

oc1182-0270a100

FOR HAND ORIGINAL

D. Hood

11/16/82

SERVICE LIST

Frank J. Kelly, Esq
Attorney General of the
State of Michigan
Carole Steinberg, Esq
Assistant Attorney General
Environmental Protection Div
720 Law Building
Lansing, MI 48913

Myron M. Cherry, Esq
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Suite 450H
Chicago, IL 60611

Mr. Wendell H. Marshall
Rm 1B
Midland, MI 48640

Charles Beckroff, Esq
Atomic Safety & Licensing
Board Panel
U S Nuclear Regulatory Comm
Washington, D C 20555

Mr. Frederick S. Cohen
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Bozeman, MT 59713

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Sabcock & Wilson
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Lynchburg, Virginia 24505

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Consumers Power Company
212 West Michigan Avenue
Jackson, MI 49201

Mr. D. F. Judd
Sabcock & Wilson
PO Box 1260
Lynchburg, VA 24505

Steve Gaylor, Esq
2120 Carter Avenue
St Paul, MN 55108

Atomic Safety & Licensing
Appeal Panel
U S Nuclear Regulatory Comm
Washington, D C 20555

Mr. C. R. Stephens
Chief, Docketing & Services
U S Nuclear Regulatory Comm
Office of the Secretary
Washington, D C 20555

Ms. Mary Stupelis
5711 Summer Street
Midland, MI 48640

William D. Fitch, Esq
Counsel for the NRC Staff
U S Nuclear Regulatory Comm
Washington, D C 20555

Atomic Safety & Licensing
Board Panel
U S Nuclear Regulatory Comm
Washington, D C 20555

Barbara Strimling
5795 North River Road
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Jerry Harbour
Atomic Safety & Licensing
Board Panel
U S Nuclear Regulatory Comm
Washington, D C 20555

Lee L. Bishop
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Chicago, IL 60603

John DeMeester, Esq
Dow Chemical Bldg
Michigan Division
Midland, MI 48640



STONE & WEBSTER MICHIGAN, INC.

P.O. BOX 2325, BOSTON, MASSACHUSETTS 02107

November 9, 1982

Mr. John R. Schaub
Project Manager
Consumers Power Company
1945 W. Parnall Road
Jackson, Michigan 49201

Dear Mr. Schaub:

Per your request to Mr. Carl F. Sundstrom I am enclosing a list and description of jobs that Stone & Webster Michigan Inc. has undertaken for Consumers Power Company (CPCo). I am also providing the results of my investigation of our holdings in CPCo securities.

If we can be of further assistance, please call Mr. Carl F. Sundstrom at (617) 389-2780.

Very truly yours,

P. A. Wild
Vice President

<u>Start Date</u>	<u>End Date</u>	<u>Brief Description</u>	<u>Key Person</u>
3/78	12/81	Review Midland Plant line of equipment and recommend spare parts.	RDevitt RMontross GSleigh
6/78	6/80	Prepare an outage critique report on the Palisades Station second outage and provide planning support for the September, 1979 refueling outage.	KSpencer
11/78	6/80	Procure a mobile security access module to be used for outage work forces at Palisades.	KSpencer
3/82	7/82	Evaluate and make recommendation for training and implementation of the Midland Site Emergency Plan. *	RDoane SHowall WBeckman
9/82	--	Perform independent assessment of construction activities related to the auxiliary building and feedwater isolation valve pit remedial work at the Midland Site.	JCook JMooney JSchaub
10/82	--	Provide emergency planning consulting services for the Big Rock Site.	RSindermann WMiller
10/82	--	Perform vibration analysis on the boiler feed pump at the J. H. Campbell Unit 3 and recommend and implement corrective actions.	JFord TMehl GWaller
10/82	--	Provide services and materials to coordinate the 1983/84 Palisades refueling outage.	TELwood JSchneider

* Note - S&W did the review but NUTECK who was already working in Michigan for Detroit Edison at the Fermi Station is doing the detailed planning.

HOLDINGS OF CPCO SECURITIES

Stone & Webster, Inc., the parent company of Stone & Webster Engineering Corporation and its subsidiaries (including SWEC) have no holdings of CPCo securities. The Employee Savings Plan of Stone & Webster, Incorporated and participating subsidiaries is administered by the Chase Manhattan Bank, N.A. as trustee. Funds may be invested in the Employee Benefit Investment Funds, Equity Fund of the Chase Manhattan Bank which is a commingled fund. Stone & Webster exercises no direct control over the investment of such funds.

The Chemical Bank of New York is trustee for the Employee Retirement Plan of Stone & Webster, Inc. and for participating subsidiaries. There are no CPCo securities held in the plan.

February 15, 1983

MEMORANDUM FOR: R. F. Warnick, Director, Office of Special Cases
 TO: W. D. Shafer, Chief, Midland Section
 FROM: R. B. Landsman, Reactor Inspector, Midland Section
 SUBJECT: LICENSEE PERFORMANCE ON PIERS 12E and 12W

RIII on December 9, 1982, authorized CFCo to initiate work activities pertaining to the drift, excavation and installation of Piers 12E and 12W. Subsequent to that authorization the licensee began work on December 13, 1982. Due to the Diesel Generator Building Inspection I have had only enough time to perform five inspections to determine the acceptability of the licensee's work in regards to these piers including removal of fill concrete, shaft excavation and bracing, ball excavation and bracing, and reinforcing details and proposed concreting activities.

I have identified three concerns since underpinning work began which have been subsequently corrected or are in the process of being corrected by the licensee. They are:

- a) That the craftworkmen were not receiving the required amount of specialized remedial soils underpinning training. The licensee has agreed to expand the scope of craft training, but does not have the details worked out to date.
- b) That the licensee wanted to use a super plasticizer as an additive to the concrete mix in lieu of good concreting practices, i.e., consolidation by vibration. The licensee after what I consider to be excessive discussions finally agreed to vibrate all underpinning concrete in accordance with good engineering practice.
- c) That the third party independent assessment team is not reviewing the design documents for technical adequacy. They are only doing implementation review to assure that the design documents are being followed. From discussions with Stone and Webster personnel, it was determined that this important parameter was not included in their contract. The licensee is presently considering including this in the contract documents.

Besides these three concerns no other issues or deviations from regulatory requirements have been identified.

dup
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OFFICE	RIII			R. B. Landsman		
REMARKS	Landsman, la. Shafer			Reactor Inspector		
DATE	02/14/83					

PRINCIPAL STAFF	
NAME	
DATE	
TIME	
BY	
REASON	
DEPT	
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STONE & WEBSTER MICHIGAN, INC.

P.O. Box 2325, BOSTON, MASSACHUSETTS 02107

Mr. J. G. Keppler
 Administrator, Region III
 U.S. Nuclear Regulatory Commission
 799 Roosevelt Road
 Glen Ellyn, IL 60137

February 14, 1983
 J.O. NO. 14358
 MPS-8

RE: DOCKET NO. 50-329/330
 MIDLAND PLANT - UNITS 1 AND 2
 INDEPENDENT ASSESSMENT OF AUXILIARY BUILDING UNDERPINNING
 ASSESSMENT OF WORK ON PIERS W12 AND E12

As of February 11, 1983 the Stone & Webster - Parsons Brinckerhoff Assessment Team has observed the excavation, placing of reinforcement, and concreting of underpinning pier W12, and the excavation, and placing of reinforcement for underpinning pier E12. In addition, the Assessment Team has reviewed the drawings, procedures and other documents pertaining to the underpinning work and has observed the performance of the Quality Assurance and Quality Control Organizations during the progress of the work.

During the period that the Assessment Team has been on site, daily meetings have been held with Construction, Quality and Engineering personnel to obtain additional information and discuss observations.

The Assessment Team has issued twenty Weekly Reports to the U.S. Nuclear Regulatory Commission. These reports have described the activities of the Assessment Team and summarized their observations and findings.

The Assessment Team has issued a total of five Nonconformance Identification Reports. Four of these Nonconformance Identification Reports have been closed out to the satisfaction of the Assessment Team. The remaining open Nonconformance Identification Report was issued on February 10, 1983 and the Assessment Team feels that it can be closed out in the near future without impacting the progress of the underpinning.

The underpinning work is being performed in accordance with the construction and quality procedures. As the work has progressed, the procedures have been modified based upon experience gained during the construction of piers W12 and E12. The Assessment Team feels that these minor changes are appropriate and will have a positive effect on the quality of the underpinning work.

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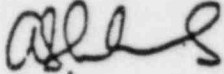
JGK

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February 14, 1983

Based upon these observations and findings, the Assessment Team is of the opinion that additional piers could be released for construction. This will benefit the quality of the work by allowing the Contractor to maintain the experienced labor teams from piers W12 and E12.

If you have any questions, please contact me at (617) 589-2067.



A.S. Lucks
Project Manager



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

Attachment 2

February 14, 1982

WDIrcks
KCornell
TRehm
VStello
CMichelson
RDeYoung
GCunningham
HDenton
ECase
DEisenhut
BBuckley
SCavanaugh
REngelken, RV
CA
Secy
EDO #11091

The Honorable John D. Dingell, Chairman
Committee on Energy and Commerce
United States House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

We share the concerns expressed in your November 13, 1981 letter regarding the implication of the recent seismic design errors detected at the Diablo Canyon nuclear power plant. The implication of these errors has been and will be thoughtfully considered by the Commission.

The timing of the detection of these errors, so soon after authorization for low-power operation, was indeed unfortunate and it is quite understandable that the Congress' and the public's perception of our licensing process has been adversely affected. Had this information been known to us on or prior to September 22, 1981, I am sure that the facility license would not have been issued until the questions raised by these disclosures had been resolved.

Because of these design errors, on November 19, 1981 we suspended Pacific Gas and Electric Company's (PG&E) license pending satisfactory completion of the following:

1. The conduct of an independent design review program of all safety-related activities performed prior to June 1, 1978 under all seismic-related service contracts used in the design of safety-related structures, systems and components.
2. A technical report that fully assesses the basic cause of all design errors identified by this program, the significance of the errors found and their impact on facility design.
3. PG&E's conclusions of the effectiveness of the design verification program in assuring the adequacy of facility design.
4. A schedule for completing any modifications to the facility that are required as a result of the design verification program.

In addition, the Commission ordered PG&E to provide for NRC review and approval:

1. A description and discussion of the corporate qualifications of the company or companies that PG&E would propose to carry out the

independent design verification program, including information that demonstrates the independence of these companies.

2. A detailed program plan for conducting the design verification program.

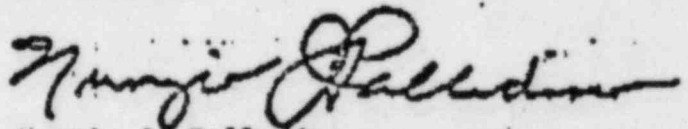
In recognition of the need to assure the credibility of the design verification program, NRC will decide on the acceptability of the companies proposed by PG&E to conduct this program after providing the Governor of California and Joint-Intervenors in the pending operating licensing proceeding 15 days for comment. Also, the NRC will decide on the acceptability of the plan proposed by PG&E to conduct the program, after providing the Governor of California and the Joint Intervenors in the pending operating license proceeding 15 days for comment.

Prior to authorization to proceed with fuel loading, the NRC must be satisfied with the results of the seismic design verification program and with any plant modification resulting from that program that may be necessary prior to fuel loading. The NRC may impose additional requirements prior to fuel loading necessary to protect health and safety based upon its review of the program or any of the information provided by PG&E. This may include some or all of the requirements specified in the letter to PG&E dated November 19, 1981.

Responses to each of the four questions in your letter are enclosed.

A decision to permit PG&E to proceed with fuel loading will not be made until all the actions contained in the Commission's November 19, 1981 Order are fully satisfied.

Sincerely,



Nunzio J. Palladino

cc: Rep. Carlos Moorhead

Enclosures:

1. Commission Order, dated 11/19/81
2. Ltr from Office of Nuclear Reactor Regulation, NRC to PG&E dated 11/19/81
3. Responses to Questions

RESPONSES TO QUESTIONS IN NOVEMBER 13, 1981 LETTER TO
CHAIRMAN PALLADINO FROM CONGRESSMEN DINGELL AND OTTINGER

Fax
To: ~~Shed~~ Lewis
From: Steve Burn
ELC

Question 1: Please provide, prior to the issuance of the 50.54(f) letter, the definition of the terms (i) "independent," (ii) "competent," (iii) "integrity," and (iv) "complete."

3-Page

Response: Although one of the options under consideration by the Commission was a 50.54(f) letter, the Commission decided to suspend PG&E's license to load fuel and conduct tests up to 5 percent power by Memorandum and Order dated November 19, 1981, pending satisfactory completion of certain actions, including the conduct of a design verification program. Also, a staff letter of the same date required PG&E to carry on other design verification programs prior to issuance of any license authorizing operation above 5 percent power.

The most important factor in NRC's evaluation of the individuals or companies proposed by Pacific Gas and Electric to complete the required design verification program is their competence. This competence must be based on knowledge and experience in the matters under review. These individuals or companies should also be independent. Independence means that the individuals or companies selected must be able to provide an objective, dispassionate technical judgment, provided solely on the basis of technical merit. Independence also means that the design verification program must be conducted by companies or individuals not previously involved with the activities at Diablo Canyon that they will now be reviewing. Their integrity must be such that they are regarded as reputable companies or individuals. The word "complete" applies to the NRC requirement for review of all quality assurance procedures and controls used by each pre-June 1978 seismic and non-seismic service related contractor and by PG&E with regard to that contract. A comparison of these procedures and controls with the related criteria of Appendix B to 10 CFR 50 is also required. Any deficiencies or weaknesses in the quality assurance procedures and controls of the contractor and PG&E will be investigated in more detail. In addition, calculations will be checked in an audit program. Numerical calculations for which the original basis cannot be determined will be recalculated to verify the initial design input.

DA:SP
11/23/81

Question 2:

Please provide the criteria to be used in assuring that the proposed audit will be "independent."

Response:

The competence of the individuals or companies is the most important factor in the selection of an auditor. Also, the companies or individuals may not have had any direct previous involvement with the activities at Diablo Canyon that they will be reviewing.

In addition, the following factors will be considered in evaluating the question of independence:

- 1) Whether the individuals or companies involved had been previously hired by PG&E to do similar seismic design work.
- 2) Whether any individual involved had been previously employed by PG&E (and the nature of the employment).
- 3) Whether the individual owns or controls significant amounts of PG&E stock.
- 4) Whether members of the present household of individuals involved are employed by PG&E.
- 5) Whether any relatives are employed by PG&E in a management capacity.

In addition to the above considerations, the following procedural guidelines will be used to assure independence:

- 1) An auditable record will be provided of all comments on draft or final reports, any changes made as a result of such comments, and the reasons for such changes; or the consultant will issue only a final report (without prior licensee comment).
- 2) NRC will assume and exercise the responsibility for serving the report on all parties.

Question 3:

In view of the licensee's past performance, and that of its subcontractors, what procedures will be utilized to ensure that there are not conflicts of interests in the performance of any required audits?

Response:

We are requiring that PG&E provide the NRC with a description and a discussion of the corporate qualifications of the companies proposed to carry out the various design verification programs, including information that demonstrates the independence of these companies. This information will be provided to the Governor of California and the Joint Interveners for comments. Based upon review of the information provided by PG&E and the comments of the Governor and Joint Intervenor, the NRC will decide on the acceptability of the companies with respect to their "independence" and "competence." In addition, approval will not be given by NRC if we determine that a potential conflict of interest exists in the performance of any required audits that cannot be adequately addressed by procedural safeguards.

Question 4:

What plans does the NRC have to ensure that a similar situation will not arise at other plants now under construction? What, if any, additional quality control procedures does the NRC propose to institute in its inspection program?

Response:

The Commission is developing an action plan that will result in improved NRC review of quality assurance programs at operating nuclear power plants and nuclear power plants under construction. The details of the action plan will be available in the near future.



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

Attachment 3

FEB 8 1983

Docket No. 50-329
Docket No. 50-330
EA 83-3

Consumers Power Company
ATTN: Mr. John D. Selby
President
212 West Michigan Avenue
Jackson, MI 49201

Gentlemen:

This letter refers to the special inspection conducted by the Office of Special Cases, Midland Section, of this office on October 12 - November 25, 1982, and on January 19-21, 1983 of activities at the Midland Nuclear Power Plant, Units 1 and 2, authorized by NRC Construction Permits No. CPPR-81 and No. CPPR-82. The results of the inspection were discussed with you on November 10 and 23, 1982, on January 21, 1983 at the conclusion of the inspection and on January 18, 1983 in the Region III office during an enforcement conference between you and others of your staff and me and others of the NRC staff.

The inspection was primarily a physical inspection of installed equipment to verify conformance to approved drawings and specifications. The results of the inspection indicate a breakdown in the implementation of your quality assurance program as evidenced by numerous examples of noncompliance with nine of the eighteen different criteria as set forth in 10 CFR 50, Appendix B. The breakdown was caused by personnel who failed to follow procedures, drawings, and specifications; by first line supervisors and field engineers who failed to identify and correct unacceptable work; by construction management who failed to call for quality control inspections in a timely manner, allowing a backlog of almost 16,000 inspections to develop; and by quality assurance personnel who failed to identify the problems and ensure that corrective actions were taken. As a result, you failed to fulfill your primary responsibility under Criterion 1 of Appendix B to 10 CFR 50 to assure the execution of a quality assurance program. In addition, of particular concern to the NRC is the fact that quality control (QC) supervisors instructed QC inspectors to suspend inspections if excessive deficiencies were found during the performance of inspections. Consequently, not all observed deficiencies were reported, and complete inspections were not performed by all QC inspectors after the reported deficiencies were corrected.

I understand that, because of our findings, you have inspected other areas of the plant and found similar deficiencies. As a result of our findings, your findings, and your assessment of the overall project, you halted certain safety-related work at the Midland site, reduced the work force by approximately 1100

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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FEB 8 1983

people, committed to building cleanup and system layup, committed to organize teams of construction and engineering personnel responsible for the completion of one or more plant systems, and committed to reinspect safety-related systems. I expect that you will also conduct an inspection to determine the extent to which QC supervisors at the Midland site have been instructing QC inspectors to limit findings of deficiencies and the extent to which QC inspectors have been conducting reinspections based only on reported deficiencies.

To emphasize the need for CPCo management to ensure implementation of an effective quality assurance program that identifies and corrects construction deficiencies, we propose to impose civil penalties for the items set forth in the Notice of Violation that is enclosed with this letter. The violations in the Notice have been categorized as Severity Level III violations in accordance with the General Statement of Policy and Procedure for Enforcement Actions, Appendix C of 10 CFR 2. The base value for a Severity Level III violation is \$40,000. However, as a result of your past enforcement history involving quality assurance and the multiple examples of QC deficiencies for the areas inspected, the base civil penalty for each violation is being increased by fifty percent.

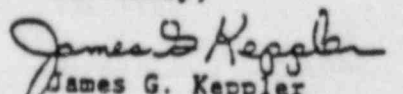
After consultation with the Director of the Office of Inspection and Enforcement, I have been authorized to issue the enclosed Notice of Violation and Proposed Imposition of Civil Penalties in the cumulative amount of One Hundred Twenty Thousand Dollars (\$120,000).

You are required to respond to this letter and should follow the instructions in the Notice when preparing your response. In your response you should describe the results of your inspections to determine the extent to which QC supervisors instructed QC inspectors to limit findings of deficiencies, the systems affected, and your corrective actions to ensure that all affected systems are adequately reinspected. Your reply to this letter and the results of future inspections will be considered in determining whether further enforcement action is appropriate.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosures will be placed in the NRC Public Document Room.

The responses directed by this letter and the enclosed Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

Sincerely,


James G. Keppler
Regional Administrator

Enclosure:
Notice of Violation and
Proposed Imposition of Civil Penalties

FEB 8 1983

cc w/encl:
DMB/Document Control Desk (RIDS)
Resident Inspector, RIII
The Honorable Charles Bechhoefer, ASLB
The Honorable Jerry Harbour, ASLB
The Honorable Frederick P. Cowan, ASLB
The Honorable Ralph S. Decker, ASLB
William Paton, ELD
Michael Miller
Ronald Callen, Michigan
Public Service Commission
Myron M. Cherry
Barbara Stamiris
Mary Sinclair
Wendell Marshall
Colonel Steve J. Gadler (P.E.)
RCDeYoung, IE
JHSniezek, IE
JAxelrad, IE
JTaylor, IE
EJordan, IE
CThayer, IE
JLieberman, ELD
VStello, DED/ROGR
FIngram, PA
JCummings, OIA
JFitzgerald, OI
HDenton, NRR
JKeppler, RIII
Enforcement Coordinators
RI, RII, RIII, RIV, RV
MWilliams, NRR
JCrooks, AEOD
GKlingler, IE
IE:ES Files
IE:EA Files
EDO Rdg File

NOTICE OF VIOLATION

AND

PROPOSED IMPOSITION OF CIVIL PENALTIES

Consumers Power Company
Midland Nuclear Power Plant
Units 1 and 2

Docket Nos. 50-329
50-330
Permit Nos. CPPR-81
CPPR-82
EA 83-3

As a result of the inspections conducted at the Midland Nuclear Plant on October 12 - November 25, 1982 and January 19 - 21, 1983, the violations of 10 CFR 50, Appendix B listed below were identified. These violations demonstrate that you failed to exercise adequate oversight and control of your principal contractor, to whom you had delegated the work of executing the quality assurance program. Your failure manifested itself in a breakdown in the implementation of your quality assurance program and, at least in part, caused Consumers Power Company to halt some safety-related work and take other significant actions to provide assurance that safety-related structures and systems are constructed as designed.

As described in item A, QC supervisors instructed QC inspectors to suspend an inspection if an excessive number of deficiencies was observed. Consequently, there was no assurance that a complete inspection was being performed after the reported deficiencies were corrected and we have found several instances in which final QC inspections were based on only the limited deficiencies reported during the initial inspection. In addition, this failure to report all identified deficiencies resulted in incorrect data being fed into your Trend Analysis Program, inhibiting your ability to determine the root cause of deficiencies and prevent their recurrence.

As illustrated in the numerous examples set forth in Item B, personnel failed to follow procedures, drawings, and specifications; first line supervisors and field engineers failed to identify and correct unacceptable work; construction management failed to call for quality control inspections in a timely manner, allowing a backlog of almost 16,000 inspections to develop; and quality assurance personnel failed to identify the problems and ensure that corrective actions were taken.

In order to emphasize the need for improvements in your control of your quality assurance program, we propose to impose civil penalties in the cumulative amount of One Hundred Twenty Thousand Dollars (\$120,000).

In accordance with the NRC Enforcement Policy (10 CFR Part 2, Appendix C) 47 FR 9987 (March 9, 1982), and pursuant to Section 234 of the Atomic Energy Act of 1954, as amended ("Act"), 42 U.S.C. 2282, PL 96-295, and 10 CFR 2.205, the particular violations and the associated civil penalties are set forth below:

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CIVIL PENALTY VIOLATIONS

- A. 10 CFR 50, Appendix B, Criterion X requires, in part, "A program for inspection of activities affecting quality shall be established and executed...to verify conformance with the documented instructions, procedures and drawings for accomplishing the activity."

10 CFR 50, Appendix B, Criterion XV requires, in part, "Measures shall be established to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation."

Consumers Power Quality Assurance Program Policy No. 15, Revision 12, Paragraph 1.0, requires, in part, "Items, services or activities which are deficient in characteristic, documentation or procedure which renders the quality unacceptable or indeterminate and which is considered significant to safety are identified as nonconformances. Nonconforming items... are identified by marking, tagging, segregating or by documentation. Nonconforming items are controlled to prevent their inadvertent installation or use. Nonconforming items and activities are recorded and are considered for corrective action to prevent recurrence...."

Contrary to the above, during the inspection conducted between October 12 - November 25, 1982 and January 19-21, 1983, NRC inspectors determined that quality control inspectors were not documenting as nonconformances all of the deficiencies which they observed during their inspections. Inspections were suspended by the QC inspector if too many nonconformances were observed. In-process inspection notices (IPINs) associated with suspended inspections, identified as nonconformances only a portion of the observed deficiencies. Supervisory QC personnel stated that they directed QC inspectors to limit the number of nonconformances documented during an inspection. This directive was verified by discussions with QC inspectors. Several QC inspectors interviewed, confirmed that inspections were closed after reviewing only the deficiencies documented on the IPIN. As a result, measures were not established to prevent the continued installation and use of these nonconforming items. In addition, corrective actions were not implemented to prevent recurrence of these nonconformances.

This is a Severity Level III violation (Supplement II)
(Civil Penalty - \$60,000)

- B. 10 CFR 50, Appendix B, Criterion II requires holders of construction permits for nuclear power plants to document, by written policies, procedures, or instructions, a quality assurance program which complies with the requirements of Appendix B for all activities affecting the quality of safety-related structures, systems, and components and to implement that program in accordance with those documents.

Contrary to the above, Consumers Power Company and its contractor did not adequately implement a quality assurance program to comply with the requirements of Appendix B as evidenced by the following examples:

1. 10 CFR 50, Appendix B, Criterion V requires, in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

Consumers Power Quality Assurance Program Policy No. 5, Revision 12, Paragraph 1.0 states, in part, "Instructions for controlling and performing activities affecting quality of equipment or activities such as...construction, installation...are documented in instructions, procedures...and other forms of documents."

Contrary to the above, the following instances of failure to accomplish activities affecting quality in accordance with instructions, procedures, specifications, or drawing requirements were identified:

- a. Installation of diesel generator engine control panels 1C111, 1C112, 2C111, and 2C112 was not in accordance with the requirements delineated on foundation Drawing 7220-M18-250 in that the foundation bolt washers required by the subject drawing were not installed.
- b. Unscheduled pull box associated with conduits 2BND006, 2BND007, and 2BDA002 was not sized in accordance with the requirements delineated on Sheet 42 of Drawing E-42 in that the 12" x 12" x 6" as-built dimensions of the subject pull box did not conform to the 13½" x 12" x 6" dimension requirements delineated on Sheet 42 of Drawing E-42.
- c. The 1'-10" wall to support dimension required by raceway support Drawing E-796(Q), Sheet 2 of 2, Revision 5, for hanger No. 86 was not correctly translated into the as-built installation of the subject hanger in that the as-built wall to support dimension was 2'-1½" in lieu of the required 1'-10".
- d. The 6'-6" wall to support dimension required by raceway support Drawing E-796(Q) Sheet 1 of 2, Revision 11 for hanger No. 14 was not correctly translated into the as-built installation of the subject hanger in that the as-built wall to support dimension was 5'-5" in lieu of the required 6'-6".

- e. The inspectors identified high strength steel plate placed in the laydown area which was not marked with the material type and grade as required by Field Instruction FIG-9.600, Revision 1.
- f. The inspectors identified various stock steel shapes in the "Q" area with yellow-colored paint on the ends (indicating the material was non "Q") and various steel stock shapes in the non "Q" area without painted ends (indicating "Q" material), contrary to the requirements of Field Instruction FIG-9.600, Revision 1.
- g. The slots in the muffler support plates were not machined but were determined to be irregular and flame cut, leaving rough slot edges not in conformance with design Drawing M18-425(5)-1.
- h. Jacking plates were not installed beneath the center support plates of Bay 1 diesel generator muffler as required by Drawing M18-250-6.
- i. Procedure FID-2.100, "Outstanding FCR/FCN Retirement," Revision 2 was inadequate in that the design drawings were not changed when an FCR/FCN had been retired and no further reference to the FCR existed on the revised drawing. As a result, the retired FCR C-2103 relating to HVAC structural steel was lost and could not be traced to the design drawing to ensure a complete quality record.
- j. Field Sketch CY-1035 which illustrated the bottom gusset plates for HVAC fan supports was not identified as "Q", nor was there a reference to the affected drawing on the sketch as required by Procedure FPD-5.000, "Preparation of Field Sketches."
- k. Procedure FPD-5.000, "Preparation of Field Sketches," Revision 1 did not require design drawings to reference appropriate field sketches to ensure a complete quality record.
- l. The eight bracing top gusset plates identified on Drawing C-1004, Revision 10, as 5/16" thick were measured by the inspectors to be 1/4" thick in all four diesel generator bays. This change was neither reviewed nor properly authorized.
- m. The as-built gusset plate connections in Bay 1 were not built as identified on Detail 3 of Drawing C-1004. The angle braces were welded together as opposed to having separate welds for each brace. This change was neither reviewed nor properly authorized.

- n. None of the sixteen $\frac{1}{2}$ " bracing angles identified on Drawing C-1004 were constructed utilizing $\frac{1}{2}$ " material. This change was neither reviewed nor properly authorized.
 - o. Drawing C-1004, Detail 2, required the W10 beam-to-beam connection to be welded. In Bay No. 3, a bolted connection was constructed in lieu of the required welded connection, without review nor proper authorization.
 - p. The column cover plate identified on FCR-C4401 was not constructed in Bay No. 3 as required. The plate was slotted instead of solid as required. This change was neither reviewed nor properly authorized.
 - q. A section (approximately 18 x 10 x 4 inches deep) of the primary containment wall in Containment Purge Room 702 was removed (by chipping) without obtaining approval as required by FIG-1-111, Revision 4, Concrete Drilling Permit.
2. 10 CFR 50, Appendix B, Criterion III requires, in part, "Measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. Measures shall also be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems, and components. Design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless the applicant designates another responsible organization."

Consumers Power Company Quality Assurance Program Policy No. 3, Revision 12, Paragraphs 3.3 and 3.5 state, in part, "Each group or organization performing detailed design translates the applicable regulatory requirements, design bases, codes, standards, and design criteria into design documents, such as...drawings.... Changes to the design require the same review and approval as the original design by the group or organization delegated lead design responsibility."

Contrary to the above:

- a. Measures were not established for the selection and review for suitability of application of "Q" materials associated with the diesel generator exhaust muffler in that design drawings and specifications did not indicate the material identity of the installed muffler saddle supports and plates.

- b. Design Drawing C-147 required bolted bracing connections for the diesel generator building HVAC bracing gusset plates. Field Sketch CY-1035 was used to change the design to welded connections in lieu of the specified bolted connections. This design change was neither properly reviewed nor approved.
 - c. Design Drawings C-1004 and C-147 did not specify the sizes of the diesel generator building HVAC fan gusset plates. A "combo" shop work order request was used to design the gusset plates without appropriate review and approval.
 - d. The licensee failed to analyze the four diesel generator building monorails as seismic Category I as described in their commitment to Regulatory Guide 1.29, in Appendix 3A of the FSAR.
 - e. The licensee designed and constructed thirty-two diesel generator building exhaust system hangers without ensuring that the applicable requirements for "Q" components were included in the design documents.
 - f. The licensee purchased armor stone for a "Q" portion of the perimeter dike without translating the applicable regulatory requirements into appropriate specifications and design documents.
3. 10 CFR 50, Appendix B, Criterion VII requires, in part, "Measures shall be established to assure that purchased...equipment...conforms to the procurement documents. These measures shall include provisions, as appropriate, for...inspection at the contractor or subcontractor source, and examination of products upon delivery."

Consumers Power Quality Assurance Program Policy No. 7, Revision 12, Paragraphs 1.0 and 3.4, state, in part, "The Midland Project Office and the Midland Project Quality Assurance Department verify that procurement requirements are met. This is accomplished through... source evaluation and inspection...receipt inspections are made to verify that the items...conform to procurement requirements not verified by source surveillance or inspection...."

Contrary to the above, source inspections at the panel supplier facility and receipt inspections at the Midland site failed to ensure conformance of the internal wiring within diesel generator engine control panels 1C111, 1C112, 2C111, and 2C112 to Procurement Specification 7220-G-5, Revision 1. Paragraph 6.0 of Specification 7220-G-5 states, "All electrical wiring...within the board enclosure shall conform to the highest industrial standards of design and

workmanship." An NRC inspection on October 15, 1982 identified the following examples of defective terminations of internal wiring within the subject panels.

- a. The output lead on the Relay Tach device had numerous broken strands at the termination lug.
 - b. The K1 lead on the Relay Tach device had two broken strands resulting in a potential short circuit between the K1 lead and an adjacent conductor.
 - c. The 1- lead on the CB-1 device did not have all strands inserted into the compression lug.
4. 10 CFR 50, Appendix B, Criterion X requires, in part, "A program for inspection of activities affecting quality shall be established and executed...to verify conformance with the documented...drawings for accomplishing the activity."

Consumers Power Company Quality Assurance Program Policy No. 10, Revision 12, Section 1.0 states, in part, "Inspection and surveillance are performed to assure that activities affecting quality comply with documented...design documents...inspection and surveillance are performed according to written instructions."

Contrary to the above:

- a. An inspection program was not established to ensure segregation of cables installed in horizontal trays which used metal dividers to segregate control and instrumentation cables in accordance with design requirements.
 - b. Quality Control (QC) inspections failed to ensure that activities affecting quality conformed to design documents in that QC inspections performed on July 1, 1981 and documented on QCIR C210-172 failed to detect and identify nonconformances B.1.(1) through (c) of this Notice of Violation. These nonconformances were associated with installation of the diesel generator building HVAC fan support steel.
5. 10 CFR 50, Appendix B, Criterion XIII requires, in part, "Measures shall be established to control the...cleaning and preservation of material and equipment in accordance with work and inspection instructions to prevent damage or deterioration. When necessary for particular products, special protective environments...shall be specified."

Consumers Power Company Quality Assurance Program Policy No. 13, Revision 12, Paragraph 3.3, states, in part, "Suppliers provide plans...maintain and control items upon arrival at the site."

Contrary to the above, the licensee did not implement a maintenance program to prevent five of sixteen installed diesel generator slide bearing muffler plates from accumulating dirt and dust as required by the vendor's manual.

6. 10 CFR 50, Appendix B, Criterion IX requires, in part, "Measures shall be established to assure that special processes, including welding, heat-treating, and nondestructive testing, are controlled...."

Consumers Power Company Quality Assurance Program Policy No. 9, Revision 12, Paragraph 1.0 states, in part, "Where the required level of quality cannot be measured by inspection only of the item...accomplish these processes under controlled conditions in accordance with applicable codes, standards and specifications using qualified procedures, equipment and personnel." Paragraph 3.3 states, in part, "...Personnel performing special processes maintain records to verify that the required activities were accomplished in accordance with qualified procedures by qualified personnel."

Contrary to the above, during welding of the diesel generator building exhaust piping hanger support steel, the licensee did not verify preheat of existing safety-related structural steel to a temperature of 70°F as required by site specifications and the AWS 1974 Code.

7. 10 CFR 50, Appendix B, Criterion VI requires in part, that "Measures shall be established to control the issuance of documents, such as instructions, procedures, and drawings including changes thereto, which prescribe all activities affecting quality...."

The Consumers Power Company Quality Assurance Program Policy No. 6, Revision 12, Paragraph 1.0 states, in part, "Measures are included to assure that documents, including changes,...are distributed according to a controlled distribution to the user functions."

Contrary to the above, measures were not established to control the distribution of changes (red lines) to hanger isometric drawings in that changes to Drawing 1-652-2-25(Q) were not controlled utilizing the Site Document Control Center.

8. 10 CFR 50, Appendix B, Criterion XV requires in part, "Measures shall be established to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation."

Consumers Power Quality Assurance Program Policy No. 15, Revision 12, Paragraph 1.0, states, in part, "Items, services or activities which are deficient in characteristic, documentation or procedure which renders the quality unacceptable or indeterminate and which is considered significant to safety are identified as nonconformances. Nonconforming items...are identified by marking, tagging, segregating or by documentation. Nonconforming items are controlled to prevent their inadvertent installation or use. Nonconforming items and activities are recorded and are considered for corrective action to prevent recurrence...."

Contrary to the above:

- a. Measures were not established or implemented to determine if materials ultimately restricted (per Nonconformance Report No. 3266) from installation or use in ASME Class I systems were actually installed or used in Class I systems.
- b. As of November 10, 1982, two nonconforming conditions identified by the NRC on October 12, 1982, and confirmed by the licensee on October 19 and 25, respectively, had not been documented on a nonconformance report, a quality assurance report, or other appropriate report. The two nonconforming conditions were:
- (1) The diesel generator exhaust hangers were not classified, designed, or built as "Q" as committed to in the FSAR. (See item 2.c.)
 - (2) The design of the diesel generator monorail was not analyzed to seismic Category I design requirements as committed to in the FSAR. (See item 2.d.)

This is a Severity Level III violation (Supplement II).
(Civil Penalty - \$60,000)

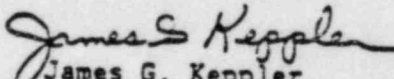
Pursuant to the provisions of 10 CFR 2.201, Consumers Power Company is hereby required to submit to the Director, Office of Inspection and Enforcement, U. S. Nuclear Regulatory Commission, Washington, DC 20555 and a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region III, 799 Roosevelt Road, Glen Ellyn, Illinois 60137, within 30 days of the date of this Notice a written statement or explanation, including for each alleged violation: (1) admission or denial of the alleged violation; (2) the reasons

for the violation, if admitted; (3) the corrective steps which have been taken and the results achieved; (4) the corrective steps which will be taken to avoid further violations; and (5) the date when full compliance will be achieved. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

Within the same time as provided for the response required above under 10 CFR 2.201, Consumers Power Company may pay the civil penalties in the cumulative amount of \$120,000 or may protest imposition of the civil penalties, in whole or in part, by a written answer. Should Consumers Power Company fail to answer within the time specified, the Director, Office of Inspection and Enforcement will issue an order imposing the civil penalties proposed above. Should Consumers Power Company elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalties, such answer may: (1) deny the violations listed in this Notice, in whole or in part; (2) demonstrate extenuating circumstances; (3) show error in this Notice; or (4) show other reasons why the penalties should not be imposed. In addition to protesting the civil penalties, in whole or in part, such answer may request remission or mitigation of the penalties. In requesting mitigation of the proposed penalties, the five factors contained in Section IV(B) of 10 CFR Part 2, Appendix C should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate statements or explanations by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. Consumers Power Company's attention is directed to the other provisions of 10 CFR 2.205, regarding the procedures for imposing a civil penalty.

Upon failure to pay any civil penalties due, which have been subsequently determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalties, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282.

FOR THE NUCLEAR REGULATORY COMMISSION


James G. Keppler
Regional Administrator

Dated at Glen Ellyn, Illinois
this 8th day February of 1983

Notice of Violation Index to Inspection Report

<u>NOV Item A</u>	<u>Report No.</u>	<u>Report Section</u>
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<u>NOV Item B</u>	<u>Report No.</u>	<u>Report Section</u>
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1.b	329/82-22-02B 330/82-22-02B	4.a.(4)
1.c	329/82-22-02C 330/82-22-02C	4.b
1.d	329/82-22-02D 330/82-22-02D	4.c
1.e	329/82-22-05A 330/82-22-05A	6.a
1.f	329/82-22-05B 330/82-22-05B	6.b
1.g	329/82-22-09A 330/82-22-09A	7.b.(1)
1.h	329/82-22-09B 330/82-22-09B	7.b.(2)
1.i	329/82-22-18A 330/82-22-18A	10.b
1.j	329/82-22-18B 330/82-22-18B	10.c.(2)
1.k	329/82-22-18C 330/82-22-18C	10.c.(3)
1.l	329/82-22-16 330/82-22-16	10.a.(1)

<u>NOV Item B</u>	<u>Report No.</u>	<u>Report Section</u>
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1.n	329/82-22-16 330/82-22-16	10.a.(3)
1.o	329/82-22-16 330/82-22-16	10.a.(4)
1.p	329/82-22-16 330/82-22-16	10.a.(5)
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2.a	329/82-22-08 330/82-22-08	7.a
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2.e	329/82-22-11 330/82-22-11	8.a
2.f	329/82-22-26 330/82-22-26	25.
3.	329/82-22-01 330/82-22-01	2.b
4.a	329/82-22-25 330/82-22-25	18.

<u>NOV Item B</u>	<u>Report No.</u>	<u>Report Section</u>
4.b	329/82-22-17 330/82-22-17	10.a
5.	329/82-22-10 330/82-22-10	7.b.(3)
6.	329/82-22-13 330/82-22-13	8.b
7.	329/82-22-21 330/82-22-21	12.
8.a	329/82-22-23 330/82-22-23	14.b
8.b.(1)	329/82-22-12A 330/82-22-12A	8.a
8.b.(2)	329/82-22-12B 330/82-22-12B	9



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

Attachment

FEB 8 1983

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

Consumers Power Company
ATTN: Mr. John D. Selby
President
212 West Michigan Avenue
Jackson, MI 49201

Gentlemen:

This refers to the special inspection conducted during the period October 12 through November 25, 1982, and January 19-21, 1983 of activities at the Midland Nuclear Power Plant, Units 1 and 2, authorized by NRC Construction Permits No. CPPR-81 and No. CPPR-82. The results of the inspection were discussed during an enforcement conference conducted at the NRC Region III office on January 18, 1983. The report setting forth the results of the inspection and the enforcement conference is enclosed.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosure will be placed in the NRC Public Document Room unless you notify this office, by telephone, within ten days of the date of this letter and submit written application to withhold information contained therein within thirty days of the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1). If we do not hear from you in this regard within the specified periods noted above, a copy of this letter and the enclosed inspection report will be placed in the Public Document Room.

A separate letter is enclosed that sets forth certain matters of concern and the items of noncompliance found during the inspection. The responses directed by this letter are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

cluse

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FEB 8 1983

We will gladly discuss any questions you have concerning these inspections.

Sincerely,

Original signed by
James G. Keppler

James G. Keppler
Regional Administrator

Enclosure: Inspection Report
No. 50-329/82-22(OSC) and
No. 50-330/82-22(OSC)

cc w/encl:

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

RIII
WWS
Schultz/jp
2/2/83
2-A-83

RIII
2
Davis
2/4/83

RIII
JK
Keppler
2/7/83

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-329/82-22; 50-330/82-22

Docket No. 50-329; 50-330

License No. CPPR-81; CPPR-82

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

Facility Name: Midland Plant, Units 1 and 2

Inspection At: Midland Site, Midland, MI

Inspection Conducted: October 12 - November 25, 1982 and January 19-21, 1983

Inspectors: *W Shafer for*
P. A. Barrett

2-1-83

W Shafer for
B. L. Burgess

2-1-83

W Shafer
R. J. Cook

2-1-83

R. N. Gardner
R. N. Gardner

2/1/83

R. B. Landsman
R. B. Landsman

2-1-83

Approved by: *W D Shafer*
W. D. Shafer, Chief
Section 2, Office of
Special Cases

2-1-83

Inspection Summary

Inspection on October 12 - November 25, 1982 and January 19-21, 1983 (Report No. 50-329/82-22; 50-330/82-22)

Areas Inspected: Licensee actions on previously identified items; special inspection involving electrical, mechanical and civil components of the Diesel Generator Building; control of concrete chipping; control of electrical cable segregation; review of Remedial Soils requalification activities; perimeter dike armor stone activities; prestartup test; ultrasonic testing of hold down bolts. The inspection involved a total of 594 inspector-hours onsite by five NRC inspectors, including 72 inspector-hours onsite during off-shifts:

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Results: Of the areas inspected, no apparent items of noncompliance or deviations were identified in four areas. Noncompliances identified in the remaining areas were as follows:

<u>Noncompliance</u>	<u>Report Section</u>
Criterion III - Failure to establish adequate design control measures	7.a, 8.a, 9, 10.c.(1), 10.c.(4), 25
Criterion V - Failure to develop adequate procedures and failure to accomplish activities affecting quality in accordance with instructions, procedures or drawings	3.a, 4.a(4), 4.b, 4.c, 6.a, 6.b, 7.b.(1), 7.b.(2), 10.a, 10.b, 10.c.(2), 10.c.(3), 17
Criterion VI - Failure to establish measures to control the issuance of documents, including changes	12
Criterion VII - Failure to conduct adequate component source inspections and receipt inspections	2.b
Criterion IX - Failure to establish measures to control special processes	8.b
Criterion X - Failure to establish an inspection program and failure of QC inspections to identify nonconformances	10.a, 18
Criterion XIII - Failure to establish measures to maintain and control the cleaning and preservation of equipment	7.b.(3)
Criterion XV - Failure to establish measures to control nonconforming materials, parts, or components	5, 8.a, 9, 14.b

DETAILS

Persons Contacted

Consumers Power Company

J. W. Cook, Vice President
R. Welles, Executive Manager
D. B. Miller, Site Manager
M. L. Curland, QA Superintendent
R. L. Akers, MPQAD
J. G. Balazer, Construction Engineer
E. M. Evans, Construction Engineer
L. R. Howell, MPQAD
D. D. Johnson, Construction Engineer
E. Jones, MPQAD
G. B. Johnson, Construction Engineer
J. S. Kreple, Construction Engineer
G. M. Murray, Construction Engineer
B. H. Peck, Construction Engineer
D. W. Puhalla, Construction Engineer
G. W. Rowe, Construction Engineer
M. J. Schaeffer, MPQAD
D. E. Sibbald, Construction Engineer
T. A. Spelman, Construction Engineer
D. J. Vokal, Construction Engineer
R. M. Wheeler, Construction Engineer
R. H. Wieland, Construction Engineer
J. T. Walton, Construction Engineer
R. E. Whitaker, Construction Engineer

Bechtel Power Company

H. Wahl, Vice President and General Manager
K. Vassar, Manager, Division of Project Operations and Services
J. Rutgers, Project Manager
L. Davis, Site Manager
M. A. Dietrich, MPQAD
P. Corcoran, Resident Project Engineer
J. J. Gilmartin, Field Engineer
B. R. Kappel, Resident Engineer
F. H. Schulmeister, MPQAD
E. Smith, PFQCE

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

1. Licensee Actions on Previously Identified Items

(Closed) Deviation (50-329/82-11-01; 50-330/82-11-01): The licensee failed to use approved installation/coordination forms during the

installation of affected underpinning instrumentation. As documented in Inspection Report No. 50-329/82-18; 50-330/82-18, the inspector verified that the licensee was properly documenting the installation of underpinning instrumentation on attached installation/coordination forms. During this inspection the inspector reviewed Bechtel Power Corporation Procedure FPU-1.000, Revision 0, which delineated procedures for the preparation, approval, and use of the subject installation/coordination forms. The inspector determined that the Bechtel procedure was acceptable.

Functional or Program Areas Inspected

2. Electrical Cable Terminations

An inspection of completed Class 1E cable terminations in Diesel Engine Control Panels 1C111, 1C112, and in Diesel Generator Control Panel 1C231 was conducted. During this inspection internal wiring terminations and field terminations were observed. The internal wiring terminations were accomplished by the panel supplier during the manufacture of the panels while the field terminations were accomplished by onsite Bechtel electricians.

a. The following field terminations were observed:

<u>Cable Scheme Number</u>	<u>Location of Termination</u>
1AA0502M	1C231
1AA0502R	1C231
1AD1201A	1C231
1AG1101B	1C231
1AG1101C	1C231
1AG1101F	1C231
1AG1102N	1C231
1AG1105B	1C231
1AG1105C	1C111
1AG1113C	1C111
1AA0001L	1C111
1AA0502G	1C111
1AB5311K	1C111
1AD1115A	1C111
1AG1102G	1C111
1AG1102K	1C111
1AG1102L	1C111
1AG1102M	1C111
1AG1102N	1C111
1AG1105C	1C111
1AG1108C	1C111
1AG1108F	1C111
1AG1109B	1C111
1AG1109C	1C111
1AV099E	1C111
1AV100E	1C111

The inspector verified that the above field terminations met the requirements of Bechtel Termination Procedure FPE-7.000 including the use of proper termination lugs and connection to the correct termination board locations.

b. The inspector observed the termination of internal wiring in Diesel Engine Control Panel 1C112. The inspection revealed numerous instances where the internal conductors within the panels were damaged or were not properly terminated. Examples included:

- (1) The output lead on the Relay Tach device had numerous broken conductors at the termination lug.
- (2) The K1 lead on the Relay Tach device had two broken strands resulting in a potential short circuit between the K1 lead and an adjacent conductor.
- (3) The 1- lead on the CB-1 device did not have all strands inserted into the compression lug.

The above conditions were contrary to the procurement requirements delineated in Specification 7220-G-5, Revision 1, Paragraph 6.0 which stated, in part, "All electrical wiring . . . within the board enclosure shall conform to the highest industrial standards of design and workmanship." This failure of source inspections at the panel supplier facilities and receipt inspections at the Midland site to assure conformance of the internal wiring to procurement requirements was considered an item of noncompliance with 10 CFR 50 Appendix B, Criterion VII as described in the Notice of Violation. (50-329/82-22-01; 50-330/82-22-01)

Subsequent to this finding the licensee initiated NCR No. M01-9-2-139 which contained 19 pages of identified internal wiring deficiencies associated with Diesel Engine Control Panels 1C111, 1C112, 2C111 and 2C112. The licensee on December 3, 1982 identified the poor workmanship within the subject panels as part of a potential 50.55(e) report on Vendor supplied electrical equipment.

c. The inspector determined that the internal wiring within the Diesel Generator Control Panels was not installed in accordance with the separation requirements delineated in the Midland FSAR. Nonclass 1E wiring was routed within six inches of Class 1E wiring and the color coding of the internal wiring did not correctly identify the wiring as being Class 1E or Nonclass 1E. Subsequent to this finding the inspector reviewed Consumers Power Company (CPCo) NCR No. M-01-9-1-075 dated June 19, 1981. This NCR was written by the licensee to document the aforementioned internal wiring separation deficiencies. The NCR stated that the panel supplier was sending a representative to the Midland site on November 15, 1982.

On November 18, 1982 the licensee informed the inspector that panel supplier representatives had arrived onsite on November 16, 1982

and that these representatives had determined that the panels would be modified to correct the internal wiring separation problems. The inspector had no further questions on this matter.

3. Diesel Control Panel Installations

The inspector observed the installation of the Diesel Generator Control Panel and the Diesel Engine Control Panel associated with each of the four diesel generators. The installation requirements for these panels were delineated on Drawings 7220-M18-83 and 7220-M18-250. During this inspection the following was observed:

- a. The Diesel Engine Control Panels were not installed in accordance with foundation Drawing 7220-M18-250. This drawing required the installation of bevelled washers and flat washers on the foundation bolts. The flat washers were not installed on any of the four panels. In addition, there was no evidence that the bevelled washers were installed before the panels were grouted. This failure to install foundation washers as required by the pertinent foundation drawing was considered an item of noncompliance with 10 CFR 50, Appendix B, Criterion V as described in the Notice of Violation. (50-329/82-22-02A ; 50-330/82-22-02A)

Subsequent to this finding the licensee initiated NCR No. M01-9-2-138 to document the missing washers.

- b. The Diesel Generator Control Panel base to cabinet hardware installation was not in accordance with Drawing 7220-M18-83. The drawing required that the cabinet be secured to the base utilizing 1/2" hex bolts with threads embedded 2" into concrete. The licensee had installed nuts on the 1/2" hex bolts which were not identified on the subject drawing. In addition, the concrete curb had not been poured at the time of this inspection. The inspector further observed that the drawing details did not clearly describe the base to cabinet hardware configuration. Discussions with the licensee revealed that the incomplete cabinet foundation was documented on an In Process Inspection Notice (IPIN), dated June 14, 1982. On September 21, 1982, the licensee had initiated Field Change Request (FCR) M-6655 which proposed a change to the cabinet to foundation detail located on drawing 7220-M18-83. The inspector had no further questions on this matter.

4. Raceway Support Installations

- a. The inspector observed the as-built installation of the type 13 conduit support for conduits 2BN006, 2BN007 and 2BDA002 located in Bay 4 of the Diesel Generator Building. The as-built installation of the support was compared with the requirements delineated on Drawing E-42. During the inspection of this support the following was determined:

- (1) The lengths of the support members were determined to be within the tolerances identified on Drawing E-42.
 - (2) The base plate dimensions were in accordance with the drawing requirements.
 - (3) The support welds were acceptable.
 - (4) The size of the unscheduled pull box mounted on the conduit support did not conform to Sheet 42 of Drawing E-42. The as-built dimensions of the box were determined to be 12" x 12" x 6". The dimensions required by Sheet 42 were 13 1/2" x 12" x 6". This failure to install the correct size unscheduled pull box was a further example of noncompliance as cited in paragraph 3.a above. (50-329/82-22-02B; 50-330/82-22-02B)
- b. The inspector observed the as-built installation of tray support FSK-E-796, Sh 1-86 installed in Bay 4 of the Diesel Generator Building. The as-built configuration of the support and the as-built support dimensions were compared with the requirements identified on Drawing E-796(Q), Revision 5, Sheet 2 of 2. This inspection revealed that the as-built 2' 1 1/2" wall to support dimension did not conform to the 1' 10" dimension required by the aforementioned drawing. The failure to install the subject support in accordance with the drawing requirements was a further example of noncompliance as cited in paragraph 3.a above. (50-329/82-22-02C; 50-330/82-22-02C)
- c. An inspection of the as-built installation of tray support No. 14 installed in Bay 2G11 of the Diesel Generator Building was conducted. The as-built configuration of the support and the as-built support dimensions were compared with the requirements identified on Drawing E-796(Q), Revision 11, Sheet 1 of 2. This inspection revealed that the as-built 5' 5" wall to support dimension did not conform to the 6' 6" dimension required by the aforementioned drawing. The failure to install the subject support in accordance with the drawing requirements was a further example of noncompliance as cited in paragraph 3.a above. (50-329/82-22-02D; 50-330/82-22-02D)
- d. The licensee was questioned as to the status of the seismic analysis performed to provide assurance that the plant conduit and tray supports, as installed, met the seismic requirements for the Midland plant. The licensee stated that the seismic analysis was being accomplished at this time and that the results of the analysis would be available when completed. This matter will remain open until the inspector has reviewed the data relating to the seismic analysis. (50-329/82-22-03; 50-330/82-22-03)

5. Review of Quality Control Activities

During the review of Bechtel Quality Control (QC) inspection activities the inspector determined that Bechtel QC inspectors were not identifying as nonconformances all of the deficiencies which they observed during

their inspections. The QC inspectors were instructed to suspend an inspection if an excessive number of deficiencies were observed. In Process Inspection Notices (IPINs) were QC documents utilized by QC inspectors to record nonconformances observed during in process inspections and during inspections of completed items. IPINs associated with suspended inspections identified as nonconformances only a portion of the observed deficiencies. No record was made of the remaining observed deficiencies. In addition, the IPINs did not document the fact that the inspection was suspended due to excessive deficiencies having been observed. Finally, the criteria to be used by QC inspectors in determining whether observed deficiencies were excessive was not defined. As a result of the above, the following was determined:

- a. Trend analysis, as identified in Midland Project Quality Assurance Department Procedure M-2, was designed to serve as a management tool to detect changes in the rates of nonconformance. For deteriorations in quality the procedure required the performance of an in-depth analysis to determine the root cause of nonconformance. The failure of QC inspectors to document all observed nonconformances resulted in the Trend Analysis Program, as it relates to IPINs, not addressing all nonconformances. Management's ability to determine the root cause of nonconformance so as to prevent recurrence had been accordingly diminished.
- b. An additional function of the in-depth analysis required by Trend Analysis Procedure M-2 was the determination as to whether or not work affected by nonconformance should be stopped. The failure of QC inspectors to document all observed nonconformances resulted in the continuation of nonconforming work activities which received no stop work considerations, thereby preventing management from performing an indepth analysis.
- c. On January 19 and 20, 1983, thirteen Bachtel Quality Control (QC) inspectors were interviewed by members of the Midland Section to determine the standard practice used by onsite QC inspectors in closing open Inspection Reports (IR's) which had open IPIN's. Of the thirteen QC inspectors interviewed, eight inspectors stated that open IR's would be closed after the deficiencies listed on the open IPIN's had been reinspected and the IPIN closed. Four of these eight QC inspectors stated that spot checks would be performed in the same area as the identified deficiencies. Three of the inspectors stated that they had written partial IPIN's. The results of the interview can be summarized as follows:
 - (1) There was no standard practice pertaining to the use of IPIN's in documenting deficiencies. Some inspectors were involved in writing IPIN's which did not document all identified deficiencies while some inspectors believed that all inspectors were required to document all deficiencies.

- (2) There was no standard practice pertaining to the closure of open IR's which had open IPIN's. Some inspectors would reinspect only the deficiencies identified on the associated IPIN while some inspectors would reinspect everything pertaining to the IR attribute against which the IPIN had been written.

The failure to establish measures to control materials, parts, or components which did not conform to requirements in order to prevent their inadvertent use or installation was considered an item of noncompliance with 10 CFR 50, Appendix B, Criteria XV and X as described in the Notice of Violation. (50-329/82-22-04; 50-330/82-22-04)

During the inspection a determination was made that the licensee had in the past used another unofficial document to bypass the IPIN program. The unofficial document (called Attachment 10) was used by QC inspectors to identify numerous nonconformances such as equipment not installed, work not completed, and drawings not updated. These nonconforming issues were not factored into the Trend Analysis Program and subsequently were not reviewed for generic implications or root cause so as to prevent recurrence.

The licensee's QA Audit M-01-333-2, finding 14F, addressed a problem regarding incomplete work being turned over to QC inspectors, but did not address the use of Attachment 10 forms. Discussion revealed that the auditors had met with QC representatives and had obtained prompt corrective action (i.e., the cessation of documenting nonconformances on unofficial documents) and as a result the auditor did not document this issue as an audit finding.

However, it is not clear that the deficiencies identified on unofficial documents were subsequently reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures. This matter is unresolved pending the determination of the adequacy of the licensee's corrective actions in regards to these deficiencies. (50-329/82-22-27; 50-330/82-22-27)

6. Examination of Steel in Laydown Area

- a. During the inspection, the laydown area was examined by the inspectors. It was noted that there was stock steel with no markings which would identify the material to a given material heat number. Bachtel Field Instruction FIG-9.600, Color Coding of Field Purchased Pipe, Fittings, Bolting Material, Non-Q Hangers, Stock Steel, and Component Parts, states that "No marking is required for A-36 plate, shapes, and bars or A-500 Tube Steel for Non-ASME, Q-listed Steel." This same specification required that stock steel other than A-36 and A-500 Tube Steel be marked with the material type and grade. High strength steel plate was identified in the laydown area without markings of material type and grade. Failure to not mark high strength steel with the material type and grade was considered an item of noncompliance against 10 CFR 50, Appendix B, Criterion V and described in the Notice of Violation. (50-329/82-22-05A; 50-330-82-22-05A)

- b. Field Instruction FIG-9.600, referenced above, required that the ends of all Non-Q steel material be painted yellow with separate storage provided. During the examination of steel in the laydown area, it was noted that there were Q and non-Q storage areas. However, some steel stock in the Q area was painted on the ends with a paint color resembling faded yellow paint and some of the steel in the non-Q area did not have the yellow paint marking. The licensee stated that the yellow-like color paint noted in the Q storage area had been placed on the material by the manufacturer. The licensee painted the ends of all the material in the non-Q area after this was identified by the inspectors. Failure to mark and/or segregate Q and non-Q material was considered an item of noncompliance with 10 CFR 50 Appendix B, Criterion V as described in the Notice of Violation. (50-329/82-22-05B; 50-329/82-22-05B)
- c. The references above to Field Instruction FIG-9.600 pertain to Revision 1 of this instruction, dated December 2, 1981. Revision 1 superceded Revision 0 which was dated February 1979. Revision 0 referred only to field purchased pipe, fittings and bolting material and made no reference to stock steel identification. The inspectors identified (in the laydown area) a nominal 25 foot length of 12 x 12 WF beam that had no markings but was stored in an area that had ASTM-A-588 steel of similar description and surface color/texture appearance to the unmarked beam. The ability of the licensee to maintain material traceability and identification in accordance with the regulations was considered an unresolved item. (50-329/82-22-06; 50-330/82-22-06)
- d. The inspector requested to see QA audits of material traceability. The only audits that could be located during the inspection were of receiving and fabrication of miscellaneous structural steel. No audits of material traceability could be located during this inspection. Subsequent communications with the licensee revealed that an audit had been conducted in September 1982 (MC1-332-2). Pending review of this audit, this is an unresolved item. (50-329/82-22-07; 50-330/82-22-07)

7. Diesel Generator Muffler Inspection

The inspectors conducted an inspection of the diesel generator muffler located in the Diesel Generator Building. The inspection included a review of the applicable drawings and documentation associated with installation and modification of the four diesel generator (DG) mufflers.

The DG mufflers were constructed offsite by American Air Filter Co., Inc. (a subcontractor of Transamerica Delaval, the DG system supplier), and installed onsite by Bechtel Power Company (BPCo). After onsite receipt inspection and when construction permitted, the mufflers were installed in their respective rooms in the DG Building. During installation of the mufflers, it was noted that the saddle support baseplate holes and slots would not match anchor bolt locations. FCR M-2283 was written to modify the saddle support base plates to fit the anchor bolt locations.

- a. During the inspection the licensee was requested to review documentation of the base plates to determine if traceability was evident. The licensee's review of base plate documentation identified that part numbers could be tracked to a Certificate of Conformance. The Certificate of Conformance was written for purchased "Q" material that was not manufactured to ASME code specifications. The Certificate of Conformance, did not, however, specify the material used during the manufacture of the base plates. The inspector and the licensee reviewed the base plate and muffler saddle support drawings and specifications for identification of plate material. Muffler and saddle support material was not specified on the design drawings and specifications.

FSAR Section 3.2 Table 3.2-1 identifies the Diesel Generator Combustion Air Intake and Exhaust System as Seismic Category 1. To qualify the muffler to Seismic Category 1 criteria, the saddle supports and base plate material requirements must be specified to ensure that the muffler would meet seismic criteria.

10 CFR 50 Appendix B, Criterion III requires measures to be established for the selection and review for suitability of application of materials that are essential to the safety related functions of the structures, systems, and components.

The failure of design documents to specify requirements for the selection and review for suitability of application (in this case Seismic Category 1) of materials associated with the DG muffler was considered an item of noncompliance with 10 CFR 50, Appendix B, Criterion III, as described in the Notice of Violation. (50-329/82-22-08; 50-330/82-22-08)

- b. In addition to the above, the inspectors identified other noncompliances associated with the installation of the DG muffler as follows:

- (1) To allow for adequate thermal expansion of the DG mufflers, slots were specified by Drawing M18-80-4 to be sized at 7/8" by 1 5/8". In addition, Bechtel Vendor Drawing M18-425(5)-1 required that plate slots used for support plate modifications be machined.

The inspectors determined that the slots were irregular and did not conform to design drawings. Slot surfaces appeared rough and discolored, indicating they were torch cut rather than machined as required by design drawings.

Failure to fabricate the slots in accordance with design drawings was considered an item of noncompliance with 10 CFR 50, Appendix B, Criterion V, which requires that activities affecting quality be accomplished in accordance with drawings as described in the Notice of Violation. (50-329/82-22-09A; 50-330/82-22-09A)

Subsequent to the inspection, the licensee generated NCR 4693 to disposition the slots of the support plates for the DG muffler.

- (2) Vendor Drawing M18-250-6 required that jacking plates be installed and imbedded in concrete beneath the muffler support jacking screws.

The inspection of the Diesel Generator muffler in Bay No. 1, revealed that the jacking plates had not been installed beneath the center saddle support. The licensee identified that nine of the 48 jacking plates were missing in the four bays.

Failure to install the jacking plates was considered an item of noncompliance with 10 CFR Appendix B, Criterion V, which requires that activities affecting quality be accomplished in accordance with drawings as described in the Notice of Violation. (50-329/82-22-09B; 50-330/82-22-09B)

Subsequent to the inspection, the licensee wrote NCR 4694 against the failure to install the jacking plates.

- (3) Drawing M18-250-6 indicated two slide bearing elements welded to the bottom of the outer saddle support base plates for each DG muffler to allow for thermal expansion during muffler heatup. During the plate inspection, it was noted that some of the bearing plates were warped sufficiently to allow dirt to penetrate between the bearing plate surfaces which would restrict plate movement.

A review of all bearing plates by the licensee revealed five of sixteen that were sufficiently warped to allow the inclusion of dirt. Failure of the licensee to protect the bearing surfaces from dirt, dust, and other forms of contamination was considered an item of noncompliance with 10 CFR 50, Appendix B, Criterion XIII requiring control of cleaning and preservation of material and equipment as described in the Notice of Violation. (50-329/82-22-10; 50-330/82-22-10)

On December 3, 1982, the licensee verbally committed to implementing a program to identify other material and equipment requiring protection from contamination and to include this identified equipment in a preventive maintenance program.

8. Diesel Generator Exhaust Piping Hangers

- a. The inspector selected the diesel generator exhaust piping for review. The latest revisions of applicable design drawings were compared to the actual as-built configuration of the hangers.

From this review, it was determined that the actual configuration of the hangers did not match the design drawings for the following hangers:

- (1) 652-1-19; the west support plate was welded to the wall embed on the east side instead of two expansion anchors as illustrated on the redline drawing. The licensee subsequently documented this on FCR M6925 instead of an NCR as required by site procedures.
- (2) 652-1-510; the welds connecting the hanger base plates to the support tubes were not constructed as shown on the drawings. The licensee stated that welding on the hanger was not completed.

The licensee's position was that the hangers in question were non-"Q" and their failure would not affect any safety system. The inspector determined that the exhaust pipe was "Q", as documented in the FSAR, the SER and on Drawing M-652, Sh.1, Revision 8, Note No. 19. Therefore, the hangers supporting the pipe were also required to be "Q".

The exhaust pipe hangers were constructed without implementing the QA Program requirements. The failure of the licensee to ensure that quality assurance requirements defined in the FSAR and the SER were translated into the design and construction of the exhaust system hangers was contrary to 10 CFR 50, Appendix B, Criterion III as described in the Notice of Violation. (50-329/82-22-11; 50-330/82-22-11)

On October 19, 1982, the licensee informed the inspector that the exhaust system was indeed "Q" and administrative measures were under way to correct the problem; however, these measures were not identified on any document. Site Procedure G3.2 required that an NCR be written for nonconforming conditions. The licensee, as of November 10, 1982, had failed to document this nonconforming condition through issuance of an NCR. The failure to control components which did not conform to requirements was contrary to 10 CFR 50, Appendix B, Criterion XV as described in the Notice of Violation. (50-329/82-22-12A; 50-330/82-22-12A)

- b. During the review of the as-built hanger details, the inspector observed the welding of hanger stiffeners to existing "Q" structural steel. The stiffeners were being welded to a 36 inch "Q" beam with 1 1/8" flanges without any preheat. The room temperature at the time of the inspection approximated the outside temperature due to no available heating. The welders informed the inspector that there were no preheat requirements for these welds. The inspector determined that Specification FSW Structural-1 and the AWS 1974 Code require a minimum preheat temperature of 70°F. The licensee did not verify the temperature of the existing structural steel during welding. Furthermore, site inspection procedures were inadequate in that they did not require verification of preheat temperatures until they reach 150°F. The failure to verify 70°F preheat temperature requirements was contrary to 10 CFR 50, Appendix B, Criterion IX as described in the Notice of Violation. (50-329/82-22-13; 50-330/82-22-13)

9. Diesel Generator Building Monorail

A review of the monorail installed above each diesel generator was performed in order to determine whether the monorail was designed and installed in compliance with the requirements in the FSAR and construction specifications.

The licensee took exception to Regulatory Guide 1.29, Position C.4, resulting in these monorails not being constructed "Q". The licensee's plant wide exception to position C-4 of RG 1.29 has been referred to NRR for review. This item is unresolved pending NRR's response (50-329/82-22-14; 50-330/82-22-14).

Discussions with the licensee on the monorail indicated that not only was the monorail installed non-"Q", but it also was not analyzed to Seismic Category I requirements as required by RG 1.29. The failure to analyze the monorails to Seismic Category I requirements was contrary to 10 CFR 50, Appendix B, Criterion III as described in the Notice of Violation. (50-329/82-22-15A; 50-330/82-22-15A)

Subsequent to the inspector's finding, the licensee reported the nonconforming design on a "Proximity-Seismic Category II/I Interaction Identification Sheet" instead of a Nonconformance Report. The identification of this nonconforming item in this manner circumvented the licensee's nonconformance program. As a result, this concern had not been reviewed for generic applicability or for potential reportability as of November 10, 1982. The failure to identify and control this nonconforming condition was contrary to 10 CFR 50, Appendix B, Criterion XV as described in the Notice of Violation. (50-329/82-22-12B; 50-330/82-22-12B)

10. Diesel Generator Building HVAC Fan Support Steel

a. An inspection of the as-built structure was made using the latest revisions of applicable design drawings. From this review, the inspector determined the following discrepancies:

- (1) The eight bracing top gusset plates identified on Drawing C-1004, Revision 10, as 5/16" thick were measured by the inspectors to be 1/4" thick in all four DG bays.
- (2) The as-built gusset plate connections in Bay No. 1 were not built as identified on Detail 3 of Drawing C-1004. The braces were welded together as opposed to separate welds for each brace.
- (3) None of the sixteen 1/4" bracing angles identified on Drawing C-1004 were constructed utilizing 1/4" material.
- (4) Drawing C-1004, Detail No. 2 required the W10 beam to beam connection to be welded. In Bay No. 3, the inspector observed that a bolted connection was constructed in lieu of the required welded connection.

- (5) The column cover plate identified on FCR-C4401 was not constructed in Bay No. 3 as required. The plate was slotted instead of solid as depicted on the FCR.

The failure of the licensee to ensure that work was accomplished in accordance with the drawings was an item of noncompliance with 10 CFR 50, Appendix B, Criterion V as described in the Notice of Violation. (50-329/82-22-16; 50-330/82-22-16)

The inspector further determined that QCIR C210-172, Revision 1, which documented the inspection of the fan supports, was closed on July 1, 1981 with no exceptions or nonconformances noted. The QC inspector closed the inspection with a determination that the structure was built in accordance with the drawing. The failure of QC to detect and identify these nonconformances was contrary to 10 CFR 50, Appendix B, Criterion X as described in the Notice of Violation. (50-329/82-22-17; 50-330/82-22-17)

- b. The inspector determined that Procedure FID-2.100, "Outstanding FCR/FCN Retirement," Revision 2, was inadequate in that it did not require, for retired FCR/FCN's, that the design drawing remain annotated indicating that an FCR/FCN had been retired. As a result, the HVAC structural steel did not conform to identified design requirements. Additionally, as a result of not having adequate measures to control retired FCR/FCN's, the document control vault lost retired FCR C-2103. The failure of the licensee to establish measures to identify the existence of retired FCR/FCNs on the appropriate design drawings was an item of noncompliance with 10 CFR 50, Appendix B, Criterion V as described in the Notice of Violation. (50-329/82-22-18A; 50-330/82-22-18A)
- c. The inspector questioned the licensee as to the method in which the bottom bracing connections were made since there were no bottom bracing gusset plate connection details (weld sizes, plate sizes and plate thicknesses) identified on Drawings C-1004 and C-147. There were also no instructions on site to indicate the method or standard practice to be used to design bracing gusset plates. The following concerns were identified:
- (1) Design Drawing C-147 required bolted bracing connections for the diesel generator building HVAC bracing gusset plates. Contrary to this design requirement, Field Sketch CY-1035 was used to design welded connections in lieu of the specified bolted connection. As a result, design changes were being implemented without the same review and approval as the original design. The implementation of changes in design in the field without subsequent review and approval was considered an item of noncompliance with 10 CFR 50, Appendix B, Criterion III as described in the Notice of Violation. (50-329/82-22-15B; 50-330/82-22-15B)

- (2) Field Sketch Number CY-1035 which illustrated the bottom gusset plates was not annotated as "Q", nor was there a reference on the sketch to the affected design drawing. This is contrary to the requirements delineated in Procedure FPD-5.000, "Preparation of Field Sketches," Revision 1. The failure to follow procedures was an item of noncompliance with 10 CFR 50, Appendix B, Criterion V as described in the Notice of Violation. (50-329/82-22-18B; 50-330/82-22-18B)
 - (3) The inspector further determined that the procedure did not require the drawing to be annotated with a reference to the field sketches. There was no procedural requirement or means to ensure that the existence of a field sketch was annotated on a drawing. The failure to develop procedures to adequately control field sketches was in noncompliance with 10 CFR, Appendix B, Criterion V, as described in the Notice of Violation. (50-329/82-22-18C; 50-330/82-22-18C)
 - (4) The inspector determined that the bottom gusset plate sizes were only identified on a Combo Shop work order sketch. As a result, the bottom gusset plates were designed in the field without adequate review and approval. The failure to control the gusset plate design was in noncompliance with 10 CFR 50, Appendix B, Criterion III as identified in the Notice of Violation. (50-329/82-22-15C; 50-330/82-22-15C).
- d. The inspectors determined that the existing 1/4" gusset plates appeared to be out of ASTM Specification A6 requirements for rolling mill tolerances as identified in Table 1 of the ASTM Specification. Due to the plates having been previously painted, the actual plate thicknesses had not been determined at the time of this inspection. This matter is unresolved (50-329/82-22-19; 50-330/82-22-19).

11. Pipe Installation Activities

The inspector selected for inspection one of the two pipelines which connected an air start tank to Diesel 1B11, and the four support hangers for both pipelines. Diesel 1B11 was located in Bay 2.

Pipeline 1-GCC-1-S-652-2 was specified on Bechtel Drawing No. M-652, Sheet 2, (Q), Revision 3. The drawing specified the pipeline configuration and identified which welds (shop welds) were made at the vendor and which welds (field welds) were made by site craftsmen.

The inspector observed the installed pipeline components and connecting welds for line 1-GCC-1-S-652-2. The pipeline configuration was as specified on the drawing. There were no unacceptable visual deficiencies on any of the pipe welds. The pipe components supplied by the vendor were marked with heat number 32995. The pipe component (pup piece) supplied at the site was marked with heat number 738367. Certified Material Test Reports, CMTR's, were available on site for both of the above heat numbers.

A review of the weld inspection records for the shop welds revealed that the shop welds had passed radiographic and visual examination. The visual examination report included fitup, root, intermediate and final weld passes.

A review of the records for two field welds (M-652-2-7 and M-652-2-11) indicated that only final visual examination had been performed. The licensee stated that no additional nondestructive examination, NDE, was required for those field welds because the pipe was only three inches in diameter. ASME, Section III, 1971 Code, Summer 1973 Addendum, Article ND-5220 states, "All pressure-retaining welds in piping, pumps and valves greater than four inches nominal pipe size shall be examined by either the magnetic particle, liquid penetrant or radiographic method." This code revision did not specify any NDE requirements for piping diameters of four inches and less. The pipe inspected was less than four inches in diameter.

A review of the Midland Final Safety Analysis Report, FSAR, Section 3.0, revealed that the design code (ASME) for nuclear pipe over two inches in diameter, had not been specified. During a telephone conversation on November 18, 1982, the licensee concurred that the design code had not been specified in the FSAR, but stated the design code was specified in site Specification No. M-324(Q), Revision 1. The RIII inspector confirmed the licensee's statement. This matter has been referred to NRR and is open pending further review (50-329/82-22-20; 50-330/82-22-20).

12. Hanger Design Control

An inspection of four support hangers on Diesel 1G11 pipelines was conducted. The inspector requested the Bechtel Site Document Control Center to provide the latest isometric drawings for the four hangers that supported the two diesel air start pipelines. The control center provided the following drawings:

- (1) 1-652-2-25(Q), Revision 0
- (2) 1-652-2-26(Q), Revision 1F1
- (3) 1-652-2-27(Q), Revision 0
- (4) 1-652-2-28(Q), Revision 1F1

Drawing 1-652-2-25(Q), Revision 0, was used to check the actual installation of the respective hanger. The drawing and the actual installation were different. A review of the QC copy and the original work print revealed that the hangers appeared to be installed in accordance with the red line changes.

Field Instruction FIP-1.112 Revision 5, "Field Marking of Prints for Pipe Supports," was used to control red line changes. The procedure essentially defined the method for which support changes that did not require a total redesign could be modified in the field. The procedure

required Resident Engineering approval for all support modification except minor revisions that did not affect the basic design. The procedure appeared to assign Field Engineering the responsibility of controlling (ensuring proper approvals and distribution) red line changes. The procedure also required Field Engineering to number and log the red line changes. Discussions with Field Engineering personnel responsible for the red line log revealed that the log was not controlled. The log appeared to be an ineffective control mechanism because the entries were made chronologically for changes to all drawings and could not readily be used to identify how many changes affected any specific drawing.

The Bechtel Lead Mechanical Field Engineer stated that red line changes were initiated by Field Engineering, approved by Resident Engineering, and returned to Field Engineering for distribution. In addition, the inspector determined that distribution to the Document Control Center was being bypassed.

Adequate measures were not established to control the issuance of these document changes. This was contrary to 10 CFR 50, Appendix B, Criterion VI as described in the Notice of Violation. (50-329/82-22-21; 50-330/82-22-21)

Bechtel Project Engineering Procedure, PEP, No. 4.46.9, Revision 0, established the controls for red line changes received by Resident Engineering. The procedure required the cognizant discipline resident engineer to maintain a log of red lines received. The inspector verified that two red lines identified on isometric drawing 1-652-2-25(Q) were properly controlled by the log.

13. Hanger Installation Activities

The inspector checked the installation of four support hangers against the respective isometric drawings (including changes) and the installation criteria.

The four hanger configurations appeared to be as specified on the latest revisions to the isometric drawings. The welders identification mark was stamped adjacent to all hanger welds.

All (approximately ten) of the field welds on the two large hangers specified on Drawings 1-652-2-25(Q), Revision 1/F1, and 1-652-2-25(Q), Revision 1/F1, were covered with surface rust. Specification 7220-M-326(Q), Revision 8, paragraph 5.15.1 stated, in part, "All component pipe supports shall have surface preparation and primer applied in accordance with Specification 7220-A-41, Technical Specification for Field Priming and/or Top Coating Steel Surface" Specification 7220-A-41, Revision 9, paragraph 4.2 stated that all protective coating of steel for outside the containment shall be non-"Q". The licensee stated that non-"Q" meant non-safety related and therefore, was not required to maintain the safe operation of the plant.

On November 9, 1982, the Bechtel Resident Engineer stated the cognizant corporate (Ann Arbor, Michigan) engineer's evaluation of the steel surfaces (welds) outside containment concluded that the surface rust would not exceed 20 mils (0.02 inches) deep; that no pitting would result; and that even with the smallest weld (1/8 inch) there would only be a 16 percent reduction of weld size, which would still leave a 2.8 safety margin with maximum corrosion over a 40 year period. Additionally, the site construction personnel provided an established schedule which should assure that the welds were painted before the plant operates. No items of noncompliance or deviations were identified.

14. Hanger Material Traceability

- a. Hanger parts, specified on Drawings 1-652-2-26(Q) Revision 1F1 and 1-652-2-28(Q), Revision 1F1, included 1/2" x 6" x 6" and 1/2" x 4" x 4" tube steel (ASTM A-500, Grade B). The installed tube steel was not marked with heat numbers. The inspection records did not identify the heat numbers traceable to the installed tube steel. The installed tube steel had the letter "Q" stamped on the individual sections. The licensee stated that the letter "Q" indicated that the tube steel heat numbers were controlled by procedure up to the time the hangers were fabricated. The licensee also stated that the site procedures did not require any additional traceability controls after fabrication.

The FSAR, Table 3.2-4 states that the design and fabrication code for hangers and supports for nuclear piping is ASME Section III, Subsection NF, 1974 (no addendum). Subsection NF-4122 states that material for component supports shall carry identification markings which will remain distinguishable until the component support is fabricated or installed. Therefore, the site controls for material identification for hangers (component supports) appeared to comply with the ASME code requirements.

- b. The inspector reviewed the Hanger Material Log for structural tubing. The log identified the quantity (in feet), size, material type (grade), ASME class, heat number, material receipt number, purchase order number, and relative remarks for the various shipments of tube steel. The log revealed that only type ASTM A-500 Grade B material had been received. The log also revealed that at least 3600 feet of various sizes and lengths of tube steel had been addressed on Bechtel Nonconformance Report, NCR 3266, January 23, 1981. The NCR stated that the "material was procured from subvendors who were not ASME or Bechtel qualified for an NA 3700 quality program at the time of purchase." The NCR stated that no hold tags were applied. The NCR listed 122 steel items (including various qualities, sizes and lengths of tube steel, angle iron, plate, etc.) which had been purchased from 16 different material suppliers/manufacturers. Page 8 of the NCR stated "A conditional release is granted for use of the subject material. The material is traceable to a heat number and corrections or removal can be accomplished without causing damage

or contamination to associated plant equipment or structure." The conditional release was dated February 5, 1981. The conditional release was revised (added page 9 to the NCR) on March 25, 1981 to restrict 37 of the 122 items from use in ASME Section III Class 1 pipe supports. The restricted material was permitted for use in Class 2 and Class 3 hangers. On June 16, 1981, the NCR was revised to apparently reject the above 37 items for Class 1 use again. On July 1, 1981, the NCR was revised to reject 15 other items from installation in Class 1 systems. On July 17, 1981 (amended July 27, 1981) the NCR was revised to accept 42 of the remaining items based on approval of two of the 16 material suppliers, and revised to reject seven additional items from Class 1 use.

On October 28, 1981, the NCR was revised to reject one additional item from Class 1 use. Thus, from the date (January 23, 1981) that NCR 3266 was written, the NCR was revised four times to add restrictions on the use in Class 1 systems of numerous materials.

The Bechtel QC acceptance (page 15) of NCR 3266 stated the resolutions of the 122 items, along with a brief basis for the resolutions. The resolutions were addressed in three categories according to the bases. The bases for the three categories was as follows:

- (1) Certified Material Test Reports, CMTR's, were on file for 19 items and the requirements of ASME Subsection NF-2610(c) had been met, therefore, the respective materials could be used in Class 1 systems.
- (2) CMTR's were on file for 42 items and the requirements of ASME Subsection NA-3700 had been met, therefore, the respective materials could be used in Class 1 systems.
- (3) CMTR's were on file for 61 items and the requirements of ASME Subsection NF-2610(b) had been met; therefore, the respective materials could be used in Class 2 and Class 3 systems. The NCR noted that measures had been taken (heat log changed) to prevent the 61 items from being used in Class 1 systems on July 28, 1982.

Paragraphs (a), (b), and (c) of the ASME Code Section III, Subsection NF-2610 1974 Edition, Summer Addenda 1976 states:

(a) Except as provided in (b) below, Material Manufacturers and Material Suppliers shall have a Quality System Program or an Identification and Verification Program, as applicable, which meets the requirements of NA-3700.

(b) The requirements of NA-3767.4 shall be met as required by NF-2130. The other requirements of NA-3700 need not be used by Material Manufacturers or Material Suppliers for small products, as defined in (c) below, and for material which is allowed by this Section to be furnished with a Certificate of Compliance. For

these products, the Manufacturer's or Installer's Quality Assurance Program (NA 4000) shall include measures to provide assurance that the material is furnished in accordance with the material specification, and the special requirements of this Section.

(c) For the purpose of this paragraph, small products are defined as given in (1) through (3) below:

- (1) pipe, tube, pipe fittings, and flanges of 2 inch nominal size and less
- (2) bolting material including studs, nuts, and bolts of 2 inch nominal diameter and less
- (3) structural material with a nominal cross-sectional area of 2 sq. inches and less.

Subsection NF-2130 states:

(a) All materials used in the construction of component supports shall be certified. Certified Material Test Reports in accordance with NA-3767.4 shall be provided for material in Class 1 plate and shell supports, Class 1 linear supports, and for materials for other types and classes of component supports when impact testing is required (NF-2311).

(b) Certificates of Compliance with the material specification, grade, class, and heat-treated condition, as applicable, may be provided in lieu of Certified Material Test Reports for materials for all other component supports.

(c) Copies of all Certified Test Reports and Certificates of Compliance applicable to each material used in the component support shall be furnished with the material."

The Bechtel QA Manual (ASME III), Revision 2, dated July 1980, paragraph 4322 states, in part "Quality program demonstration is established through possession of a valid current, ASME Quality System Certificate (Material) or survey of the manufacturer or supplier by other (Bechtel) Procurement Supplier Quality Department."

Based on the ASME Subsection NF-2610(b), the first and third resolution categories to NCR 3266 appeared to be inadequate in that the NCR did not indicate that measures had been taken at the respective suppliers and/or manufacturer, or the installer (Bechtel) to provide assurance that the material was furnished in accordance with the material specification. The measures were required to verify the validity of the suppliers' certificates and the effectiveness of the certification system. Note: Subsection NF-2610(c) which was addressed in the first resolution category, defines small products and does not delete the requirements of Subsection NF-2610(b).

During a telephone conversation on November 29, 1982, the licensee stated that two (i.e., Mills Alloy Steel Company and Carbon Steel Products Corporation) of sixteen of the material suppliers/manufacturers were actually suppliers. The other fourteen were manufacturers contracted by the two suppliers. The licensee also stated that Bechtel had in fact approved the two suppliers QA programs prior to issuing contracts and that Bechtel had verified that at least one of the two suppliers had sufficient controls to ensure that their subcontractors (i.e., the fourteen manufacturers) had acceptable QA programs.

On December 7, 1982, the inspector received from the licensee copies of a Bechtel Supplier Survey of Mills Alloy Steel Company dated June 10, 1981; copies of two ASME Quality System Certificate (Materials) for Mills Alloy Steel Company; copies of two Bechtel Reports of Audit of Carbon Steel Products Corporation dated June 19-20, 1979 and June 3, 1980 respectively; and one copy of a Bechtel Corrective Action Report (Re-audit) of Carbon Steel Products dated July 30, 1979. The above documents indicated that Mills Alloy Steel Company was an approved material supplier and adequately capable of qualifying their material manufacturers during the effective period of the respective purchase contracts which were addressed on NCR 3266. The above documents indicated that Carbon Steel Products Corporation was an approved material supplier during the effective period of the respective purchase contracts which were addressed on NCR 3266. No documentation was received which indicated that the material manufacturers, contracted by Carbon Steel Products Corporation, possessed an ASME Quality System Certificate (Materials) or were surveyed by the Bechtel Procurement Supplier Quality Department. The Certificate or survey was required by the Bechtel QA Manual (ASME III), revision 2, paragraph 4322, to demonstrate that the manufacturers had an adequate quality program. The licensee was notified of this inadequacy during a telephone conversation on December 9, 1982. This matter is unresolved pending review of additional documentation which may be supplied by the licensee (50-329/82-22-22; 50-330/82-22-22).

The measures taken in the third category to prevent the items restricted to Class 2 and Class 3 systems from being used in Class 1 systems was inadequate. These measures only controlled the restricted items after July 28, 1982. Nothing was done to verify whether or not restricted items had been used in Class 1 systems prior to July 28, 1982. This verification was necessary, especially since the NCR permitted unrestricted uses based on the conditional releases specified prior to July 28, 1982. The basis for the conditional releases stated that, "corrections or removal (of nonconforming material) can be accomplished . . ." Measures were not established or implemented to determine if Class 2 and Class 3 materials were used in Class 1 systems. Failure to establish measures to control materials which did not conform to requirements and to prevent their inadvertent use or installation in Class 1 systems was contrary to 10 CFR 50, Appendix B, Criterion XV as described in the Notice of Violation. (50-329/82-22-23; 50-330/82-22-23)

The second resolution category to NCR 3266 appeared to be adequate in that the applicable code requirements were indicated as being fulfilled.

15. Hanger Weld Inspections

QCIR No. 7220/P-2.10, Revision 9, the hanger inspection record, did not indicate whether or not any in-process weld inspections had been performed during the installation of hangers (pipe supports). The licensee provided Bechtel Quality Control Instruction No. 7220/W-1.60, Revision 2. The scope of the instruction stated that the instruction provided the quality control verification of in-process inspection activities that were necessary to ensure that specified welding process requirements were being achieved. The instruction distinguished between the civil, electrical, component support, and piping (ASME) weld activities. The instruction and/or the instruction supplement required the following in-process inspection of weld activities:

- a. Fitup
- b. Tack welds
- c. Surface Preparation
- d. Preheat
- e. Welding Technique
- f. Interpass Temperatures and Cleaning
- g. Welder Qualification
- h. Weld Procedure (addressed in W-1.60 supplements)
- i. Established the frequency and number of weld activities required to be observed.

With the exception of preheat verification, the instruction appeared to establish suitable controls for the above in-process weld activities. Most of the controls for preheat verification were defined in instructions PQCI CW-1.00, Revision 2, E-2.10, Revision 6, E-1.0, Revision 11, P-2.10, Revision 10, and PW-1.00, Revision 4 for the respective discipline activities (i.e., civil, electrical, component supports, and pipe welding). Inclusively, the PQCI's required verification of preheat requirements in excess of 70°F for all weld activities and verification on a defined sample basis for preheat requirements of 70°F and less. As discussed in Section 8.b of this report, an inadequacy was identified with the preheat controls for civil (structural) welding.

16. Anchoring of Hangers

The hangers identified on Isometric Drawings 1-652-2-26(Q), Revision 1/F1 and 1-652-2-28(Q), Revision 1/F1 were attached to the concrete superstructure with grouted anchor bolts. The nuts on the bolts were not secured. The inspector requested the design requirements for securing anchor bolts. The licensee provided Specification 7220-C-306(Q).

Revision 8, Paragraph 5.8. Paragraph 5.8 appeared to establish adequate methods for securing threaded connections. PQCI No. P-2.00, Revision 6 appeared to establish sufficient controls during inspections to assure that the anchor bolts would be secured.

The type (grade) of bolting materials (including alternatives), was specified in Specification 7220-C-306(Q), Revision 8, Paragraph 5.0. The diameter of the anchor bolts was specified on the isometric drawings. Based on the anchor diameter, the bolt embedment could be determined from Specification 7220-C-306(Q), Revision 8, Appendix B, Table B-2. Since the bolts had already been grouted into place, the inspector reviewed the records (QCIRs) for inspection of grouting and dry packing. The records indicated that the bolting type and size had been properly verified.

The inspector reviewed and discussed with the site Resident Engineering Group, the design calculations for the anchor bolt diameters specified on Isometric Drawing 1-652-2-26(Q), Revision 1/F1. The calculations indicated that the combined stresses for shear and tensile for the specific hanger required a bolt diameter of 7/8 inch when using ASTM Grade A-36 steel. The Resident Engineering group stated that the calculation sheet concluded by specifying a diameter of 3/4 inch. The Resident Engineer stated that this error would be corrected. The ultimate result was that the correct size bolt (7/8 inch) was actually specified on the drawing.

17. Concrete Chipping

The inspector observed a section of concrete wall which had been chipped away. The chipped section was located on a wall in Containment Purge Room 702, elevation 674' 6". The volume of chipped concrete was non-uniform and approximately 18 inches high, 10 inches wide and 4 inches deep (in some places). There were no markings or tags in the area which would have indicated that the chipped section was controlled.

A Bechtel Field Engineer was responsible for that area of the plant and was aware of the chipped section. The engineer also stated that he planned to put this concern on a punchlist for regrouting.

The licensee stated that the concrete was chipped away in late 1981 to locate drain tubes for tendon sheaths which were inadvertently embedded in the wall. The inspector observed two drains located just above the chipped area.

The inspector asked if measures had been established to control the chipped area since the wall was now in a nonconforming condition. The licensee provided Bechtel Field Instruction No. FIG-1.111, Revision 4, Concrete Drilling Permit. Section 2.0 of this instruction stated, "This instruction discusses the method of initiating, identifying, approving, and controlling concrete drill permits . . ." Section 5.0 stated, "This instruction applies to all concrete drill permits issued by any discipline for core drilling, chipping of concrete, or drilling for

installation of concrete anchors." The instruction defined the administrative process for completing concrete drilling permits. The instruction appeared to address a method of control which could be used for concrete chipping activities, such as the one in the containment purge room. However, the instruction did not establish requirements which stated when or for what activities a drilling permit must be used. A drilling permit was not used to control the chipped concrete in the containment purge room. Therefore, measures were not established to provide controls over concrete chipping activities which affected the quality of structures. The Bachtel construction personnel stated that there were several other areas in the plant in which the concrete had been chipped and was not controlled. Failure of the licensee to provide controls over activities such as concrete chipping which affects the quality of structures was contrary to 10 CFR 50, Appendix B, Criterion V as described in the Notice of Violation. (50-329/82-22-24; 50-330/82-22-24)

As a result of this finding, the licensee wrote NCR No. MO1-9-2-154 November 14, 1982.

18. Cable Segregation

In Containment Purge Room 702, the inspector observed cable tray sections which contained metal dividers that extended approximately 20 feet along the trays. The dividers were approximately the height of the tray sides. The tray sections were identified with green alpha-numeric markings (i.e., 1BTF01, 1BTF02 and 1BTF03; 1BJS01, 1BJQ02, and 1BJQ03). The RIII inspector noted that many of the included cables crossed over the dividers or in some cases were stacked higher than the dividers. The purpose of the dividers was to provide a barrier between low voltage control cables and instrument cables.

The barrier/divider was designed to eliminate the possibility of the electromotive forces of the control cables from inducing noise signals into instrument cables. Since the cables crossed over the divider/barrier and were stacked higher than the divider, the cables were therefore misrouted and rendered the barrier ineffective.

PQCI No. E-3.0, Revision 5, Final Area Completion Activities of Electrical Installation, addressed verification of certain cable training (i.e., bundling and redundant channel separation), but did not address verification of cable segregation in horizontal tray runs. Failure to establish a program for inspection of cables installed in horizontal trays which use metal dividers, to ensure conformance with design requirements for cable segregation was contrary to 10 CFR 50, Appendix B, Criterion X as described in the Notice of Violation. (50-329/82-22-25; 50-330/82-22-25).

As a result of this finding, the licensee wrote NCR No. MO1-9-2-151 dated November 1, 1982 to correct the specific cable tray installations addressed above.

19. Nonconforming Welds in Structural Steel

During the reporting period, the Resident Inspector was aware that the licensee had overinspected 78 structural beams and that 41 of those beams had nonconforming welds. More definitively stated, 66 weld joints of 146 overinspected were nonconforming. As a result of this overinspection and subsequent findings, Nonconformance Report (NCR) No. MO1-9-2-074 was generated. Weld defects noted were undersized welds and undercut welds ranging from 1/16 to 1/8 inch.

Because of the indeterminant state of a large number of beams (nominally 2400 beams), the licensee has generated a Safety Concern and Reportability Evaluation Request to determine the reportability and ultimate safety significance of their findings. This evaluation was intended to be completed by mid-December 1982. The Resident Inspector examined some of the nonconforming welds identified in the NCR and concurred with the findings. This concern was being reviewed and controlled by the licensee's programs.

20. Ultrasonic Testing (UT) of Holddown Bolts

During the reporting period, the Resident Inspectors and a Regional based NDE Inspector measured anchor bolts in the four battery charger rooms, the Diesel Generator Building and the Service Water Building. Additional measurements using other transducers are proposed in the future to accommodate more evaluation. These evaluations will be documented in other NRC Inspection Reports.

21. Prestartup Test

The inspector observed the initial pump run of Component Cooling Water Pump 2P-73B on 10/21/82. The observations included a review of the test procedure OSP-CCW.01, observation of portions of the actual pump test, and a review of test data to ensure that test objectives had been met.

Prior to the beginning of the test, the inspector walked down portions of the system and held discussions with members of the various test groups required to assimilate test data. The following concerns were noted:

- a. The Vibration Testing Group initially set up on the wrong pump and had to be told the proper pump locations.
- b. Personnel monitoring bearing and oil temperatures were not aware of the maximum temperature limits on the pump being monitored.
- c. Minor discrepancies such as broken valve indicators and small leaks were not documented either on the test summary or on a maintenance form.
- d. Pump performance curve supplied by the manufacturer referenced only one of the four component cooling water pump serial numbers.

An interim exit interview was held on October 26, 1982, with the Technical Superintendent and his staff to discuss the inspector's testing concerns. The Technical Superintendent acknowledged the inspector's findings and stated the concerns would be addressed.

The inspector observed portions of the initial pump run of Decay Heat Removal Pump 2P-60A. The concerns described in the previous paragraph (except for item d which was not applicable for this test) had been satisfactorily resolved for this test. The test was stopped after 90 minutes of pump run time due to high suction differential pressure (DP) indicating a clogged suction strainer. Oil and bearing temperatures had not stabilized adequately to satisfy test acceptance criteria. The strainers were cleaned and replaced and the test restarted. The test was completed satisfactorily on November 13, 1982.

22. Drawing C-45

The following concerns were discussed with the licensee regarding the staff's review of drawing C-45:

- a. The perimeter and baffle dikes adjacent to the Emergency Cooling Water Reservoir (ECWR) were not included as "Q" on the drawing. The licensee subsequently agreed to define these two areas as Q.
- b. The licensee was requested to confirm in writing that no seismic Category I underground utilities extend beyond the "Q" bounds of drawing C-45.
- c. The licensee was also requested to put a note on drawing C-45 indicating that the tunnel under the turbine building was "C".

The above concerns will be reviewed during subsequent inspections.

23. Auxiliary Building Instruments

While reviewing the baseline readings on the auxiliary building instrumentation, the inspectors observed that the Electrical Penetration Area (EPA) outboard wings appeared to be moving upwards while the remaining deep seated absolute vertical readings were downward. The licensee was requested to provide an explanation of the significance of the Auxiliary Building movements. Two meetings on the subject have already been held on site and future discussions are planned.

The upward movement of the EPA outboard wings appeared to be caused by a decrease in the ambient temperature. The licensee was requested to define the correlation between temperature and upward movement and determine if a correction factor should be incorporated into future EPA instrumentation data.

24. Review of Remedial Soils Requalification Activities

During this inspection the inspector reviewed the results of the written examinations administered to 19 QC inspectors. These written examinations, which tested the inspectors on QC programmatic requirements, were administered as part of the requalification program initiated by the licensee in integrating all QC functions under Consumers Power Company control. Of the 19 inspectors who were administered the examination, two inspectors failed the examination. The inspector informed the licensee that all previous inspections performed by these two inspectors were required to be reinspected. The licensee agreed to perform the reinspection.

No items of noncompliance or deviations were identified.

25. Perimeter Dike Armor Stone

During a plant tour the inspectors noted that the licensee was replacing riprap protection for the eastern perimeter dike. The inspectors determined that the new armor stone appeared to have weak clay-shale seams in most of the pieces. This was confirmed by dropping a few pieces and observing them break apart. The licensee was informed of the inspector's concerns.

Subsequently, the inspector was informed by the licensee that the rock did not meet the freeze-thaw and gradation requirements of Specification C-209. The inspector was informed that the nonconforming armor stone would be removed from the site.

The requirement that the perimeter and baffle dikes adjacent to the ultimate heat sink be covered by the QA plan is delineated in the May 25, 1982, NRC to licensee letter and in Section 2.5.6.1 of the SER. The inspectors determined that the licensee had purchased the armor stone without establishing controls over the procurement and installation. The failure to translate applicable regulatory requirements into design documents was considered to be in noncompliance with 10 CFR 50, Appendix B, Criterion III as described in the Notice of Violation. (50-329/82-22-26; 50-330/82-22-26)

Subsequent to the inspectors' identification of the matter, the licensee agreed to have all necessary "Q" controls in place before proceeding with additional armor stone placement.

26. Site Tours

At periodic intervals during the report period, tours of essentially all site areas were performed. These tours were intended to assess the cleanliness of the site; storage conditions of equipment and piping being used in site construction; the potential for fire or other hazards which might have a deleterious effect on personnel and equipment; and to witness construction activities in progress. A system walkdown was performed of portions of the Diesel Generator and Primary Makeup System.

27. Independent Assessment of Auxiliary Building Underpinning

The inspectors reviewed the weekly reports (attached) submitted by Stone and Webster Engineering Corporation to document the results of the independent assessment of Auxiliary Building underpinning activities. No significant concerns were identified in these reports.

28. Open Items

Open items are matters not otherwise categorized in the report that require followup during future inspections. Open items disclosed during this inspection are discussed in Section 4.d and 11.

29. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items or items of non-compliance. Unresolved items disclosed during this inspection are discussed in Sections 5, 6.c, 6.d, 9, 10.d, and 14.b.

30. Exit Interview

The inspectors met with licensee representatives (denoted under Persons Contacted) on October 15, 22, 26, 28, November 10 and 23, 1982. The inspectors summarized the scope and findings of the inspection. The licensee acknowledged the information.

31. Enforcement Conference

On January 18, 1983, an enforcement conference was held in the Region III Glen Ellyn office between Messrs. James G. Keppler, A. B. Davis, members of the Region III Midland Section, Mr. J. H. Sniezek of IE, and Messrs. J. Selby, J. Cook and others of the licensee's staff. The purpose of the conference was to discuss the results of the special team inspection of the Diesel Generator Building.

Based on the licensee's comments regarding the IPIN issue, members of the Midland Section subsequently interviewed thirteen QC inspectors to determine the standard practice used by QC inspectors in closing open Inspection Reports which had open IPIN's. The results of these interviews are discussed in Section 5.c of this report.



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

~~CONFIDENTIAL~~
Attachment

DEC 30 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 discussions conducted during the meeting on December 2, 1982 between Mr. R. F. Warnick and others of this office and Mr. J. W. Cook and others of your staff regarding the new Construction Completion Plan Consumers Power Company has developed to address the problems identified by Region III during the October through November 1982 inspection of the Diesel Generator Building.

As a result of our discussions, we understand that you have taken or plan to take the following actions:

- (1) Halted safety-related work at the Midland site with the exception of the following:
 - (a) System layup activities
 - (b) Hanger and cable reinspection activities
 - (c) Post turnover work activities (not to include design changes)

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DEC 30 1982

- (d) Zack HVAC work (subject to resolution of welders qualifications issue)
 - (e) B&W construction activities
 - (f) Remedial soils activities
 - (g) Bechtel engineering activities
- (2) An integrated QA/QC organization will be identified and implemented and all QC personnel previously certified by Bechtel will be trained and recertified by CPCo to meet CPCo procedures and commitments.
 - (3) Teams comprised of engineering and construction personnel will be organized, each responsible for the satisfactory completion of one or more safety systems.
 - (4) A reinspection program will be developed to provide a system by system reinspection of all safety related systems.

We understand that you will submit a written plan to the NRC describing in detail the actions encompassed by CPCo's Construction Completion Program. We request that this plan also identify the interrelationship between the Construction Completion Plan and your proposed plans for third party independent assessments.

After receipt of your submittal we will hold a meeting with CPCo in the Midland area, which will be open to the public, to discuss the details of your program. Time will also be provided for public comment regarding these issues at the end of the meeting.

Following our review of your submittal, including consideration of comments offered by members of the public, we will make a determination on the acceptability of your program and will determine the appropriate method of documenting your commitments.

DEC 30 1982

Should you have any questions regarding this letter please contact Mr. R. F. Warnick of my staff.

Sincerely,

Original signed by
James G. Keppler

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
- William Paton, ELD
- Michael Miller
- Ronald Callen, Michigan
Public Service Commission
- Myron M. Cherry
- Barbara Stamiris
- Mary Sinclair
- Wendell Marshall
- Colonel Steve J. Gadler (P.E.)

RIII
RFW
Gardner/sv
12/29/82

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RFW RFW
Shafer Warnick
12/30/82

RIII RIII RIII
RFW RFW RFW
Lewis Davis Keppler
12/29/82

IE:HQ NRR NRR
By Tele. phone
Sniezek Eisenhut Purple
RFW 12/29



Consumers
Power
Company

Attachment X 6

James W Cook
Vice President - Projects, Engineering
and Construction

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

January 10, 1983

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

MIDLAND NUCLEAR COGENERATION PLANT
MIDLAND DOCKET NOS 50-329, 50-330
CONSTRUCTION COMPLETION PROGRAM
FILE 0655 SERIAL 20428

REFERENCE LETTER TO J W COOK, DATED DECEMBER 30, 1982, FROM NRC REGION III
REGARDING CONSTRUCTION COMPLETION PROGRAM

On December 2, 1982, Consumers Power Company met with Mr Warnick and other members of your staff to discuss the general concept of our proposed Construction Completion Program. The enclosure to this letter documents in detail the Construction Completion Program, as requested at the meeting and in your follow up letter (Reference).

Since our meeting, the program has undergone considerable development and evolution. Details have been supplied and more specific objectives and implementing methods have been established. Further details are still being developed. While the Company expects the Program, as presently constituted, to be a workable and sufficient framework for future action, revisions may be necessary as future needs and experience dictate.

The Construction Completion Program is a positive step in the overall advancement of Project goals. It represents the best efforts of Project management, support and quality assurance personnel. We believe it will produce an improvement in Project installation and inspection status, systems construction and QA implementation. The quality verification effort should provide increased confidence of the NRC that the plant has been properly built. Other aspects of the Program, including the measure to improve ongoing inspections and scheduling interfaces, should contribute to that result. This Program, together with recent Consumers Power Company commitments regarding quality assurance and remedial soils work, can establish a basis for improved relations between the Company and the NRC Region group assigned to inspect Midland. The Construction Completion Program demonstrates the Company's responsiveness to both NRC concerns and the particular needs of this Project. It is our expectation that the Program, created out of a desire to enhance the

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orderliness and quality of construction, will achieve its intended purpose and lead to the successful "completion of construction" of the Midland Plant in accordance with regulatory requirements.

We hope that this submittal fulfills your request for written information regarding the Construction Completion Program. Consumers Power Company is prepared to support the public meeting proposed for January 26, 1983 in Midland, Michigan.

James W. Croh

JWC/DMB/cl

CC Atomic Safety and Licensing Appeal Board
CBechhoefer
FPCowan, ASLB
JHarbour, ASLB
DSHood, NRC
MMCherry
RWHernan, NRC
RJCook, Midland Resident Inspector
FSKelley
HRDenton, NRC
WHMarshall
WDPaton, NRC
WDShafer, NRC
RFWarnick, NRC
BStamiris
MSinclair
LLBishop

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

Letter Serial 20428 Dated January 10, 1983

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

CONSUMERS POWER COMPANY

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

Sworn and subscribed before me this _____ day of _____.

/s/ Patricia A Puffer
Notary Public
Bay County, Michigan

My Commission Expires _____

Construction Completion Program
Executive Summary

The Construction Completion Program has been formulated to provide guidance in the planning and management of the design and quality activities necessary for completion of the construction of the Midland Nuclear Cogeneration Plant. Construction completion is defined in this Plan as carrying all systems to the point they are turned over to Consumers Power Company for component checkout and preoperational testing. The Construction Completion Program does not include the Remedial Soils Program which is treated in separate interactions between Consumers Power Company and the Nuclear Regulatory Commission.

Background

The Construction Completion Program was developed in response to a number of management concerns that have been identified during the period preceding the initiation of the Program. The Midland Project had been proceeding at a high level of activity as it approached completion. The final transition from area construction to system completion, using punch lists, has been difficult for most nuclear projects. The Midland Project has not escaped these difficulties which have been compounded due to the congested space and the continuing numerous design changes, both generally attributable to the age of the Project. These factors lead to the need for improved definition of work status, increased emphasis on overall Project objectives as well as continued focus of construction and inspection resources on completion of systems for short-term milestones and increased effort to complete engineering ahead of field installation.

The Midland Project has been criticized by the NRC regional office as not having met their expectations for implementation of the Project's Quality Assurance Program. The result has been that the Project management has too often, during the past few months, been in a reactive rather than proactive posture with regard to quality assurance matters.

In recognition of these conditions, management has concluded that a change in approach was needed to effectively complete the Project while maintaining high quality standards.

Objectives

The development of the Program has considered the Project's current status and recent history and attempts to address the underlying or root causes of the problems currently being experienced. In order to develop the Program the following overall objectives were established under three general headings. The Program must:

Improve Project Information Status By:

- Preparing an accurate list of to-go work against a defined baseline.

- Bringing inspections up-to-date and verifying that past quality issues have been or are being brought to resolution.
- Maintaining a current status of work and quality inspections as the Project proceeds.

Improve Implementation of the QA Program By:

- Expanding and consolidating Consumers Power Company control of the quality function.
- Improving the primary inspection process.
- Providing a uniform understanding of the quality requirements among all parties.

Assure Efficient and Orderly Conduct of the Project By:

- Establishing an organizational structure consistent with the remaining work.
- Providing sufficient numbers of qualified personnel to carry out the program.
- Maintaining flexibility to modify the Plan as experience dictates.

Description

The Construction Completion Program entails a number of major changes in the conduct of the final stages of the construction process and can be described in summary as a two-phase process.

First, after certain necessary preparations, the safety-related systems and areas of the plant will be systematically reviewed. This first phase will be carried out on an area-by-area basis, but will be accomplished mainly by teams organized with systems responsibility and a separate effort to verify the completed work. The product from this phase of the program will be a clear status of remaining installation work and a separate effort to verify the provides quality verification of the existing work. The teams organized to carry out this first phase will continue to function in the second phase as the responsible organizational units to the complete the work.

In order to achieve its complete set of objectives, the Program contains a number of activities and elements that support and are linked to the two major phases described above. The major components of the Plan, which are discussed in more detail in the balance of this report, can be described as follows:

- A significant reduction in the construction activity in the safety-related portion of the plant, material removal and a general cleanup will be carried out in preparation for installation and inspection status assessment and quality verification activities.

A review will be made of equipment status to assure that the proper lay-up precautions have been implemented to protect the equipment until the installation work is completed.

The integration of the Bechtel QC function into the Midland Project Quality Assurance Department (MPQAD) under Consumers Power Company management will be completed.

The Consumers Power Company is carrying out recertification program of Bechtel QC inspectors, and a review of the inspection procedures to be utilized.

The system completion teams will be organized, staffed and trained according to procedures developed to define the team's work process.

The systems completion teams will 1) accomplish installation and inspection status assessment, 2) perform systems construction completion and construction quality performance and 3) determine that all requirements have been met prior to functional turnover for test and operation.

Quality verification of completed work will be carried out in parallel with installation and inspection status activities of the system completion teams.

A series of management reviews will be carried out to carefully monitor the conduct of the Program and to revise the plan as appropriate.

Review and resolution will proceed on outstanding issues related either to QA program or QA program implementation as raised by the NRC or third party overviews of the Project.

Third party reviews will be undertaken to monitor Project performance and to carry out the NRC's requirements for independent design verification.

Schedule Status

The Program was initiated on December 2, 1982 by limiting certain ongoing safety-related work and starting preparations for the phase-one work of status assessment and quality verification activities. Since the Program also has incorporated a number of commitments made to the NRC during the past few months, activities in support of these commitments such as QC integration into MPQAD and the recertification of QC inspectors, had been initiated prior to December.

Status and schedules for each element of the Plan are enumerated in the text. In general, preparation for the Phase 1 activities are underway and will continue through January. A pilot team to develop the procedures and training requirements will be initiated during January. It is expected that the first

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areas to undergo Phase 1 status assessment will be defined and teams mobilized during March.

Quality verification of completed work will start in late January or early February.

The Program provides for the Phase 1 results on a system or partial system to be reviewed and evaluated prior to initiating Phase 2 system completion work on that system or partial system. Management will monitor both process readiness and Phase 1 evaluation results.

The major areas of continuing safety-related work are NSSS construction as performed by B&W Construction Co, HVAC work under the Zack subcontract, the Remedial Soils Program and post-turnover punch list work released to Bechtel construction by Consumers Power Company. The Zack work is currently limited until a recently identified question on welder certification is resolved.

During the implementation of the Program in 1983, the NRC Resident Inspectors can use the Plan to monitor safety-related construction activities at the site. Since a substantial portion of the Plan directly relates to commitments made to NRC management, Consumers Power Company intends to schedule periodic reviews of Program status and progress with the NRC.

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1.0 INTRODUCTION

The Construction Completion Program has been formulated to provide guidance in the planning and quality activities necessary for completion of the construction of the Midland Nuclear Cogeneration Plant. Construction completion is defined in this Plan as carrying all systems to the point they are turned over to Consumers Power Company for component checkout and preoperational testing. The Construction Completion Program does not include the Remedial Soils Program which is treated in separate interactions between Consumers Power Company and the Nuclear Regulatory Commission. The Construction Completion Program will be referred to as the Program in this document which contains the Plan for Program development and implementation.

Background

The Construction Completion Program is being developed in response to a number of management concerns that have been identified during the period preceding the initiation of the Program. The Midland Project had been proceeding at a high level of activity as it approached completion. The final transition from area construction to system completion, using punch lists, has been difficult for most nuclear projects. The Midland Project has not escaped these difficulties which have been compounded due to the congested space and the continuing numerous design changes, both generally attributable to the age of the Project. These factors lead to the need for improved definition of work status, increased emphasis on overall Project objectives as well as continued focus of construction and inspection resources on completion of systems for short-term milestones and increased effort to complete engineering ahead of field installation.

The Midland Project has been criticized by the Nuclear Regulatory Commission regional office as not having met their expectations for implementation of the Project's Quality Assurance Program. The result has been that the Project management has too often, during the past few months, been in a reactive rather than proactive posture with regard to quality assurance matters.

In recognition of these conditions, Consumers Power Company has concluded that a change in approach is needed to effectively complete the Project while maintaining high quality standards.

Objectives

The development of the Program has considered the Project's current status and recent history and attempts to address the underlying or root causes of the problems currently being experienced. In order to develop the Program, the following overall objectives were established under three general headings. The Program must:

Improve Project Information Status By:

- Preparing an accurate list of to-go work against a defined baseline.

- Bringing inspections up-to-date and verifying that past quality issues have been or are being brought to resolution.
- Maintaining a current status of work and quality inspections as the Project proceeds.

Improve Implementation of the QA Program By:

- Expanding and consolidating Consumers Power Company control of the quality function.
- Improving the primary inspection process.
- Providing a uniform understanding of the quality requirements among all parties.

Assure Efficient and Orderly Conduct of the Project By:

- Establishing an organizational structure consistent with the remaining work.
- Providing sufficient numbers of qualified personnel to carry out the Program.
- Maintaining flexibility to modify the Plan as experience dictates.

PLAN CONTENTS

The Program was initiated on December 2, 1982 by limiting on-going work on Q-systems to pre-defined tasks and preparing the major structures housing Q-systems for an installation and inspection status assessment and verification of completed work. The relationship of the major elements of the Plan is shown in Figure 1-1. The sections of the Plan address the following major activity areas:

PREPARATION OF THE PLANT (Section 2.0)

The buildings are being prepared for a status assessment and verification of completed work.

QA/QC ORGANIZATION CHANGES (Section 3.0)

A new QA organization that integrates the QA and QC functions under a Consumers Power Company direct reporting relationship is being established. As a part of this transition, the Bechtel QC inspectors are being recertified to increase confidence in the quality inspection performance.

PROGRAM PLANNING (Section 4.0)

The overall Plan for the Program is being developed in two major phases.

The first phase includes:

- A team organization assigned on the basis of systems is being developed to determine present installation and inspection status. The inspection status assessment includes performing inspections on completed work to bring them up to date. A closely coordinated effort involving the construction contractor and Consumers Power Company (QA/QC, testing and construction) will improve quality performance.
- The quality verification of completed work will be based, in part, on a sampling technique using re-certified inspectors as described in Section 3.0.

The second phase includes:

- Following installation and inspection status assessment the team organization will retain responsibility for systems completion work.
- The QC inspection process of new work will be integrated with the systems completion work to ensure adequate quality performance.

PROGRAM IMPLEMENTATION (Section 5.0)

The first phase implementation of the Program will be initiated with a review of the process, procedures and team assignments that will be used. The plan for verification of completed work will be reviewed separately. The teams will conduct the installation and inspection status assessment; verification of completed and inspected work will proceed, as planned, in coordination with the team effort. Following phase 1 completion of the first work segment, a management review of the plan effectiveness will be made.

In second phase Program implementation, the assigned team will plan and schedule the remaining work needed for completion including QC inspections.

QUALITY PROGRAM REVIEW (Section 6.0)

The adequacy and completeness of the quality program will be reviewed on an ongoing basis, taking into consideration questions raised by NRC inspections and findings by third party reviewers. The results of these reviews will be considered as part of the management review that are a part of the Program implementation (Section 5).

4

THIRD PARTY REVIEWS (Section 7.0)

Independent assessments of the Midland Project will provide management and NRC with evaluations of Project performance.

SYSTEM LAY-UP (Section 8.0)

The on-going work to protect plant equipment and systems will be augmented as necessary to provide adequate protection during implementation of this Plan.

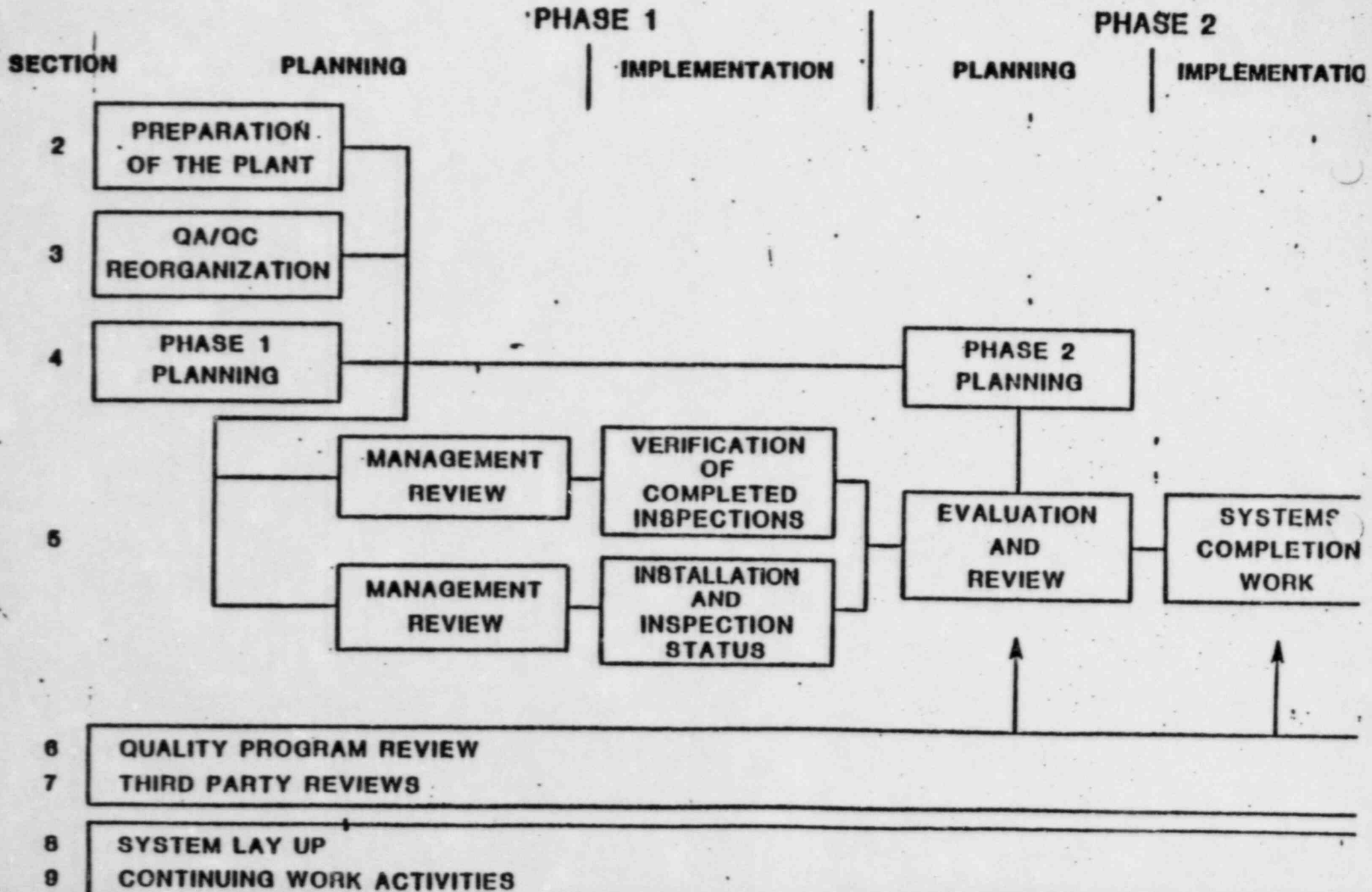
CONTINUING WORK ACTIVITIES (Section 9.0)

Work on Q-Systems has been limited to specific activities. This limitation permits important work to proceed while allowing building preparation for status assessment and verification activities.

SUMMARY

Each section of this Plan presents detailed objectives, a description of the activity involved, and a schedule for achieving major milestones. The Program, however, is still in an evolutionary state and revisions to the Plan may be necessary as Consumers Power Company gains experience in the implementation of Program elements.

FIGURE 1-1
CONSTRUCTION COMPLETION PROGRAM SCHEMATIC



2.0. PREPARATION OF THE PLANT

2.1 Introduction

The preparation of the Plant will clear the auxiliary, diesel generator and containment buildings and the service water pump structure of materials, construction tools and equipment and temporary construction facilities.

2.2 Objective

To allow improved access to systems and areas for the Program activities.

2.3 Description

The preparation activities minimize obstacles and interferences for the Program activities. This is being accomplished through the following steps.

1. Limitation of Q-work to activities and areas defined in Section 9 resulting in substantial work force reduction.
2. Removal and storage of construction tools and equipment, and temporary construction facilities (scaffolding, etc) from the buildings identified in Section 2.1.
3. Removal, control and storage of uninstalled materials from the buildings identified in Section 2.1.
4. Appropriate housekeeping of all areas following material and equipment removal.

The preparation for each area will be complete before initiating further Program activity. The on-going work described in Section 9 will continue as scheduled during the preparation.

2.4 Schedule Status

The preparation of the Plant began on December 2, 1982. It will be complete by January 31, 1983.

3.0 QA/QC ORGANIZATION CHANGES

3.1 Introduction

The Consumer Power Company's Midland Project Quality Assurance Department (MPQAD) is being expanded to assume direct control of Bechtel QC activities. The new organization and the plan for the transition are described below. The transferred QC Inspectors will be recertified as part of this transition.

3.2 Objectives

Establish New QA/QC Organization

Establish an integrated organization which includes the transition of Bechtel QC to MPQAD while accomplishing the following objectives:

1. Establish direct Consumers Power Company control over the QC inspection process.
2. Establish the responsibilities and roles of the QA and QC Departments in the integrated organization.
3. Use qualified personnel from existing QA and QC departments and contractors to staff key positions throughout the integrated organization.

Recertify QC Inspectors

Ensure that those Quality Control inspection personnel transferring to MPQAD from Bechtel will be trained and recertified in accordance with MPQAD Procedure B-3M-1.

3.3 Description

Establish New QA/QC Organization

A new organization will be implemented under Consumers Power Company and will be described in appropriate Topical Reports (CPC-1A and BQ-TOP-1) and quality program manuals (Volume II, BQAM and NQAM). Changes to these documents will be submitted to NRC.

Features of the new organization include:

1. Lead QC Supervisors report directly to a QC Superintendent who reports to the MPQAD Executive Manager. Any required support from Bechtel Corporate QC and QA functions (except ASME N-Stamp activities) is provided at the level of the MPQAD Executive Manager.
2. The MPQAD Executive Manager will review the performance of lead personnel in his department.

3. QA will develop and issue Quality Control inspection plans and be responsible for the technical content and requirements of such plans. QC will be responsible to implement these plans.
4. QA will continue to monitor the Quality Control inspection process to insure that program requirements are satisfactorily implemented.
5. MPQAD will continue to use Bechtel's Quality Control Notices Manual (QCNM) and Quality Assurance Manual (BQAM) as approved for use on the Midland Project.
6. ASME requirements imposed upon a contractor as N-Stamp holder will remain with that contractor. MPQAD QA will monitor the implementation of ASME requirements.

An organization chart (Fig 3-1) showing reporting relationships in the new organization is attached.

Recertify QC Inspectors

The training and-recertification process for QC inspectors has been revised to include commitments made during the September 29, 1982 public meeting with the NRC. Those inspectors transferred from Bechtel to MPQAD will be trained and examined in accordance with MPQAD Procedure B-3M-1. Upon satisfactory completion of the training and examination requirements, inspection personnel will be certified for the Project Quality Control Instruction(s) (PQCI(s)) they are to implement. Inspection personnel will be certified on a schedule which supports ongoing work and system completion team activities.

3.4 Schedule Status

Establish New Organization

Advise NRC of the structure of the integrated organization. 12/15/82

Transfer the Bechtel QC Organization to MPQAD. 1/17/83

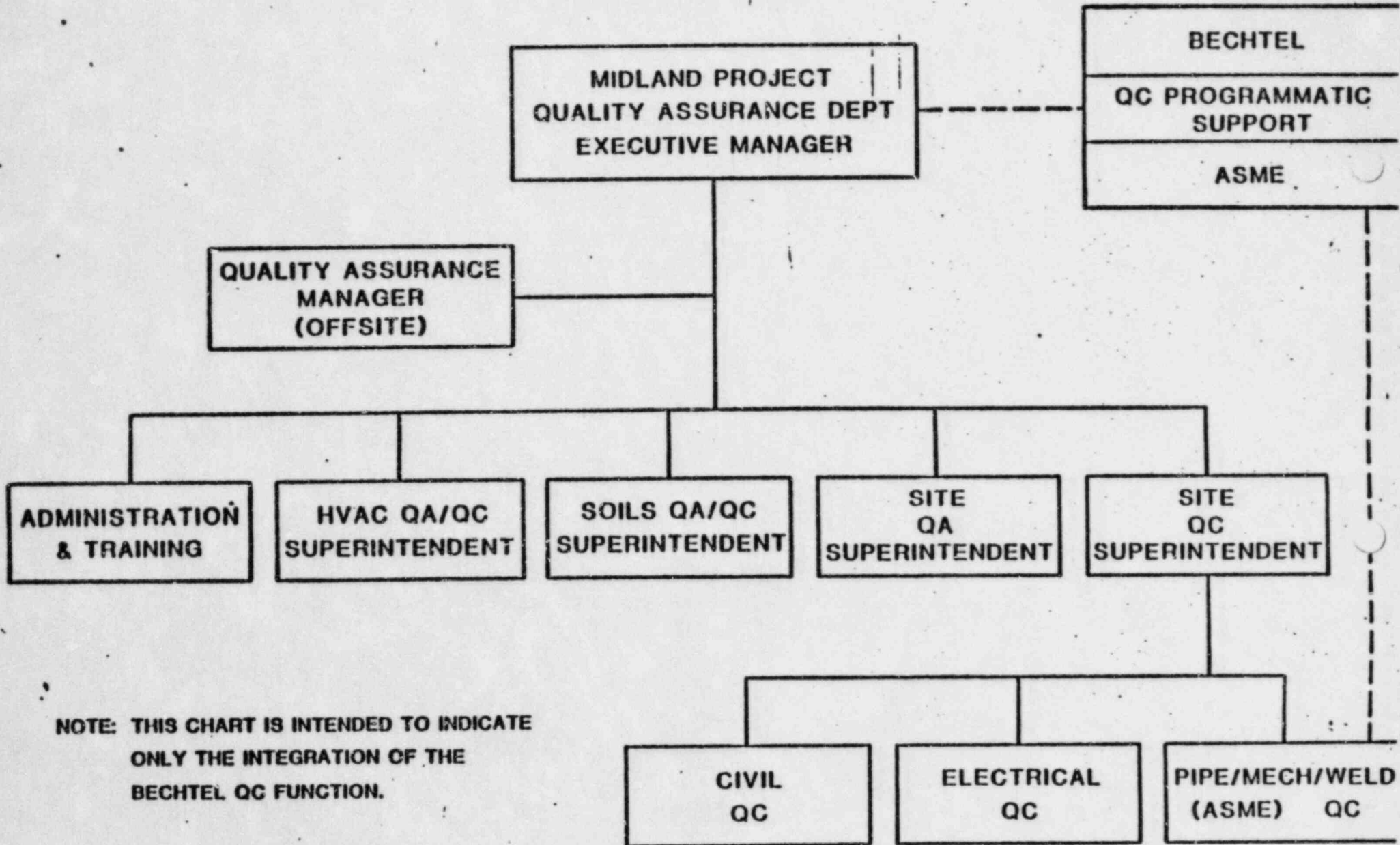
Submit changes to Topical Reports and quality program manuals to NRC. 2/17/83

Recertify QC Inspectors

Specify the revised training and examination requirements for certification (B-3M-1). 10/25/82

Complete recertification 4/01/83

**FIGURE 3-1
MPQAD ORGANIZATION**



NOTE: THIS CHART IS INTENDED TO INDICATE ONLY THE INTEGRATION OF THE BECHTEL QC FUNCTION.

4.0 PROGRAM PLANNING

4.1 Introduction

The detailed planning for the major portion of the Construction Completion Program is described in this section.

Planning in support of Phase 1 consists of the activities to set up a team organization to assess the installation and inspection status of Q-systems within major structures (Section 4.2) and to verify the adequacy of completed inspection effort (Section 4.3).

The Phase 2 planning effort covers the process and procedures that will be used by the team organization for systems completion work (Section 4.4). The procedures to integrate the quality program requirements with continuing systems completion work will be developed (Section 4.5).

4.2 Team Organization (Phase 1)

4.2.1 Introduction

Organize and train teams and prepare procedures for an installation and inspection status assessment.

4.2.2 Objective

1. Establish and implement a team organization ready to inspect and assess systems for installation and inspection status.
2. Develop the organizational processes and procedures necessary to implement the team approach for status assessment.
3. Provide training to ensure required inspection and installation status assessment activities are satisfactorily performed.

4.2.3 Description

1. The team organization structure will vary depending upon the assigned scope of work. The organization will consist of a team supervisor and personnel as appropriate from field engineering, planning, craft supervision, project engineering, MPQAD and Consumers Power Company Site Management Office. The team may be augmented by procurement personnel, subcontract coordinators and turnover coordinators.

Teams will be assigned a specific scope of work and held accountable for status assessment and overall completion within this scope. The scope includes the requirements

to develop a viable working schedule and insure early identification and resolution of problem areas. Project processes and procedures will be reviewed and modified to incorporate the team organization. The team MPQAD representative is responsible for providing the QA/QC support for the team. He receives scheduling direction from the Team Supervisor and technical direction from MPQAD. For his team's work, he analyzes the quality requirements and plans the QC activities to integrate them with the team effort. He assures the necessary PQCI's and certified inspection personnel are available for performing the inspections. He maintains cognizance of the quality status of the verification activities.

The Washington Nuclear Plant #2 (WNP-2) team organization will be used as a starting point for a Midland specific approach.

A pilot team or teams will be utilized to develop and test processes and procedures during the development stage to assure that Program objectives can be met. This will also provide practical field input to assure that efficient and workable methods are used.

Team members will be physically located together to the extent practicable to improve communication, status assessment, problem identification and problem resolution.

- 2. Training for inspection and installation status assessment will be provided to team members. It will include responsibilities, reporting functions, indoctrination of project processes and procedures and familiarization with the project quality program to ensure effective implementation.
- 3. A separate organization of design engineers (presently existing) will coordinate spatial interaction, review and examination with the activities of these teams.

4.2.4 Schedule Status

- . Designate pilot team. 1/21/83
- . Complete grouping of systems for assignment to teams. 2/28/83
- . Complete assignment of team supervisors and members to designated systems. 3/31/83

4.3 Quality Verification (Phase 1)

4.3.1 Introduction

The verification program is the activity undertaken to determine, using a variety of methods, that the inspections performed on completed work were done correctly.

4.3.2 Objectives

The objectives of the verification program are to:

- . Review existing PQCI's and revise as necessary to assure that:
 - a. Attributes important to the safety and reliability of specific components, systems, and structures are identified for verification.
 - b. Accept/reject criteria are clearly identified.
 - c. Appropriate controls, methods, inspection and/or testing equipment are specified.
 - d. Requisite skill levels are required per ANSI N45.2.6 or SNT-TC-1A.
- . Develop and implement verification inspection plan for completed work which considers:
 - a. Re-inspection of accessible items.
 - b. Review of documentation for attributes determined to be inaccessible for re-inspection.
 - c. Sampling techniques using national standards.

4.3.3 Description

PQCI's will be revised as necessary to meet the objectives in Section 4.3.2. Verification of the quality of accessible completed construction, which has been previously inspected will be performed by use of sampling plans based on MIL-S-105D (1963) or other acceptable methods. Attributes determined to be inaccessible for direct re-inspection due to embedment or the status of completed construction or installation (eg, weld preparation of completed welds, reinforcement in placed concrete, installed anchor bolts, etc) will be verified as appropriate, by examination of records.

4.3.4 Schedule Status

- Complete review and revision of PQCI's. (Date to be determined.)
- Establish verification inspection plan for completed work. (Date to be determined.)

4.4 System Completion Planning (Phase 2)

4.4.1 Introduction

Establish the processes for system completion, prepare procedures and expand training to cover systems completion work.

4.4.2 Objective

The objectives of the systems completion planning are as follows:

- Establish processes and interfaces for system completion.
- Prepare procedures defining tasks of each system completion team.
- Train team members by expanding upon training received previously for inspection and status assessment.
- Establish scheduling methods to be used during system completion activities.

4.4.3 Description

The team organization (developed in Section 4.2) and the processes and procedures will be extended to accomplish the systems completion work.

- Training will be conducted to assure that supervisors understand the team objectives and their role. Emphasis will be placed on completion of all work in accordance with the design requirements, the change control process used when the design must be modified, and changes to the established team processes and procedures.

4.4.4 Schedule Status

- Complete team preparation for systems completion work. (Date to be determined.)

4.5 QA/QC Systems Completion Planning (Phase 2)

4.5.1 Introduction

The QA/QC systems completion activity covers the planning to support of system completion work.

4.5.2 Objectives

Establish in-process inspection program and complete review and modification of PQCI's.

4.5.3 Description

The QC in-process inspection program will be directly coordinated with future installation schedules to insure that inspection points, identified by MPQAD QA in the PQCI's, are integrated with the installation schedule. The identification of applicable PQCI's and required inspection points will be used by system completion teams to insure that QC inspections are adequately scheduled into the process. The system completion team quality representative will be responsible for providing the link between the system completion team and MPQAD to insure that quality requirements are satisfied.

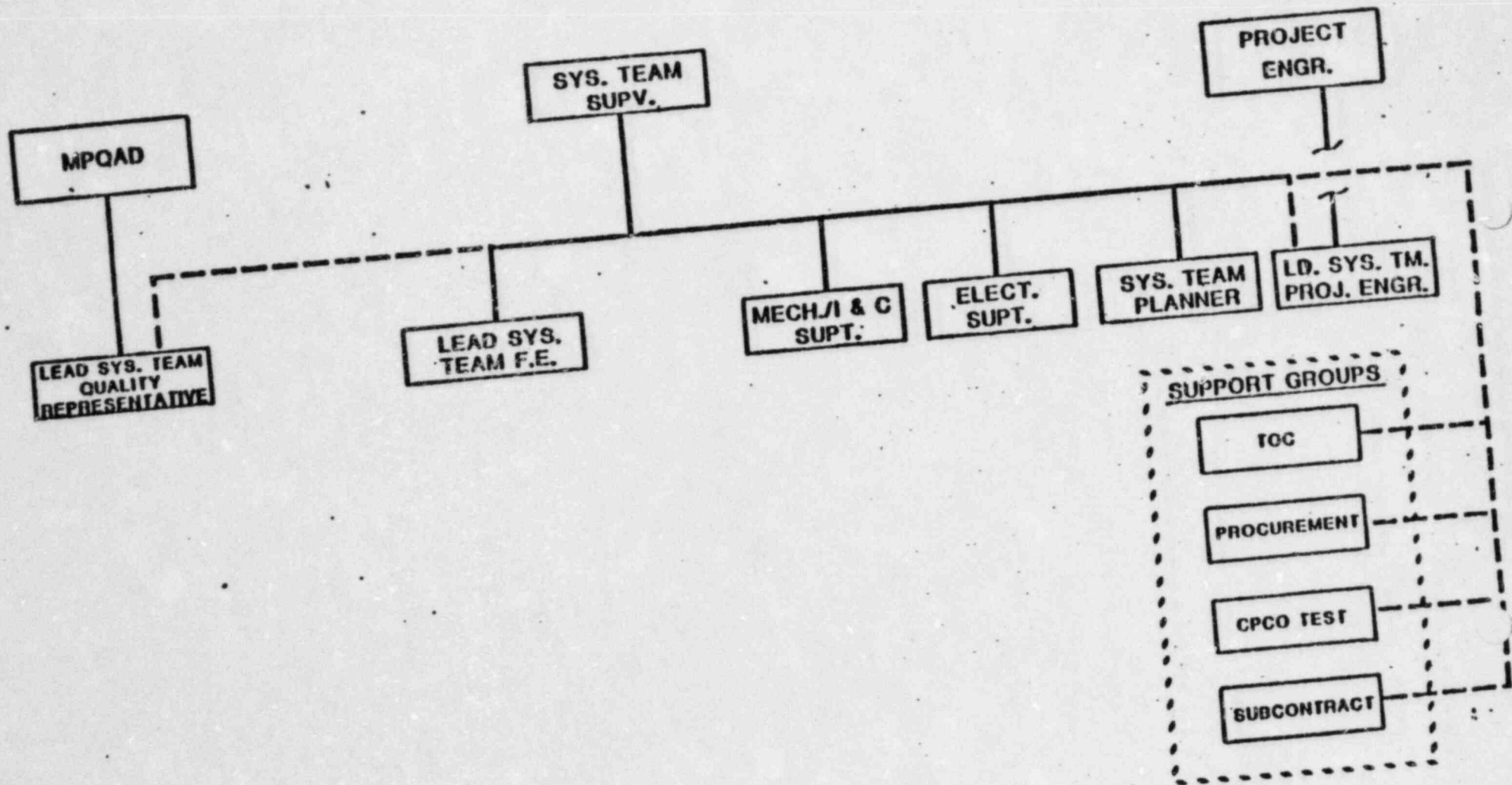
PQCI's will be reviewed, and modified as necessary, to insure that proper attributes are being inspected, that inspection plans are clear and concise, that inspection points are specifically scheduled with installation activities and that inspection results are properly documented. MPQAD QA will be responsible for the PQCI review activity and will obtain assistance, as required, from other project functions, such as Project Engineering and Quality Control. Revised PQCI's will be used to conduct inspection of future installation activities.

4.5.4 Schedule Status

Issue procedure for integrating inspection points into the construction schedule.

2/22/83

FIGURE 4-1
CONCEPTUAL TEAM ORGANIZATION



Q/M-0460-1

5.0 PROGRAM IMPLEMENTATION

5.1 Introduction

The implementation of the Phase 1 Construction Completion Program activities will be initiated after a management review of the overall process insures that Project performance and quality objectives have been addressed. The Phase 1 work will then be carried out by the various teams in accordance with the procedures described in the preceding sections. The installation and inspection status assessment of a system or partial system will be followed by a review of results by MPQAD and a second management review before initiating the Phase 2 systems completion work. The Phase 2 work will then be initiated on that system or partial system.

5.2 Objectives

The objectives to be met are:

- . Establish the present installation completion and quality status.
- . Integrate the construction and quality activities for all remaining work.
- . Improve performance in demonstrated conformance to quality goals in all system completion work.

5.3 Description

Management Reviews

Project management will conduct formal review of the plans for implementation activities prior to initiation of team activities for the Phase 1 work. These reviews will ensure that identified project management and quality issues have been adequately addressed by specific actions and that Program objectives are met. The reviews will cover the process for both 1) the verification of completed inspection activity and 2) the installation and inspection status activity.

The installation and inspection status assessment will be performed on a system and/or area basis. Phase 2 is initiated after a formal Project management review of the first status assessment results to evaluate implementation effectiveness. After completion of this review, a work segment will be released for systems completion. Subsequent status assessment results will be reviewed by site management prior to initiation of additional systems completion segments. Reports will be made to Project management at regularly scheduled meetings.

Phase 1 Implementation

The existing installation and inspection status will be established in accordance with the plan presented in Section 4.

Evaluate Phase 1 Results

MPQAD will review the status assessment results to determine if any programmatic or implementation changes must be made. Verification scope will be adjusted, as necessary, based on evaluation results. Also, the evaluation will check for reportability to the NRC (as required by 10 CFR 50.55(e)) and Part 21.

Phase 2 Implementation

This activity starts systems completion for turnover. Work will be scheduled as installation and inspection status assessments are completed and reviewed. Correction of identified problems will be given priority over initiation of new work, as appropriate, and the system completion teams will schedule their work based on these priorities.

5.4 Schedule Status

- . Complete Management review and initiate implementation of plan for verification of completed inspections. (Date to be determined.)
- . Complete Management review and initiate implementation of plan for status assessment. (Date to be determined.)
- . Complete Management review of initial installation and inspection status results and initiate systems completion work. (Date to be determined.)

6.0 QUALITY PROGRAM REVIEW

6.1 Introduction

The adequacy and completeness of the quality program is reviewed as part of the ongoing Project management attention to quality. These reviews consider any questions raised by NRC inspections or findings raised by third party evaluations.

6.2 Objective

Address issues raised by internal audits, NRC inspections and third party assessments. Program changes, if needed, will be evaluated and, as findings are processed, will be factored into the Project work.

6.3 Description

Consumers Power Company believes Midland QA program is sound. From time to time, questions arise on detailed aspects of the program or program implementation. The normal process of addressing these issues ensures that all necessary information is provided to NRC and that internal confidence in the program is maintained.

The recent inspection of the diesel generator building has raised several issues of programmatic concern. These are in the areas of material traceability, design control process, Q-system related requirements, document control and receipt inspection. Project management has directed that MPQAD provide an expeditious evaluation of these issues to be considered as part of the management review prior to initiation of Phase 2. Once the NRC inspection report is received and specified items are identified, these items will be addressed and resolved through the normal process of closing the inspection findings. Any corrective action or program changes will be implemented as appropriate in Project work on a schedule provided in the inspection report response.

The Project will also receive, from time to time, findings from third party assessments (Section 7). These findings or recommendations may also result in program modification or adjustments. Corrective action taken by the Project will be implemented on a schedule stated in the response to these findings.

7.0 THIRD PARTY REVIEWS

7.1 Introduction

This section describes third party evaluations and reviews that have been performed and are planned to assess the effectiveness of design and construction activity implementation. Third party reviews being conducted as part of the Remedial Soils Program are not included in this activity.

7.2 Objectives

To assist in improving Project implementation and assessment of Midland design and construction adequacy, consultants will be utilized in order to:

- Achieve a broad snapshot of current Project practices and performance in relation to a national program.
- Provide continuous monitoring and feedback to Management of Project performance.
- Identify any activities or organizational elements needing improvement.
- Improve confidence (including the NRC's and the public's) in overall Project adequacy.

7.3 Description

The use of consultants to overview Project design and construction activities with particular emphasis on construction is part of the effort to improve the Project's implementation of the quality program. Specifically, the plan overview employs the use of consultants for three separate functions: (1) To carry out a self-initiated evaluation (SIE) of the entire Project under the INPO Phase I program, (2) to utilize a third party overview of ongoing site construction activities to provide monitoring of the degree of implementation success achieved under the new program and (3) to conduct a third party Independent Design Verification (IDV) Program.

1. The INPO self-initiated evaluation was planned as part of an industry commitment to the NRC in response to concerns over nuclear plant construction quality assurance. For the Midland SIE, the evaluation was contracted to be carried out entirely by third party, experienced personnel from the Management Analysis Company.

The evaluation was performed by a team of 17 consultants familiar with the INPO criteria and evaluation methodology. Over a period of a month they interviewed Project personnel at various locations and observed work in progress. The initial results of their evaluation have been presented to the Company

and a Project response to each finding will be prepared and included as part of the evaluation report to be submitted first to INPO and then to the NRC Region III Administrator, together with the INPO overview.

2. A third-party installation implementation overview is being undertaken using, as a model, the program developed specifically for the underpinning portion of the soils remedial work. The overview will be initiated by retaining an independent firm, having considerable experience and depth of personnel in the nuclear construction field. The consultant's overview team will be located at the Midland Plant site and will observe the work activities being conducted in accordance with this Plan on safety-related systems. The overview will continue for a period of six months, after which the Project's cumulative performance will be evaluated. Based on the overview team's findings, a determination will be made by the Company's top management on what modification, if any, should be made to the consultant's scope of work. Findings identified by the installation overview team will be made available to the NRC in accordance with the procedures established for the conduct of independent verification programs.
3. An Independent Design Verification (IDV) is being conducted by Tera Corporation.

The IDV is directed at verifying the quality of design and construction for the Midland Plant. The approach selected is a review and evaluation of a detailed "vertical slice" of the Project design and construction. The design and as-built configuration of two selected safety systems will be reviewed to assure their adequacy to function in accordance with their safety design bases and to assure applicable licensing commitments have been properly implemented. The field work done in support of this activity will not take place until after Phase I implementation (Section 5) has been completed on the systems being reviewed.

The Unit 2 Auxiliary Feedwater System (AFW) plus another system to be selected with NRC concurrence, will be reviewed to fulfill the requirements of the IDV.

7.4 Status/Schedule

1. INPO Construction Project Evaluation

Select consultant and conduct evaluation	Complete
Submit report to INPO	Jan 20, 1983

2. Independent Construction Overview

Define scope	Dec 30, 1982
Select consultant	Jan 31, 1983
Mobilize assessment team	(Date to be determined)
Receive assessment team report	(Date to be determined)

3. IDV

Select 2 Systems	
.AFW System	Complete
.Obtain NRC concurrence for second system.	(Date to be determined)
Complete Evaluation	(Date to be determined)

8.0 SYSTEM LAYUP

8.1 Introduction

Perform system lay-up activities to protect plant equipment.

8.2 Objectives

Expand the protection of completed and partially completed plant systems and components until plant start-up, to take into account any special considerations during the status assessment.

8.3 Description

Procedures and instructions are provided in the Testing Program Manual to protect equipment during the on-going installation and test work. These will be extended to cover special considerations associated with the Program implementation. Both the pre- and post-turnover periods are covered. System and component integrity is ensured through existing programs and implementation of control and verification procedures.

In summary, these procedures and instructions require: Test Engineers to complete walkdowns of Q-Systems (in the auxiliary, diesel generator and containment buildings and the service water pump structure), paying particular attention to systems/components that are open to the atmosphere (eg open ended pipes, open tanks, missing spools, disconnected instrument lines, etc). Systems that have been hydrotested but are not currently in controlled layup require action to place the system in layup. Layup will vary from system to system but in general will consist of air blowing to remove moisture and closing the system from the atmosphere.

8.4 Schedule/Status

- Start extended layup activities 1/15/83
- Issue walk down schedules 1/15/83
- Complete the layup preparation walkdown 2/28/83

9.0 CONTINUING WORK ACTIVITIES

9.1 Introduction

This section describes the activities that are proceeding in accordance with previously established commitments during the implementation of the Program.

9.2 Objectives

- Maintain installation and support effort on work that will alleviate work interference in congested portions of the plant and facilitate completion and protection of equipment on systems turned over to Consumers Power Company.
- Meet previous NRC commitments on activities which do not impede the execution of the Program.
- Provide design support for orderly system completion work and resolution of identified issues
- Establish a management control to initiate additional specified work that can proceed outside of the systems completion activities

9.3 Description

Those activities that have demonstrated effectiveness in the Quality Program implementation will continue during implementation of the Construction Program.

These are:

1. NSSS Installation of systems and components being carried out by B&W Construction Company.
2. HVAC Installation work being performed by Zack Company. Welding activities currently on hold will be resumed as the identified problems are resolved.
3. Post system turnover work, which is under the direct control of Consumers Power Company, will be released as appropriate using established work authorization procedures.
4. Hanger and cable re-inspections which will proceed according to separately established commitments to NRC.
5. Remedial Soils work which is proceeding as authorized by NRC.



Consumers
Power
Company

Attachment

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March 10, 1983

Mr R C DeYoung
Director, Office of Inspection and Enforcement,
US Nuclear Regulatory Commission
Washington, DC 20555

MIDLAND ENERGY CENTER PROJECT -
DOCKET NO 50-329 AND 50-330 - MIDLAND PROJECT RESPONSE
TO NRC NOTICE OF VIOLATION EA83-3 DATED FEBRUARY 8, 1983 -
FILE 0485.16 SERIAL 21775

Attached is Consumers Power Company's (CP Co) Response to the Notice of Violation ("Notice") transmitted by J G Keppler's February 8, 1983 letter to J D Selby. In addition to this cover letter, the response consists of attachments in accordance with 10 CFR 2.201, addressing the two violations (Attachments 1 and 2), and a request for mitigation of the civil penalty under the General Statement of Policy and Procedure for Enforcement Actions 47FED.REG. 9987 March 9, 1982 (Attachment 3).

Attachment 1, in addition to specifically providing the items of information requested on page 9 of the "Notice", reports on the results of the Company's investigation into In Process Inspection Notices (IPIN's) and answers the questions on page 2 of Mr Keppler's letter. The Company found that all quality control disciplines had been given the option to terminate an inspection (when multiple nonconforming conditions were observed), document observed findings of the partial inspection on IPIN's, and return work to construction. The Company also found that some individuals would limit reinspection to reported deficiencies. As noted in Attachment 2, the Company admits to the noncompliances listed under Violation B.

The Company admits the two violations and does not contest the basis for imposing a civil penalty, although we respectfully request that the NRC reconsider the amount of the penalty in light of the corrective actions the Company has taken, as set forth more fully in Attachment 3. In late 1981, upon receipt of preliminary information concerning NRC inspection findings, the Company took major corrective actions. We halted most Category I work of the prime contractor pending initiation of an effort to verify previous inspections and status of incomplete work. We initiated steps to correct the deficiencies and, as part of an overall program revised production and

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6. Design engineering which will continue for the Midland Plant as well as engineering support of other project activities.

Additional activities related to the systems completion effort, may be initiated, as appropriate, to support orderly completion of the overall Project. Any activities in this category that are initiated prior to release of an area for systems completion work will be reviewed with the NRC Resident Inspector before initiation.

9.4 Status Schedule

These activities are proceeding with schedules that are independent of this Plan.

quality processes, changed and realigned the management team, and expanded project resources to complete the job. The description of this effort is described in my letter to Mr J G Keppler dated January 10, 1983, regarding the Midland Project Construction Completion Program. We are confident that as we implement these corrective actions the Midland Project will achieve compliance with regulatory requirements.

James W. Cook

JWC/JEB/dlm

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

Letter Serial 21775 Dated 3-10-83

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 the response to Notice of Violation.

CONSUMERS POWER COMPANY

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

Sworn and subscribed before me this 10th day of March 1983.

/s/ Patricia A Puffer
Notary Public
Bay County, Michigan

My Commission Expires 3-4-86

ATTACHMENT 1RESPONSE TO NOTICE OF VIOLATION ITEM ASTATEMENT OF VIOLATION (Item A)

"NRC inspectors determined that quality control inspectors were not documenting as nonconformances all of the deficiencies which they observed during their inspections. Inspections were suspended by the QC inspector if too many nonconformances were observed. In-process inspection notices (IPINs) associated with suspended inspections, identified as nonconformances only a portion of the observed deficiencies. Supervisory QC personnel stated that they directed QC inspectors to limit the number of nonconformances documented during an inspection. This directive was verified by discussions with QC inspectors. Several QC inspectors interviewed, confirmed that inspections were closed after reviewing only the deficiencies documented on the IPIN. As a result, measures were not established to prevent the continued installation and use of these nonconforming items. In addition, corrective actions were not implemented to prevent recurrence of these nonconformances."

SUMMARY OF RESPONSE TO VIOLATION (Item A)

1. The violation is admitted.
2. The reasons for the violation are as follows: (1) failure of QC management (a) to recognize potential for adverse impact, on the inspection process, of terminating inspections on activities with multiple deficiencies and partially documenting findings on IPINs, ("return option")*, (b) to communicate specific direction on the use of the "return option" to avoid adverse impacts; (2) lack of sufficient specificity in procedures defining responsibilities of Quality Control Engineer's, (QCEs) signing off on Inspection Report activities; (3) lack of full understanding among all QCEs of responsibilities for inspecting all multiple items before closing IR line activities when conducting follow-up inspections on activities subject to an IPIN.
3. Corrective action in place is as follows: IPINs have been discontinued at the Midland site. QCEs have been instructed by memorandum to complete all activities which have been submitted for inspection regardless of number of nonconforming conditions observed and to document findings on nonconformance reports (NCR's).
4. Planned or in-process corrective actions:
 - (a) Procedures PSP 6.1 and PSP 3.2 are being revised in accordance with the direction given in Paragraph 3 above.
 - (b) QCEs will be trained in the revision to the procedures in accordance with the general training procedure B-3M-1. During this training, emphasis will be placed on the requirement described in Paragraph 3 above.

(c) All closed inspection report activities upon which IPIN's have been issued will be verified. An investigation of Deficiency Reports* is ongoing to determine whether closed Inspection Reports were affected by this problem.

5. Dates for full compliance

Item a - by March 22, 1983

Item b - start training April 1, 1983

Item c - as part of the verification step in the Construction Completion Program

DETAILED RESPONSE

Background Information

Inspection activities are defined in specific instructions, Project Quality Control Instructions (PQCI's). These instructions describe how inspections are carried out and the attributes to be inspected. Each inspection activity is documented on an "Inspection Report," (IR) which contains blank spaces to be initialed by the individual Quality Control Engineer (QCE) who conducts this inspection and only after completing the inspection activity. There is a one-to-one correspondence between activities defined in the PQCI and listed on the IR. When all activities on the IR are appropriately initialed, the IR is reviewed and "closed out" by a Quality Control Engineer Level II by signing on a designated line on the IR's last page.

In-Process Inspection Notices (IPINs), instituted on June 1, 1981, were one of two basic types of reports used to document nonconforming conditions observed during primary inspections at the Midland jobsite. IPINs could be used to document deficiencies which were found prior to acceptance of completed work. Nonconformance Reports (NCR), the other basic means of formally reporting nonconforming conditions, were used either before or after acceptance of completed work.

If, during the course of an inspection activity, a QCE found a deficiency, he was required to document the condition. Prior to June 1, 1981, procedures specifically allowed a QCE to return certain deficiencies to construction without documentation, providing the deficiency could be corrected within the same shift. The procedures would not allow the QCE to initial the space corresponding to such an activity on the IR unless and until the deficiency was corrected by project construction or the condition had been properly recorded on an NCR. Activities on an IR that were not initialed were said to be "open." Because the activity could not be "closed" until correction of any identified problem (or submission of an NCR), the "open" activity formed a basis for controlling deficiencies identified during inspections.

*The Deficiency Report ("DR") is a predecessor document to IPINs, and as such is under investigation to determine if corrective action regarding it is warranted.

The IPIN procedure was designed to provide construction with prompt feedback of information concerning deficiencies or incomplete work. A copy of all IPINs was sent immediately after issuance to construction for disposition. When construction made necessary corrections, the IPIN was returned to Quality Control, indicating that the hardware was ready for further inspection. Subsequent inspections which determined that the problem documented on the IPIN had not been corrected, or that other nonconforming conditions existed, would result in further IPINs or NCRs. In any case, an IR activity would remain open until QC had verified all problems were corrected or an NCR was submitted.

The particular practice giving rise to the Notice of Violation involved the termination of inspection activities when multiple nonconforming conditions were observed part way through an inspection. If a QCE conducting an initial inspection determined that parts or components covered by a given inspection activity had a large number of nonconforming conditions, he had the option to terminate his inspection before completing the activity, document the deficiencies observed to that point on an IPIN and return the hardware to construction ("the return option"). Region III determined that items not inspected initially when this return option was exercised may have escaped later inspection. The postulated mechanism for this outcome is as follows: As previously described, once construction had corrected a problem noted on an IPIN, the IPIN was transmitted to Quality Control for further inspections. Procedures then required that the QCE inspect the hardware to determine that corrections of the IPIN-identified deficiency were carried out and that all other items had been inspected before closure of the activity on the IR. Thus, if a return option had been exercised, then before closing out the activity, a QCE would have to inspect not only those hardware items written up on the IPIN, but also all others which he had not satisfied himself as being previously inspected before the initial inspector terminated his inspection. Region III concluded that this may not have been done in all instances, resulting in a possible missed inspection. Region III also faulted the process by pointing out that items beyond those noted on an IPIN which were corrected by construction following a return of the item after a partial inspection were not itemized and submitted for trending analysis.

CPCo INVESTIGATION FINDINGS AND RESPONSE TO NRC QUESTIONS

The Notice of Violation asks the Company to conduct an inspection to determine (1) the extent to which QC supervisors at the Midland site have been instructing QC inspectors to limit findings of deficiencies and (2) the extent to which QC inspectors have been conducting reinspections based only on reported deficiencies.

The Company was informed on January 18, 1983, that the use of the IPIN was a major NRC concern. In response to this meeting on inspection findings a task force was chartered to start an immediate investigation. The task force was composed of a project attorney and two consultants.

When the NRC inspection report was received on February 8, 1983, the task force was directed to carry out the specific inspection requested by NRC. The task force work involved interviews with all QC supervisory personnel and a

majority of the QCE staff. The task force also debriefed the 13 QCEs interviewed by Region III.

It reviewed and evaluated existing quality assurance and quality control procedures and instructions, in light of other information obtained. Finally, in conjunction with MPQAD, it recommended and initiated corrective actions. As a result of the IPIN task force's extensive efforts, the Company has a good understanding of particular inspection practices regarding use of IPIN's at the Midland site.

Virtually all nuclear construction projects have some means of documenting inspections conducted while construction work is in process. IPIN's, used for that purpose at Midland, were established under a system of closed loop procedures requiring that documented conditions be returned to construction, reworked, and then reinspected by QC to verify the implementation of corrective action. The concept behind the use of IPINs is fundamentally sound, and is founded on recognized QA/QC principles, although specific problems existed in connection with the use of a "return option" at Midland.

The return option (defined above) was established to provide a means of returning work to construction, when a QCE would otherwise have to occupy valuable time inspecting and documenting a large number of nonconforming conditions (referred to herein as "punchlisting"), on a hardware item which was actually not ready for inspection. The option permitted the QCE to return the work to field engineering, which had the responsibility for checking the item and ensuring its readiness for inspection in the first instance. Thus, the option was motivated by legitimate concerns and objectives.

Although the option was not established for the purpose of "limiting findings of deficiencies" by QC, obviously, to the extent deficiencies existed in the uninspected portion of the work, they were not recorded during this initial inspection, nor could they be accounted for in the trending analysis. The return option was used in all disciplines, although some supervisors within disciplines elected not to use it in their particular area.

The return option, by itself, would not result in a missed inspection covered by a closed IR activity, so long as the inspector closing out the IR satisfied himself that all items not encompassed by the IPIN and included in the activity were inspected, either by him or by the previous inspector. QC procedures, in fact, required the signer of the IR activity to vouch for the inspection of all items before signing. It is a basic principle of quality control that an inspector should not sign for something he has not verified, either by documentation, inspection, or some other means. The Company found that the answers provided by some individuals indicated a lack of a full understanding of the requirement to satisfy themselves that all items had been inspected before closing out an IR activity subject to an IPIN. The IPIN procedures did not specify exactly how a return option should be handled, either initially or in closing out IR activities, and thus may have contributed to any misunderstandings which existed.

As part of its corrective action, described more fully above, the Company will ensure that procedural shortcomings in defining the requirements for QCE

closure of IR activities are corrected, and will retrain QCEs, emphasizing their responsibilities to conduct full, complete inspections and document all deficiencies before signing off IR activities. The Company also decided to discontinue the "return option" at Midland and require that all initial inspections be completed with non-conforming conditions fully documented. The IPIN form has also been eliminated and all deficiencies will be documented on a revised NCR form. (The particular findings of the extensive Company investigation into the use of IPINs are recited more fully below under responses to the NRC's questions contained in the Notice of Violation.)

Question 1

"Determine the extent to which QC Supervisors at the Midland Site have been instructing QC Inspectors to limit findings of deficiencies."

There are two aspects to this question. A first aspect concerns the extent to which QC Inspectors were instructed not to completely inspect activities prior to turning work back to construction. A second aspect relates to directions, if any, given to QCEs, not to document deficiencies actually observed. Regarding the first aspect, the Company found that QCEs were directed to use a "return option" which resulted in initial inspection activities not being completed. With regard to the second aspect of the question, QC management intended that, in the exercise of a return option, all deficiencies actually seen would be reported on an IPIN. Project management personnel encouraged the use of a return option and QC management, instructed QC leads, who reported directly to them, in its use.

The QC management interviewed by the task force stated that the option was intended to provide a means for returning work to construction and avoid occupying QCE's time punchlisting work for construction. There was no intent to avoid reporting deficiencies, although the inadvertent result of the practice was that deficiencies on the portion of the work not inspected before return would not be documented. QC leads who instructed their personnel to use the option agreed with the QC management's purpose in using the option.

Of the 16 QC leads and supervisors interviewed, one individual was in the documentation area, for which the return option was inapplicable, and eight stated either that the option was not applicable to their activity, or that they had not used it for other reasons. Of the latter, one stated that he had never been told to use the return option.

Two stated that their group had used it only infrequently. One of these understood that all observed deficiencies were to be documented but could not recall whether he had so instructed his group. The other indicated that the only instance when an inspection was halted before completion was when it was obvious that cable insulation damage would require a completely new termination. In this instance the inspection for other termination deficiencies would not be performed, but the observed damage would be documented.

Three individuals indicated regular use of the option. One stated that he had instructed his subordinates to document all observed nonconformances, one

could not recall giving specific instructions but knew that his subordinate's practice was to document all observed nonconformances and one knew that that was the proper practice, assumed that his subordinates did it that way, but could not recall whether he had so instructed them.

Two other individuals were relatively new in the position. One indicated that it was his practice to document everything observed but that it had not been the practice of his predecessor (no longer at the plant). The other continued the practice of his previous supervisor to document all observations.

The task force found that from a quarter to a half of the individual inspectors (QCEs) contacted, depending on the discipline, were aware of and made use of a "return option". A few individuals stated that they documented some, but not all, deficiencies observed in an inspection in which the return option was used.*

The company's corrective action on this point is described above. The company considers it of fundamental importance that all QCEs and supervisors understand the requirement to document deficiencies observed when an item has been submitted for inspection rather than using an "oral" communication process. This aspect will be emphasized in training on the new procedures.

Question 2

"Determine the extent to which QC inspectors have been conducting re-inspections based only on reported deficiencies."

The Company determined, based upon investigation, that almost all QCEs at Midland were completing their inspections properly. However, because a few individuals may not have completed inspections fully, the Company concluded that the NRC inspection finding was valid.

The precise question to be addressed here is whether and to what extent QCEs closed out inspection record activities subject to IPINs which do not encompass the entire activity, without fully inspecting the activity. The

* Approximately one-half of the QCEs contacted also indicated that in some circumstances they allowed repairs or reworks to take place within a fixed period of time without documenting the deficiencies observed during the initial inspection. Virtually all of those utilizing this practice had been advised by their supervisors to do so.

This practice was specifically allowed prior to June 1, 1981, and through an apparent lack of clear communication continued after the option was removed from QC procedures on this date. The upper tier policy document allowed the practice on a one shift basis until February 1983. Since this practice would not lead to missed inspections with regard to use of IPINs, it was not addressed further as part of the task force investigation. An NCR was written on December 10, 1982 regarding the optional practice not to document deficiencies corrected during a one shift period; HPOAD will further track and disposition this issue utilizing the results of the task force investigation.

IPIN task force determined that although a few individuals stated they would not necessarily reinspect all items before closing out the IR activity. There were several reasons for this response. Some would not lead to an inspection miss.

When asked to describe the types of inspections for which they would not reinspect all examples, it became evident that nearly all individuals followed practices which would not have led to an inspection failure. Many individuals stated that they did not reinspect all items when they conducted the initial inspection and remembered items they had previously inspected. Others answered that they limited their reinspection to items covered by the IPIN, but only when the activity covered only one item. Still others limited their reinspection if the inspection of all other items was documented. Thus, in specific circumstances an inspector following all applicable procedures could have limited his reinspection to hardware items encompassed by the IPIN and accomplished a complete inspection of the activity. Only a few individuals appeared to lack sufficient understanding of the requirement that the reinspection verify inspection of all items within an activity.

The IPIN task force concluded that not more than ten percent of the individuals contacted reported unacceptable practices. Although the task force's conclusions on this question were more positive than NRC's from a statistical standpoint, the task force concluded that NRC's inspection finding and notice of violation were valid.

It is the Company's conclusion that the cause of this violation was unclear management direction regarding documentation associated with use of the "return option".

ATTACHMENT 2RESPONSE TO NOTICE OF VIOLATION ITEM BOVERVIEW

As a result of the Company's assessment of overall project status in the fall of 1982 and based on information regarding the identified findings from NRC inspections and their generic implications, Project management carefully evaluated the needs for corrective actions. The Construction Completion Program (CCP) was conceived to address all identified concerns and to achieve desired improvements in project performance.

The project presented the Construction Completion Program concept to Region III personnel on December 2, 1982 after having initiated action to implement the plan the previous day. A description of the CCP was sent to the NRC in our January 10, 1983 letter and a public meeting was held with the NRC on February 8, 1983 to discuss the plan. This overview summarizes how major portions of the CCP cover the individual findings of the Notice of Violation and the generic implications of these findings.

The specific portions of the CCP that address the generic implications of the NRC Diesel Generator Building Inspection are as follows:

A. System Team Organization

The organization for completion of construction is being reorganized to emphasize a systems approach. A team made up of construction and engineering personnel (with close QC coordination) will be assigned to complete all work on a specific system or systems. This team concept will also be applied to remaining area work.

The team concept provides for very close coordination between all major activities required to produce and demonstrate a quality product. The development of this organization involves a review of existing field procedures and preparation of improved procedures for defining work requirements. A major element of this approach will be preparation of expanded instructions to the crafts that will improve performance to design and specifications and will insure proper coordination with inspection as the work proceeds. The team members will be trained in the new procedures.

An assessment of current system construction and inspection status will be made by the team prior to initiation of construction activities. This will provide a baseline of existing quality and allow any existing problems to be identified and corrected.

The specific NRC inspection findings* covered by this activity are:

B-1b, B-1c, B-1d, B-1h, B-1j, B-1l through p, B-1q, B-4a and B-6.

B. Review PQCI's and Update As Required

The procedures for carrying out inspections (PQCI's) are being reviewed to insure all important inspection attributes are specifically described and, to the extent practicable, all reference material is incorporated directly in the PQCI.

The specific NRC inspection report findings covered by this activity are:

B-1a, B-1b, B-1c, B-4a, B-4b and B-8a.

C. Review the Inspection Process (See note below on inspection backlog)

The inspection process including construction procedures for initiating inspections will be modified so that:

1. The procedure for documenting non-conformances ensures that all non-conforming conditions are properly identified and tracked.
2. The process for providing instructions for construction activities ensures all required inspections are performed when required.

The specific NRC inspection report findings covered by this activity are:

B-1l-p, B-4b, B-8b(1) and B-8b(2)

D. QC Training and Certification

The QC Department has been reorganized under direct Consumers Power Company control. All QC personnel have been or are undergoing a training program leading to re-certification to the revised PQCI's.

The specific NRC inspection report findings covered by this activity are:

B-1l-p and B-4b.

E. Program Reviews

General QA Program reviews have been initiated in the areas identified below in addition to the specific responses required from the inspections findings. The results of these reviews and any requirements for program revision will be incorporated in CCP activities.

1. Receipt Inspection Review covers findings B-1g and B-3.
2. Material Traceability Review covers findings B-1e, B-1f, B-2a and B-8a.

*Findings are identified by the item designation in the Notice of Violation transmitted by the NRC and letter of February 8, 1983 J G Keppler to J D Selby.

3. Design and Document Control Review covers findings B-1i, B-1j, B-1k, B-2b, B-2c, B-2e, B-5 and B-7.

F. Safety-related classification.

The NRC is reviewing the project licensing position on this issue. This covers findings B-2d and B-2f.

The response to each individual finding follows:

**Note on inspection backlog.

The Company specifically reviewed the NRC concern regarding, "...a backlog of almost 16,000 inspections...", the status of inspection records (IR) as of November 26, 1982 was actually as follows:

IR Issued 190,000; IR Closed 174,000; IR "Open" 16,000

The 16,000 "Open" IR are categorized as follows:

- (1) Opened in anticipation of an inspection request but construction not yet ready for inspection, 7,200.
- (2) Fully ready for inspection, 1,200.
- (3) Open but waiting for next complete step in construction, 5,700.
- (4) Open pending NCR/IPIN disposition, 800.
- (5) Open pending Level III approval, 700.
- (6) Miscellaneous, 400.

Therefore, the actual backlog of inspections is more correctly identified by the 1,200 IRs where construction is done and waiting for inspection.

NOV Item B - 1.a (82-22-02A)

"Installation of diesel generator engine control panels 1C112, 2C111, and 2C112 was not in accordance with the requirements delineated on foundation Drawing 7220-M18-250 in that the foundation bolt washers required by the subject drawing were not installed."

1. The violation is admitted, in part.
2. (1a) No Electrical or Civil QC instruction required specific verification of the bevelled washer installation. Therefore, documented proof that bevelled washers were installed could not be provided since the foundation is grouted. (bevel washers)
- (2a) The inspection records for panels 1C-112, 2C-111 and 2C-112 are open with attributes such as washers and torquing not yet inspected. Therefore, this is not a violation. (flat washers)
3. (1a) NCR M01-9-2-138 was written by MPQAD on October 15, 1982 to document the non-conformance and was closed on December 8, 1982. (bevel washers)
- (1b) FCR M-7026 was written on November 10, 1982 to make the bevelled washers optional, because in this case, bevelled washers did nothing to aid in support or leveling of the panel. The FCR was approved November 23, 1982. (bevel washers)
- (2a) Due to insufficient quantities of flat washers and nuts this portion of the installation was not completed. The field has subsequently procured sufficient quantities to complete the bolt down and are awaiting Construction Completion Program approval to install them. (flat washers)
4. Electrical and Civil PQCI's will be reviewed and revised as applicable to include specific verification for mounting requirements and will incorporate applicable hold points.
5. QC inspection plan E-6.0 and C-1.10 (if required) shall be modified to incorporate full inspection and hold points for all un-installed electrical equipment by March 28, 1983 and required training to the revised plan is scheduled for completion by April 11, 1983. (bevel washers)

NOV Item B - 1.b (82-22-02B)

"Unscheduled pull box associated with conduits 2BN006, 2BN007, and 2EDA002 was not sized in accordance with the requirements delineated on Sheet 42 of Drawing E-42 in that the 12" x 12" x 6" as-built dimensions of the subject pull box did not conform to the 13 1/2" x 12" x 6" dimension requirements delineated on Sheet 42 of Drawing 42."

1. The violation is admitted.

2. (1) Failure of Field Engineering to specify correct size pull box for Construction to install.
(2) Failure of QC, during inspection of conduits 2BN006, 2BN007 and 2EDA002, to identify non-conforming condition.

3. FCR E-3157 was written on November 8, 1982 and approved on November 17, 1982. This FCR clarified the intent of E-42(Q) SH 42 to include minimum bend radius as a criterion for pull box sizing. Given the revised criteria, the pull boxes cited conform to the requirements, as documented in an NCR written by MPQAD on March 7, 1983.

4. (1) PQCI E-1.0 will be revised to verify and record pull box size and bend radius of cable will be verified on applicable PQCI's.
(2) Team training programs, required by the Construction Completion Program, will emphasize the importance of following all requirements of design documents.

5. (1) PQCI E-1.0 to be revised by March 29, 1983 and required training is scheduled for completion by April 29, 1983 to verify and record pull box size.
(2) Reinspection of installed work will be carried out during the implementation of the Construction Completion Program.

NOV Item B - 1.c (82-22-02C)

"The 1'-10" wall to support dimension required by raceway support Drawing E-796(Q), Sheet 2 of 2, Revision 5, for hanger No. 86 was not correctly translated into the as-built installation of the subject hanger in that the as-built wall to support dimension was 2'-1 1/2" in lieu of the required 1'-10"."

1. The violation is admitted.

2. Craft, Supervision, Field Engineering and QC did not provide sufficient attention to detail to assure correct locations of P1001 strut on tube steel as delineated on Drawing E-796(Q) SH 2 detail 1.

3. FCN E-7040 was written to approve installed conditions and has been incorporated. NCR M01-9-3-084 was written by MPQAD on March 7, 1983 to document this condition, and for purposes of trending.

4. (1) Revise PQCI E-2.1 and provide QC training to properly inspect supports.
(2) Team training programs, required by the Construction Completion Program will emphasize the importance of following all requirements of design documents.

5. Revision of E-2.1 and required qualification training is estimated to be complete by May 15, 1983.

NOV Item B - 1.d (82-22-02D)

"The 6'-6" wall to support dimension required by raceway support Drawing E-796(Q) Sheet 1 of 2, Revision 11 for hanger No. 14 was not correctly translated into the as-built installation of the subject hanger in that the as-built wall to support dimension was 5'-5" in lieu of the required 6'-6"."

1. The violation is admitted.

2. (1) E-796(Q) SH 1 shows the proper dimension for Bay 4 but is incorrect for Bay 3. The dimension shown for Bay 3 is a drafting error.
(2) The Field Engineer failed to write a DCN to correct drawing for Bay 3 prior to completing the installation of the support.

3. DCN #16 to Drawing E-796(Q) SH 1 was prepared and approved on November 9, 1982 to correct the drafting error. Incorporation has taken place. An NCR was written by MPQAD on March 7, 1983.

4. Team training programs, required by the Construction Completion Program will emphasize the importance of following all requirements of design documents.

5. Specific compliance will be achieved when team training is completed under the Construction Completion Program.

NOV Item B - 1.e (82-22-05A)

"The inspectors identified high strength steel plate placed in the laydown area which was not marked with the material type and grade as required by Field Instruction FIG-9.600, Revision 1."

1. The violation is admitted.
2. Most steel was properly marked and some markings were not exposed, however, some pieces of high strength steel were not properly marked through failure to follow procedures.
3. All steel was re-marked with paint as to clearly show any grades other than A-36. QC inspections have been increased from monthly to weekly. An NCR was written by MPQAD on March 8, 1983. Procurement personnel responsible for the marking of steel have been retrained to the requirements of FIG-9.600.
4. N/A
5. Complete.

NOV Item B - 1.f (82-22-05B)

"The inspectors identified various stock steel shapes in the "Q" area with yellow-colored paint on the ends (indicating the material was "non-Q") and various steel stock shapes in the "non-Q" area without painted ends (indicating "Q" material), contrary to the requirements of Field Instruction Fig-9.600, Revision 1."

1. The violation is admitted, in part.
2. All steel in "Q" area was identified in accordance with procedures but some manufacturers markings led to confusion. Some steel in "non-Q" areas was not marked in accordance with procedures.
3. All steel in "non-Q" area was painted or repainted yellow as to conform with the procedure. QC inspections have been increased from monthly to weekly. To avoid confusion, manufacturers color coding was removed from the ends of steel in question in the "Q" area. An NCR was written by MPQAD on March 8, 1983. Procurement personnel responsible for the marking of steel have been retrained to the requirements of FIG-9.600(Q).
4. Field Instruction FIG-9.600(Q) will be revised to designate the marking requirement for non-Q steel to be a Q attribute.
5. The required procedure revision will be completed by May 1, 1983.

NOV Item B - 1.g (82-22-09A)

"The slots in the muffler support plates were not machined but were determined to be irregular and flame cut, leaving rough slot edges not in conformance with design Drawing M18-425(5)-1."

1. The violation is admitted.
2. These slots were manufactured incorrectly by the vendor prior to receipt at the jobsite. The slots in Diesel Generator muffler supports are required for thermal expansion. The vendor drawing calls for these slots to be machined, but they were torch cut and exceeded required dimensions.
3. Following the NRC inspection, Bechtel NCR 4693 was written to determine if, as fabricated, the slots would perform their intended function.
4. NCR 4693 is currently being reviewed by Project Engineering and the vendor.
5. NCR 4693 expected to be dispositioned by April 1, 1983.

NOV Item B - 1.h (82-22-09B)

"Jacking plates were not installed beneath the center support plates of Bay 1 diesel generator muffler as required by Drawing M18-250-6."

1. The violation is admitted.
2. Jacking plates for Diesel Generator muffler supports were not installed in Bay 1 beneath the center support, as shown in vendor drawings, due to failure to install according to the design drawing.
3. Following the NRC inspection an NCR was written against the condition. A subsequent NCR was also written after the NRC inspection, based on inspections of other Diesel Generator mufflers which resulted in identification of similar deficiencies in Bays 3 and 4. Both NCRs were dispositioned "Use As Is", since loadings from the jacking screws on the concrete were acceptable.
4. Team training programs required by the Construction Completion Program will emphasize the importance of following all requirements of vendor drawings.
5. The implementation of the disposition of NCRs will provide full compliance for the "As Built" condition. Subsequent revision to vendor drawings required to complete NCR 4738 follow-up actions is forecast for completion by April 1, 1983. Specific compliance will be achieved when team training is completed under the Construction Completion Program.

NOV Item B - 1.1 (92-22-18A)

"Procedure FID-2.100, (Outstanding FCR/FCN Retirement), Revision 2 was inadequate in that the design drawings were not changed when an FCR/FCN had been retired and no further reference to the FCR existed on the revised drawing. As a result, the retired FCR C-2103 relating to HVAC structural steel was lost and could not be traced to the design drawing to ensure a complete quality record."

1. The violation is admitted.

2. Field Procedure FID-2.100(Q) was inadequate in that it did not contain a requirement to provide for indication on design drawings that applicable FCNs and FCRs had been retired. Retired FCR/FCNs address one time approved deviations to generic design which are not incorporated into base design drawings due to their applicability to a limited number of locations. (It is noted that this procedural deficiency is not the reason the FCR was lost. The FCR was lost due to a clerical error and a copy was obtained from the design office within twenty-four hours. It is also noted that the FCR could be traced to the design drawing through the FCR/FCN retirement computer printout.)

3. Field Procedure FID-2.100(Q) was revised to formalize the practice of requiring design drawings to be annotated with a circled letter "R" denoting a retirement. The Field Document Control Department has performed a 100% review of all drawings, with retired FCR/FCNs against them, to verify compliance to this new requirement.

4. N/A

5. Complete.

NOV Item B - 1:j (82-22-18B)

"Field Sketch CY-1035 which illustrated the bottom gusset plates for HVAC fan supports was not identified as "Q", nor was there a reference to the affected drawing on the sketch as required by Procedure FPD-5.000, (Preparation of Field Sketches.)"

1. The violation is admitted.
2. The requirement for this designation and reference is contained in Field Procedure FPD-5.000 and was not followed. Field Sketch CY-1035 for the Diesel Generator Building HVAC support steel gusset plate was not designated "Q", nor referenced to the original design drawing.
3. Field Sketch CY-1035 has been revised and designated "Q", and referenced to design drawing C-1004. NCR M01-0-2-155 was issued by MPQAD to document the identified discrepancy. Field Procedure FPD-5.000 was reviewed and determined to be adequate in regard to the stated requirement.

Training of responsible personnel in the specifics of FPD-5.000 has been conducted.
4. A review of other FSKs will be conducted by Field Engineering for compliances with FPD-5.000.
5. The review by Field Engineering will be completed by April 22, 1983.

NOV Item B - 1.1,m,n,o,p (82-22-16)

- "(l) The eight bracing top gusset plates identified on Drawing C-1004, Revision 10, as 5/16" thick were measured by the inspectors to be 1/4" thick in all four diesel generator bays. This change was neither reviewed nor properly authorized.
- (m) The as-built gusset plate connections in Bay 1 were not built as identified on Detail 3 of Drawing C-1004. The angle braces were welded together as opposed to having separate welds for each brace. This change was neither reviewed nor properly authorized.
- (n) None of the sixteen 1/4" bracing angles identified on Drawing C-1004 were constructed utilizing 1/4" material. This change was neither reviewed nor properly authorized.
- (o) Drawing C-1004, Detail 2, required the W10 beam-to-beam connection to be welded. In Bay No. 3, a bolted connection was constructed in lieu of the required welded connection, without review nor proper authorization.
- (p) The column cover plate identified on FCR C-4401 was not constructed in Bay No. 3 as required. The plate was slotted instead of solid as required. This change was neither reviewed nor properly authorized."

I. The violations are admitted.

Z. Diesel Generator Building HVAC fan support steel installation was not done in accordance with the drawings due to a lack of attention to detail during construction and inspection for Items (l), (m) and (n). For Item (o), the specific item was constructed to an earlier approved drawing and failure to identify the discrepancy occurred during the inspection process. For Item (p) the finding was due to the lack of attention to detail during construction.

- F. (l) With regard to the undersized gusset plates, a subsequent evaluation by Project Engineering indicated the smaller 1/4" size plates were acceptable. Nevertheless, the plates will be replaced with 5/16" plates by Bechtel per NCR 4690.
- (m) The gusset plate connection in Bay 1 has been removed and will be reworked per NCR 4690.
- (n) The 5/16" and 3/8" bracing angles have been removed and will be reworked per NCR 4690.
- (o) After the NRC inspection, NCR 4690 was written and dispositioned "Use As Is" for bolted connections constructed in Bay 3. It should be noted that these connections were constructed to design drawings approved at that time which allowed bolted connections.

"Procedure FPD-5.000, (Preparation of Field Sketches), Revision 1 did not require design drawings to reference appropriate field sketches to ensure a complete quality record."

1. The violation is admitted.
2. Although field procedures do not control what is placed on design drawings, no cross reference log existed to enable one to readily find what Field Sketches (FSK's) apply to each design drawing.
3. A reverse reference log was created listing applicable civil miscellaneous steel FSK's for each civil design drawing depicting miscellaneous steel.
4. Reverse reference logs listing applicable FSK's will be created for the remainder of all FSK's prepared in accordance with FPD-5.000. FPD-5.000 will be revised to address the requirements for reverse reference logs.
5. FPD-5.000 will be revised by April 15, 1983, addressing these requirements and including an effectivity date of June 15, 1983 for reverse reference logs.

NOV Item B - 1.1.m.n.o.p (82-22-16) Continued

(p) NCR 4690 dispositioned the cover plate on the steel column to be "reworked".

4. Team training programs, required by the Construction Completion Program will emphasize the importance of following all requirements of design documents. In addition, as part of the Construction Completion Program, a review of PQCI's is being done to assure that correct design requirements are specified for inspectors. The Program also calls for a QC inspector recertification program.
5. Specific compliance will be achieved when rework is completed under the Construction Completion Program.

NOV Item B - 1.g (82-22-24)

"A section (approximately 18 x 10 x 4 inches deep) of the primary containment wall in Containment Purge Room 702 was removed (by chipping) without obtaining approval as required by FIG-1.111, Revision 4, Concrete Drilling Permit."

1. The violation is admitted.

2. Field procedures (FIG-1.111, Revision 3) in effect at the time of work did not require concrete drill permits for chipping because damage to reinforcing steel and other embedded items is not as likely as with drilling.

3. (1) Field Procedure FIG-1.111, Concrete Drill Permits, has been revised and approved to include chipping.
(2) Steps have been taken to insure concrete chipping repairs are performed using approved guidelines. FCR C-5206 was prepared and has been approved by Project Engineering to establish guidelines for concrete chipping repair. This FCR has subsequently been incorporated into Specification 7220-C-231(Q). Field Procedure FPT-3.000, has been revised to specifically include inspection of repairs to chipped areas as part of area turnover. This procedure is being designated as Quality Related, and is currently under review.
(3) The above steps are summarized on NCR M01-2-154 which was issued by MPQAD to request process corrective action. The Project Engineering response to this NCR concludes there is no safety impact, or affect on quality of the structure, due to the chipping of concrete identified in the Containment Purge Room 702.

4. (1) Field Procedure FPT-3.000 requires approval.
(2) The chipped area in question requires repair.
(3) NCR M01-9-2-154 requires closing.

NOV Item B - 1.0 (82-22-24) Continued

5. (1) April 15, 1983.
- (2) Specific compliance will be achieved when the rework is completed under the Construction Completion Program.
- (3) Following rework.

NOV Item B - 2.a (82-22-08)

"Measures were not established for the selection and review for suitability of application of "Q" materials associated with the diesel generator exhaust muffler in that design drawings and specifications did not indicate the material identity of the installed muffler saddle supports and plates."

1. The violation is indeterminate at this time.
2. Material specification and identification is the responsibility of the emergency diesel generator prime vendor. No documentation was available on site to show that the material used in the fabrication of the Diesel Generator exhaust silencers met the requirements for seismic Class I installation.
3. The vendor has been requested to provide the necessary documentation for material traceability and identification of applicable QA requirements applied to the exhaust silencers.
4. A status update and identification of any corrective steps which may be required will be provided by Project Engineering by May 2, 1983.
5. To be determined by results Project Engineering report of May 2, 1983.

NOV Item B - 2.b (82-22-15B)

"Design Drawing C-147 required bolted bracing connections for the diesel generator building HVAC bracing gusset plates. Field Sketch CY-1035 was used to change the design to welded connections in lieu of the specified bolted connections. This design change was neither properly reviewed nor approved."

1. The violation is admitted.

2. Note 14 on drawing 7220-C-147 was not clear. It has always been the intent of Project Engineering to allow Field Engineering to substitute welded for bolted connections when detailing steel bracing connections, however, no specific instructions were provided.

3. FCR C-5174 was issued and approved to clarify that Note 14 on drawing 7220-C-147 is applicable to bracing connections.

4. None required.

5. Completed.

NOV Item B - 2.c (82-22-15C)

"Design Drawings C-1004 and C-147 did not specify the sizes of the diesel generator building HVAC fan gusset plates. A "combo" shop work order request was used to design the gusset plates without appropriate review and approval."

- I. The violation is admitted.

2. The Diesel Generator Building HVAC fan support gusset plate dimensions were only identified on a field fabrication shop work order. The field sketch for this work was inadequate in that it did not contain necessary details for fabrication.

3. The fan support gusset plate dimensions have been added to field sketch CY-299. FCR C-5174 was issued and approved to clarify on the design drawing the criteria to be utilized for detailing bracing connections.

4. Review all civil miscellaneous steel field sketches to assure that proper information for gusset plates is included and specified in accordance with FCR C-5174.

5. May 2, 1983.

NOV Item B - 2.d (82-22-15A)

"The licensee failed to analyze the four diesel generator building monorails as seismic Category I as described in their commitment to Regulatory Guide 1.29, in Appendix 3A of the FSAR."

1. The violation is admitted in that the Diesel Generator Monorail had not been analyzed seismically through the normal project design process, or after the initial walkdown under specification 7220-L-001(Q) had been performed to verify project compliance to Regulatory Guide 1.29 commitments. The Proximity and Seismic Category II/I Site Walkdown Program described in Specification 7220-L-001(Q) provides method for identification, evaluation and resolution of all potential situations where non seismic Category I commodities are installed above safety related systems, components or structures.
2. The Diesel Generator Building monorails were reviewed during the preliminary walkdown, but were not identified for further analysis due to the walkdown teams verbal understanding that the monorails had been seismically analyzed previously.
3. Seismic analysis was subsequently performed addressing adequacy of the Diesel Generator Building monorails. The analysis concluded that failure of the monorails under seismic loading would not occur.

The training program for all walkdown teams was revised to require that seismic analysis on non-seismic components that would potentially effect safety related structures, systems or components are documented. If documentation is not available at the time of walkdown then the potential interaction must be identified on an interaction identification sheet in accordance with applicable walkdown program requirements.

All areas walked down prior to the revised training program were rewalked to assure that any other non-seismic components that could potentially effect safety related structures, systems or components had documented seismic analysis on file.

NOV Item B - 2.d (82-22-15A) Continued

4. Engineering records will be compiled to support walkdown teams.

5. May 15, 1983

NOV Item B - 2.e (82-22-11)

"The licensee designed and constructed thirty-two diesel generator building exhaust system hangers without ensuring that the applicable requirements for "Q" components were included in the design documents."

1. The violation is admitted.

2. (a) All design documents associated with installation of the Diesel Generator exhaust (B31.1) pipe hangers were not identified as "Q" even though the P&ID identified the piping as "Seismic Category 1" and the FSAR specified the Diesel Generator exhaust system to be safety related.

(b) In accordance with project commitments any structure system or components identified "Seismic Category 1" is considered "Q" and project quality assurance program requirements should be applied. In general, only ASME III hangers are "Q", however, because of the uniqueness of "Seismic Category 1", B31.1 hangers, Project Engineering failed to translate the "Q" identification through all of the sub-tier documents.

3. The exhaust piping for the Diesel Generators is "Q" as documented in the isometric M-652, SH 1 and P&ID 7220-M-452 Sht 1A & 1B. The applicable hanger sketches have subsequently been revised to identify the supports as "Q". Bechtel Specification 7220-M-326(Q) has been revised to provide special provisions for QC inspections of the "Q" B31.1 support and lists the pipe hangers in question. A review has been performed which determined that no other situation similar to the Diesel Generator exhaust piping (B31.1-Seismic Category 1) exists in the plant. In addition project confirmed that no other unique situations in the plant exist where Seismic Category 1 structures, systems or components are identified and the quality assurance program requirements had not been applied. There were several instances of drawing inconsistencies that require correction as result of project reviews, and NCR M01-5-2-166 was written by MPQAD to document this item.

NOV Item B - 2.e (82-22-11) Continued

4. (a) Project drawing changes are required to correct inconsistencies identified during project review for B31.1 piping in other project areas that were Seismic Category 1 without being identified as "Q".
(b) QC inspection of Diesel Generator exhaust system hanger will be required in accordance with project specification 7220-M-326(Q).

5. (a) Project drawing correction will be complete by June 1, 1983.
(b) Required Diesel Generator exhaust system hanger inspections and closure of NCR MO1-5-2-166 will be completed when the Construction Completion Program is initiated.

NOV Item B - 3. (82-22-01)

"Source inspections at the panel supplier facility and receipt inspections at the Midland site failed to ensure conformance of the internal wiring within diesel generator engine control panels 1C111, 1C112, 2C111, and 2C112 to Procurement Specification 7220-G-5, Revision 1. Paragraph 6.0 of Specification 7220-G-5 states "All electrical wiring . . . within the board enclosure shall conform to the highest industrial standards of design and workmanship." An NRC inspection on October 15, 1982 identified the following examples of defective terminations of internal wiring within the subject panels.

- a. The output lead on the Relay Tach device had numerous broken strands at the termination lug.
- b. The K1 lead on the Relay Tach device had two broken strands resulting in a potential short circuit between the K1 lead and an adjacent conductor.
- c. The 1- lead on the -CB-1 device did not have all strands inserted into the compression lug."

I. The violation is admitted.

2. The violation occurred due to poor electrical workmanship at the vendors facility, inadequate vendor QC inspection plus inadequate source inspection. Although MPQAD performed an overinspection on the four panels in question, the discrepant conditions had been missed.

3. (1) MPQAD initiated a 100% overinspection program (01E-7B) in July, 1980 to verify workmanship according to vendor workmanship standards and the technical specification. During the overinspection 27 NCR's were written, and 14 have been closed. Seven QAR's were written, and 5 closed. The lack of identification of conditions in this violation by the overinspection program has been investigated and is felt to be an isolated case.

NOV Item B - 2.f (82-22-26)

"The licensee purchased Armor Stone for a "Q" portion of the perimeter dike without translating the applicable regulatory requirements into appropriate specifications and design documents."

1. The violation is admitted.
2. Part 2 of enclosure 7 of the NRC letter on Completion of Soils Remedial Activities Review dated May 25, 1982 required that the activities of the Armorstone placement program be "Q" controlled. The Project failed to translate this requirement into the design and procurement documents for this material due to a misunderstanding of NRC requirements.
3. Bechtel drawings C-45, C-109, C-111 and C-112 have been revised to designate the total area of the dike adjacent to the ultimate heat sink as "Q" as opposed to that which was designated "Q" in the initial implementation of the NRC requirements.
4. Technical specification C-209 will be revised as "Q" and will identify the portion of installation work to be done as "Q". In addition, Bechtel drawing C-1096 will be revised to specify the installation of Armorstone to be "Q" in the "Q" designated areas of the dike. No Armorstone has yet been placed in these areas.
5. Full compliance will be achieved when applicable specifications and drawings referred to above are revised as "Q". This will be done by June 1, 1983.

NOV Item B - 3. (82-22-01) Continued

- (2) NCR MO1-9-2-139, dated October 22, 1982, was issued to track these four panels. MCAR 66 was prepared on December 30, 1982 with Interim Reports No 1 & 2 submitted to NRC Region III on December 30, 1982 and February 25, 1983, respectively. The scope of the MCAR 66 Task Force is to review the NCR's and QAR's written, verify that Project Engineering disposition is consistent between vendors and formulate an action plan that will preclude any further recurrence.
4. Implementation at the vendors facilities of E-24 Revision 0 "Overinspection of Vendor Supplied Printed Circuit Board Assemblies" and E-25 Revision 0, "Overinspection of Vendor Supplied Electrical Equipment/Components" will be carried out by MPQAD and Project Supplier Quality for the few future procurements shipped to the jobsite. Project representatives will witness in-process fabrication, functional testing and final inspection prior to release for shipment depending on the nature of the commodity. E-24 and E-25 were approved February 21, 1983 and February 18, 1983 respectively and have been issued for use.
5. (1) For equipment on site, MPQAD has inspected nearly 100% of all "Q" electrical panels and cabinets. MPQAD overinspection will continue until the source inspection program is fully implemented - forecast completion of overinspection is July 1, 1983.
- (2) Programs are now in place to prevent recurrence of poor vendor workmanship for remaining panels and cabinets that are yet to be shipped.
- (3) Full compliance will be achieved upon the closure of MCAR 66.

NOV Item B - 4.a (82-22-25)

"An inspection program was not established to ensure segregation of cables installed in horizontal trays which used metal dividers to segregate control and instrumentation cables in accordance with design requirements."

1. The violation is admitted. The violation involved three cables that had been inadvertently looped in and out of the incorrect side of a divided tray section.
2. The cables in question could have been improperly segregated in the raceway for a variety of reasons: temporary rework situation, installation techniques, etc.

Although there was no formal program to "train" or tie down cables in horizontal tray sections the current cable reinspection program should have found the discrepant condition. The reinspection program had not yet been implemented in this specific area.

3. (1) NCP MO1-9-2-151 was issued November 1, 1982. Supervision was verbally informed and the non-conformance was immediately corrected.
- (2) Generic resolution involves revision of Field Procedure FPE-4.000 (pending approval) which will require an even distribution of cables across the tray, tying cables to rungs within two rungs of a change in direction and Project Engineering disposition of cables that exceed the height of the barrier on a case by case basis.
4. (1) Cable reinspection that is now ongoing is verifying the routing as an inspection attribute. Information developed from the cable reinspection program will be used to verify voltage segregation.

NOV Item B - 4.a (82-22-25) Continued

- (2) Final training and tie down of cables will be accomplished (per FPE-4.000) when "Q" cable pulling resumes, at the time the last "Q" cable is pulled through a tray section.
5. (1) MPQAD reinspection is estimated to be complete by June 14, 1983.
Review results of reinspection by July 1, 1983.
- (2) Approval of Field Procedure FPE-4.000 scheduled for March 18, 1983.

NOV Item B - 4.b (82-22-17)

"Quality Control (QC) inspections failed to ensure that activities affecting quality conformed to design documents in that QC inspections performed on July 1, 1981 and documented on QCIR C210-172 failed to detect and identify nonconformances B.1.(1) through (o) of this Notice of Violation. These nonconformances were associated with installation of the diesel generator building HVAC fan support steel."

1. The violation is admitted.
2. In general, the violation occurred because of a lack of attention to detail during QC inspections and a lack of specificity in the PQCI's. In one case (item o) an incorrect design drawing was used by the QC inspector to perform his inspection.
3. The Construction Completion Program has been instituted.
4. As part of the Construction Completion Program, a review of PQCI's is being done to assure that essential design requirements are specified for inspectors. In addition, the Program calls for a QC inspector recertification program. The verification portion of the Program will verify quality of completed work.
5. Full compliance will be achieved when PQCI reviews and QC inspector recertifications and the verification program are complete.

NOV Item B - 5. (82-22-10)

"The licensee did not implement a maintenance program to prevent five of sixteen installed diesel generator slide bearing muffler plates from accumulating dirt and dust as required by the vendor's manual."

1. The violation is admitted.

2. The requirements to specify cleanliness of these bearing plate surfaces was not established upon receipt of this material. The vendor documents supplied to Project Engineering did not contain a requirement for bearing plate maintenance.

3. Bechtel has initiated a storage maintenance program for the exhaust silencer bearing plates. An NCR was written on March 9, 1983 by MPQAD to track this item.

4. Direction has been given to develop an installation and maintenance program for all flourocarbon bearing plates on site.

5. The maintenance program for the bearing plates will be fully implemented under the Construction Completion Program in conjunction with the closure of NCR 4693 which allows access to the bearings plates.

NOV Item B - 6. (82-22-13)

"During welding of the diesel generator building exhaust piping hanger support steel, the licensee did not verify preheat of existing safety-related structural steel at a temperature of 70°F as required by site specifications and the AWS 1974 Code."

1. The violation is admitted.
2. The ambient temperature was not verified for the welding operation observed by the NRC inspector. Documentation for preheats of all welds made between 32° and 70° were covered by the random preheat verification program contained in PQCI W-1.60. The program in place requires 100% verification for preheat temperature over 70°.
3. Bechtel's "Instructions to Welders" have been revised to provide preheating instructions, and each welder signs for receipt of these instructions. The welder's rod withdrawal requisitions are also stamped in red with preheat instructions. The in-place verification program will be continued.
4. All Bechtel site welders will be retrained in the site preheat requirements, and all new welders will have this preheat training emphasized as part of their indoctrination.
5. All Bechtel site welders will be re-trained by May 1, 1983.

NOV Item B - 7. (82-22-21)

"Measures were not established to control the distribution of changes (red lines) to hanger isometric drawings in that changes to Drawing 1-652-2-25(Q) were not controlled utilizing the Site Document Control Center."

1. The violation is admitted.

2. The control of Redline changes to work prints was not performed through the Construction Document Control Department, however, it was being done in accordance with established field procedures.

3. Revisions to Bechtel Field Procedures now require all changes (redlines) to piping isometrics and hanger drawings to be controlled utilizing the site Document Control Center.

4. N/A

5. Complete.

NOV Item B - 8.a (82-22-23)

"Measures were not established or implemented to determine if materials ultimately restricted (per Nonconformance Report No 3266) from installation or use in ASME Class I systems were actually installed or used in Class I systems."

1. The violation is admitted.
2. Failure to initially apply QC hold tags on suspect material, and failure to implement disposition of the NCR in a timely manner.
3. A letter was provided to B&W Construction Company, a subcontractor at the Midland jobsite responsible for the majority of Class I piping and hanger installation, on December 11, 1981, identifying restriction on usage of subject material from heats identified on NCR 3266 for Class I use.

100% of all completed Class I P-2.20 PQCIR documentation packages stored in the vault were reviewed for identification of the nonconforming material identified in NCR 3266. B&W has subsequently re-reviewed their documentation records to ascertain if any of the discrepant material identified through the PQCIR review was installed in the field. Any of the discrepant material is to be removed and replaced with acceptable material.

4. A specific review by a level II QCE of all future Class I P2.20 PQCIRs for discrepant material identified on NCR 3266 is being performed before final acceptance and their subsequent storage in the QC vault.

A QA survey of all applicable NCRs will be performed in accordance with QA Checklist S-23 to assure that material control procedures have been adequately implemented and subsequent actions associated with applicable NCR dispositions have been implemented.

NOV Item B - 8.a (82-22-23) Continued

Although not related directly with the above effort or this identified discrepancy, a complete material verification documentation review with special emphasis for ASME NCA 3700/3800 compliance for pipe support material is in process on the project by Bechtel procurement supplier quality group to assure acceptable material documentation for the Midland Project. Miscellaneous material such as rebars, paint, etc, are excluded from this review.

5. Full compliance with be obtained as follows:

Specific Actions - 1) Rework required on Class I supports in field to be complete by March 15, 1983.

2) Review of all new P-2.20 PQCIRs is ongoing.

Generic Actions - 1) Review of all applicable project NCRs by QA to be complete by June 24, 1983.

2) Follow-up actions as result QA survey to be determined later.

General - 1) The review of all material documentation packages for proper verification documentation is an ongoing effort. As stated previously, this is considered additional effort not directly related to resolution of the identified discrepancy.

NOV Item B - 8.b(1) (82-22-12A)

"As of November 10, 1982, two nonconforming conditions identified by the NRC on October 12, 1982, and confirmed by the licensee on October 19 and 25, respectively, had not been documented on a nonconformance report, a quality assurance report or other appropriate report. The two nonconforming conditions were:

(1) The diesel generator exhaust hangers were not classified, designed, or built as "Q" as committed to in the FSAR. (See item 2.e) ..."

1. The violation is admitted.

2. An NCR was not issued because MPQAD failed to act in a timely manner.

3. NCR M01-5-2-166 was written by MPQAD on November 16, 1982 to document the hangers listed on SCN #36 to Specification M-326 as being nonconforming as a result of their original "non-Q" designation.

4. Complete.

5. Complete.

NOV Item B-8.b(2) (82-22-12B)

"As of November 10, 1982, two nonconforming conditions identified by the NRC on October 12, 1982, and confirmed by the licensee on October 19 and 25, respectively, had not been documented on a nonconformance report, a quality assurance report or other appropriate report. The two nonconforming conditions were:

... (1) The design of the diesel generator monorail was not analyzed to seismic Category I design requirements as committed to in the FSAR. (See item 2.d.)"

1. The violation is admitted.
2. There was a misunderstanding over whether a nonconforming condition actually existed.
3. On November 16, 1982, a Quality Action Request (QAR) was written to document the condition. A subsequent seismic analysis has been done (Calc #G-44(Q) Revision 1) which documents the acceptability of current design of the subject monorail.
4. Complete.
5. Complete.

ATTACHMENT 3REQUEST FOR REDUCTION OF CIVIL PENALTY

Pursuant to 10 CFR 2.205, Consumers Power Company respectfully requests that the NRC reconsider the amount of civil penalty proposed to CPCo for the violations cited in the NRC's letter, dated February 8, 1983, J G Keppler to J D Selby. The Company does not contest the validity of the violations and agrees that a civil penalty is warranted, but believes that certain mitigating factors should be considered.

The NRC's criteria for enforcement actions (at 47 Federal Register page 9991, March 9, 1982) sets forth specific criteria for increasing or reducing base civil penalties, and provides in part as follows:

"2. Corrective Action to Prevent Recurrence. Recognizing that corrective action is always required to meet regulatory requirements, the promptness and extent to which the licensee takes corrective action, including actions to prevent recurrence, may be considered in modifying the civil penalty to be assessed. Unusually prompt and extensive corrective action may result in reducing the proposed civil penalty as much as 50% of the base value shown in Table 1. On the other hand, the civil penalty may be increased as much as 25% of the base value if initiation of corrective action is not prompt or if the corrective action is only minimally acceptable. In weighing this factor consideration will be given to , among other things, the timeliness of the corrective action, degree of licensee initiative, and comprehensiveness of the corrective action - such as whether the action is focused narrowly to the specific violation or broadly to the general area of concern."

We believe that our actions to correct the situation at issue have been timely and have been conceived and organized mainly through our own initiative. Most important, however, is that our program to correct these deficiencies is comprehensive and far reaching.

Shortly after receiving feedback on the NRC's inspection findings, the Company launched major, extensive corrective action. The Company halted the majority of the Category I work of its prime contractor, and laid the groundwork for a verification of past inspections and statusing of incomplete work. The work stoppage resulted in the layoff of more than 1,000 workers. The Company also initiated major, generic corrective action addressing the specific areas of NRC inspection findings. The Company's entire plan is entitled the Construction Completion Program, and included steps responding broadly to the NRC's and Company's areas of concern. This was addressed at length in the Company's letter of January 10, 1983, J W Cook to J G Keppler and further discussed at a Public Meeting with the NRC at Midland on February 8, 1983.

The corrective action undertaken by the Company was not narrowly focused on the specific violations identified by the NRC. The work reduction extended to all major safety related structures on-site, not merely the diesel generator building which was the focus of NRC's inspection. The verification program begins in the auxiliary building, includes the reactor buildings and diesel generator building as well as the service water pump structure.

The Construction Completion Program, which is the organizational basis for the generic corrective action, will encompass and structure the remaining pre-turnover systems and area work to be done at the Midland site, (excepting soils, HVAC and NSSS work). The Company's willingness to accept the NRC's suggestion that we take direct control of the project QC staff formerly under Bechtel supervision extends broadly to the entire job, and involves a major commitment of additional manpower and resources in recertification, training, and inspection activities.

The Company does not contest the NRC's decision to increase the civil penalty on the basis of certain other factors specified in the enforcement guidelines. We request, however, that consideration be given in determining the amount of the penalty to the corrective action taken and planned by the Company.

Warwick (1st)
Harrison
Baran
Landsman

3/25 /83

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

Docket Nos. 50-329 OM & OL
50-330 OM & OL

PRINCIPAL STAFF	
RA	EMF
D/RA	SCS
A/PA	PAO
DPRP	SLO
DRMA	PC
DRMSP	
DE	
ML	
OL	FILE 134

SUPPLEMENTAL TESTIMONY OF JOHN W. GILRAY, ROSS LANDSMAN
AND WAYNE SHAFER WITH RESPECT TO THE QUALITY ASSURANCE
PROGRAM FOR THE UNDERPINNING ACTIVITIES OF THE
SERVICE WATER PUMP STRUCTURE AND AUXILIARY BUILDING

- Q1. Please state your names and positions with the NRC.
- A1. My name is John W. Gilray. I am a Senior Quality Assurance Engineer, Quality Assurance Branch, Division of Quality Assurance, Safeguards and Inspection Programs, Office of Inspection and Enforcement, NRC.

My name is Ross B. Landsman. I am an inspector for the NRC (Region III).

My name is Wayne D. Shafer. I am the Chief of the Midland Section, Office of Special Cases for the NRC (Region III).

- Q2. Have you previously submitted professional qualifications in this proceeding?
- A2. Yes.

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- Q3. What is the purpose of this testimony?
- A3. Since the October 29, 1982 filings of the "NRC Staff Testimony of John W. Gilray Relative to the Quality Assurance Program For the Midland Project Underpinning Activities of the Service Water Pump Structure and Auxiliary Building" and the "NRC Staff Testimony of R. J. Cook, R. B. Landsman, R. N. Gardner and W. D. Shafer With Respect to Quality Assurance", there have been revisions to the Midland Project Quality plans for underpinning activities (MPQP-1) and for Remedial Soils Activities and Soils Related Work in Q Areas (MPQP-2). The purpose of this testimony is to discuss the review of those revisions.
- Q4. What are the most recent revisions to the MPQP-1 and MPQP-2?
- A4. The most recent revisions are MPQP-1, Rev. 5 and MPQP-2, Rev. 1. (Attachment 1).
- Q5. Mr. Gilray, in your October 1982 testimony, you state that along with Dr. Landsman, you reviewed and found acceptable, MPQP-1 Rev. 3 and MPQP-2, Rev. 0. Have you reviewed any subsequent revisions to those plans?
- A5. No. The responsibility for reviewing revisions subsequent to MPQP-1, Rev. 3 and MPQP-2, Rev. 0 has rested with Region III. I am, however, familiar with MPQP-1, Rev. 5 and MPQP-2, Rev. 1.
- Q6. Dr Landsman and Mr. Shafer, have you reviewed revisions subsequent to MPQP-1, Rev. 3 and MPQP-2 Rev. 0?

A6. Yes. We have reviewed all subsequent revisions, including the most recent revisions, MPQP-1, Rev. 5 and MPQP-2, Rev. 1.

Q7. Dr. Landsman and Mr. Shafer, do you find MPQP-1, Rev. 5 and MPQP-2, Rev. 1 to be acceptable?

A7. Yes.

Q8. Dr. Landsman and Mr. Shafer, please describe any significant changes to MPQP-1 and MPQP-2 since MPQP-1, Rev. 3 and MPQP-2, Rev. 0.

A8. One change has been significant. All QC responsibility has been removed from Bechtel and now rests with MPQAD. While QC inspectors are still employed by Bechtel, it is our understanding that MPQAD will be responsible for the QC function. In particular, MPQAD will be responsible for hiring, discharging, training, and certifying QC inspectors.

We find this change to MPQP-1 and MPQP-2 to be an improvement to the plans.

Q9. Mr. Gilray, has CPC revised its QA Program, Topical CPC-1-A to reflect CPC's assuming responsibility for the quality control function?

A9. Yes. That change was made in Revision 13 to the topical.

Q10. Mr. Gilray, do you find that change acceptable?

A10. Yes.

- Q11. Mr. Shafer, on November 9, 1982, the Board requested clarification of a letter, dated October 22, 1982, from you to D.B. Miller of Consumers Power Company. Please discuss this matter.
- A11. On October 22, 1982, I sent a letter to D. B. Miller of Consumers Power Company, approving MPQP-1, Rev. 4 and MPQP-2, Rev. 1, (Attachment 2). In that letter, I informed Mr. Miller that "organizational and typographical changes" to the MPQP's need not receive prior Region III approval. However, changes in the "intent" of the plans would continue to require prior Staff approval. On November 9, 1982, the Board sent a letter to Staff counsel asking for clarification of my October 22, 1982 letter. (Attachment 3). In particular, the Board was concerned that by saying that "organizational changes" need not have prior Staff approval, we might have been referring to structural changes to the quality assurance organization.

On November 23, 1982, I sent to D. B. Miller a letter explaining what I meant by my statement that organizational changes to MPQP-1 and MPQP-2 do not need prior Region III approval (Attachment 4). In my November 23, 1982 letter, I explained that the type of organizational changes that did not require prior approval were "typographical corrections or title changes that do not include a reassignment of responsibility." However, changes to the "organizational structure, reassignment of responsibility and changes to the intent of the plan" would continue to require prior Region III approval.